



**the university of akron 1974-75 general bulletin**

*A descriptive  
bulletin with  
explanations of  
courses and  
colleges at  
The University of  
Akron*

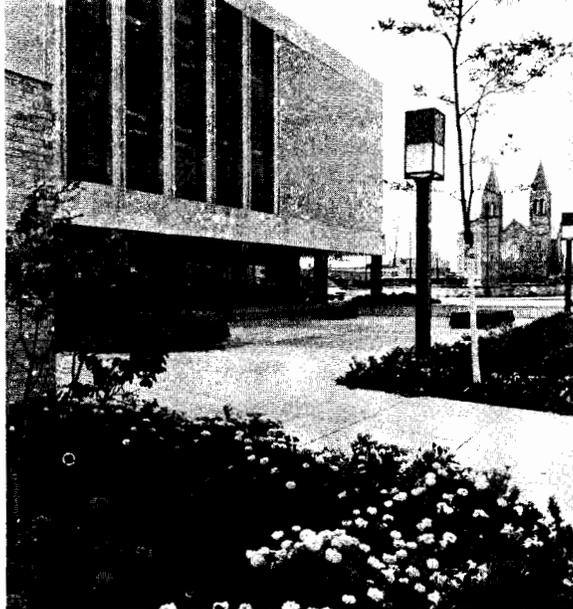
**THE UNIVERSITY OF AKRON BULLETIN**

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**Number 6**

**June, 1974**

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# *I. The University of Akron*

## ***A Story of Growth***

Buchtel College was established by the Ohio Universalist Convention on May 31, 1870, on a hill overlooking Akron, a thriving industrial city of 10,000 situated at the summit of the Ohio Canal. The College was named in honor of John R. Buchtel, a farm machinery manufacturer, whose money (half a million dollars) and spirit sustained the enterprise. Support also came from local men who pioneered important industries — cereals, clay products, matches, farm machinery, and rubber.

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

From 1910 to 1920, Akron was America's fastest growing city, blossoming from 70,000 to 208,000 persons in that decade, and the University grew apace. In 1914 a College of Engineering was established. Other

professional colleges followed: Education (1921), Business Administration (1953), Law (1959), Community and Technical (1964), Fine and Applied Arts (1967), and Nursing (1967). To make courses available to a broad cross-section of citizens, a comprehensive Evening Session was established in 1915. Today almost 6,000 Evening College students pursue undergraduate and graduate education in nearly every degree program offered by the University.

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

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

Akron scientists participated in the critical development of synthetic rubber during World War II, and the University's Institute of Polymer Science is now a world leader in polymer research and education. Currently Akron's research efforts, totalling approximately \$1,100,000, reach into many fields, from barnacles to inner-city problems.

The 108-acre campus with 51 modern buildings is located at the hub of an industrial urban area of 762,000 persons. The University of Akron now enrolls more than 20,200 day and evening students in credit courses and an additional 3,500 in "informal" adult education. Its students come from 28 states and 65 foreign countries. The 32,000 alumni are situated around the globe in positions of responsibility. Akron's long-time leadership in continuing adult education through its Institute for Civic Education, Center for Urban Studies and its Department of Special Programs has been supplemented by the cultural leadership it has provided in the renaissance of artistic endeavor in Akron.

On July 1, 1967, The University of Akron became a state university, thus securing a base that enables it to extend its influence far beyond local boundaries. Its first century of service has prepared it for a widening role in years to come.

## **Objectives**

The University of Akron, in fulfilling its role as an institution of higher education, expects students who qualify for admission to achieve the following objectives:

To acquire knowledge of man's social being and history, of his physical and biological nature and environment, of his cultural situation, and of the processes that make for personal and group fulfillment through the development of his personality and character.

To develop and strengthen the ability to use the English language in qualitative and quantitative ways.

To be intellectually curious and eager for scholarly growth.

To think logically and critically and make sound judgments.

To appreciate beauty in all its forms.

To understand people and their differences.

To develop an independent spirit and a personal sense of values with the proper regard for the rights of others and to assume a commitment to a free society and the social and civic responsibility as a participant in the world community.

To maintain physical health and vigor and comprehend the importance of appropriate leisure time activities.

To determine their future occupations and interests.

To prepare for greater social and individual effectiveness in public service, the professions, business and industry, labor, and the fine arts as set forth in the objectives of the various colleges, divisions, and departments of the University.

The University of Akron, in order to provide students the opportunity to achieve these objectives:

Strives to create an appropriate and adequate educational climate by offering courses and curricula in various fields of knowledge.

Utilizes faculty and facilities effectively in instruction.

Conducts research activities directed to the advancement of knowledge.

Provides expert advice and assistance to industrial, civic, and educational agencies.

Offers programs for continuing education and dissemination of knowledge and

culture through various media to the community beyond the University.

The degree programs are established in various fields in the colleges as determined by the adequacy of their resources and facilities to meet the foregoing objectives.

The University recognizes a student's level of accomplishment in these programs by awarding associate, baccalaureate, master's or doctor's degrees.

## **Accreditation . . .**

### ***The University's Standing***

Any educational institution is as strong as the level of excellence which it demands of itself, as well as of its faculty and students.

The University of Akron has set high standards for itself which result in its being accredited and approved by the following organizations and associations:

The North Central Association of Colleges and Secondary Schools, Ohio College Association, American Medical Association, American Chemical Society, the Engineers' Council for Professional Development, National Council for Accreditation of Teacher Education, State Board of Nursing Education and Nurse Registration and the National League for Nursing. The College of Business Administration is accredited by the American Association of Collegiate Schools of Business and the Electronic Technology and Mechanical Technology Associate degree programs are both Engineering Technology curricula accredited by the Engineers' Council for Professional Development.

The University of Akron is a member of the following organizations:

American Council on Education, Association of American Colleges, Association of Urban Universities, American Society for Engineering Education, Ohio College Association, the American Association of Colleges for Teacher Education, holds associate membership in the International Council on Education for Teaching and membership in the National League for Nursing, Department of Baccalaureate and Higher Degree Programs.

The School of Law has membership in the League of Ohio Law Schools and is fully approved by the American Bar Association, and is registered with the State Education Department, The University of the State of New York.

The undergraduate Social Work emphasis program of the Department of Sociology is a fully qualified Constituent Member of the Council on Social Work Education.

The University is also a member of the Association of University Evening Colleges and the Ohio Council on Higher Continuing Education. In addition to this, it is an accredited member of the North Central Conference on Summer Schools.

Women graduates of the University with approved baccalaureate degrees (requiring at least two years or a minimum of 60 credits of non-professional, non-technical work credited toward a B.A. degree) are eligible to membership in the American Association of University Women.

Accreditation assures a student that his degree is recognized and approved by select regional and national educational associations, societies and councils.

A student has the security of knowing that credits earned at his university have transfer value to comparable institutions of learning just as incoming transfer students learn by checking this list that The University of Akron can be expected to honor most of their credits earned at a similarly accredited college or university.

For the student taking pre-professional courses in order to enroll eventually for subsequent study in advanced fields such as medicine, dentistry, law or theology, there is the assurance that courses taken at The University of Akron will prepare him to be accepted by a graduate or professional school where he can specialize further.

For the student who intends to meet the University requirements for a bachelor's degree or associate degree and then enter his chosen profession or vocation, there is the satisfaction of knowing that this degree will be respected whenever he presents his credentials to a prospective employer.

### ***Academic Offerings***

The University of Akron's academic offerings cover the complete educational spectrum from two-year associate degree programs, through four-year baccalaureate programs, to master's degree programs as well as programs of study leading to the doctorate.

The first year student may be enrolled in either the General College, obtaining the background in General Studies required for

transferring to one of the University's Upper Colleges, or he may be enrolled in the Community and Technical College, taking courses that will earn him an associate degree at the end of two years.

By the time a student who is aiming toward a baccalaureate degree reaches his second year, he has completed many of the General Studies courses and is ready to enter an Upper College. It is in the Upper College of his choice that he begins devoting more and more of his time and attention to a specific area of study.

The student may also be one of the hundreds of graduate students working toward a master's degree. Or, he may have completed the earlier programs and be engaged in the scholarly study and research essential to preparation for a doctoral degree in chemistry, history, polymer science, psychology, (experimental or industrial) education, (elementary, secondary and guidance and counseling), engineering, or sociology.

### ASSOCIATE PROGRAMS

In this fast-paced age of technological development, a need has grown for persons trained specifically for work in the semiprofessional, technical and highly skilled classifications. Most critically needed are lab technicians, engineering assistants, industrial sales people, supervisors, secretaries and management assistants.

### COMMUNITY AND TECHNICAL COLLEGE —

The University of Akron began offering programs aimed toward helping society meet such needs in 1937 when it introduced its Community College program. Initially offering only non-credit studies, the Community College expanded rapidly and in 1959 the University began offering associate degree programs in a variety of fields through its General College.

The demand for such training has continued to grow. As a result in 1964, the associate degree program was separated from the General College and the Community and Technical College was established.

The Community and Technical College offers credit courses leading to an associate degree at the end of a two-year program of study in the areas of industrial technology, electronic technology, mechanical technology, cytotechnology, transportation, chemical technology, sales and merchandising, commerce, food service management, community services tech-



nology, arts, commercial art, surveying and construction technology, instrumentation technology, data processing, criminal justice technology, educational technology, and secretarial science. Included in the latter are courses aimed specifically toward preparing graduates to qualify as executive, international, legal and technical secretaries, as medical assistants, and in office services.

### BACCALAUREATE PROGRAMS

In 1935 The University of Akron pioneered a concept in general education in the belief that all college students should have mastered basic courses in the humanities and the social and physical sciences. Students, even those aiming toward careers in such vocationally-directed fields as engineering, chemistry or business administration, benefit from these "know-why" courses.

### GENERAL COLLEGE —

As a result, students seeking a baccalaureate degree who are enrolling in the University with less than 45 credits, study in the General College before transferring to an Upper College. Here they develop the ability to understand and express ideas effectively and to comprehend the processes involved in accurate thinking. They learn the responsibilities of an educated member of society, as well as learning to understand themselves and their individual abilities.

After completing their courses of study in the General College, students seeking a baccalaureate degree enter one of the following upper colleges:

### BUCHTEL COLLEGE OF ARTS AND SCIENCES —

is organized in divisions of the humanities, natural sciences and social sciences, and furnishes a broad, thorough liberal education

as well as preparation necessary for the medical, dental and legal professions. Baccalaureate degrees conferred in the liberal arts area are the Bachelor of Arts, Bachelor of Science, Bachelor of Science in Labor Economics, and Bachelor of Science in Medical Technology.

#### COLLEGE OF ENGINEERING —

offers a four-year and a five-year co-op program of courses leading to a Bachelor of Science degree in chemical, civil, electrical and mechanical engineering. The five-year program is arranged on the highly successful cooperative work-study plan that bridges the gap between academic college training and practical industrial experience.

#### COLLEGE OF EDUCATION —

furnishes the necessary preparation for prospective teachers, counselors and administrators for primary, elementary and secondary schools, in health and physical education and special education. All courses comply with State certification requirements and degrees of Bachelor of Science in Education or Bachelor of Arts in Education are offered. In addition, programs leading to the Bachelor of Science in Technical Education are offered.

#### COLLEGE OF BUSINESS ADMINISTRATION —

offers professional programs in business to prepare students for careers in commerce, industry and government. Undergraduate degrees conferred are the Bachelor of Science in Accounting, Bachelor of Science in Business Administration and the Bachelor of Science in Industrial Management.

#### COLLEGE OF FINE AND APPLIED ARTS —

offers programs leading to the Bachelor of Arts degree with majors in art, home economics, speech and theatre arts, speech pathology and audiology and music, to the Bachelor of Music degree and to the Bachelor of Fine Arts degree in art.

#### COLLEGE OF NURSING —

offers a basic collegiate program in nursing which leads to the degree of Bachelor of Science in Nursing with a major in nursing. The

program prepares nurses for all beginning positions in professional nursing.

#### COMMUNITY AND TECHNICAL COLLEGE —

offers a program leading to a Bachelor of Technology degree. This program is designed as a transfer program to permit qualified engineering technology students to continue their education to the baccalaureate level. During his first and second years, the student follows an associate degree program in the corresponding engineering technology. The third and fourth years provide the additional study required for the baccalaureate degree. The program is available with options in electronic technology and mechanical technology.

#### ADVANCED STUDY

After earning a baccalaureate degree, students desiring still further education may embark on programs in either of the following:

#### SCHOOL OF LAW —

provides legal education leading to the Juris Doctor degree in either day or evening classes. For admission an applicant must have an undergraduate degree from an accredited college or university in an appropriate field of study.

#### GRADUATE SCHOOL —

offers advanced courses leading to the Doctor of Philosophy degree in chemistry, history, polymer science, psychology (experimental or industrial), education (elementary, secondary, or guidance and counseling), engineering and sociology; to the Doctor of Education degree in school administration; and to the master's degree in accounting, biology, finance, international business, management and marketing, chemical engineering, chemistry, civil engineering, earth science, economics, education (elementary, secondary, elementary or secondary school principal, school supervisor, local superintendent, guidance counseling, special education, visiting teacher, reading specialist, teaching the culturally disadvantaged, and employment counseling), electrical engineering, engineering, English, French, geography, history, management, mathematics, mechanical engineering, music, philosophy, physics, political science, polymer science, psychology, sociology, Spanish, speech and theatre arts, speech pathology and audiology, statistics, technical education, and urban studies.

**EVENING COLLEGE —**

education is a year-long, round-the-clock endeavor at The University of Akron. To provide educational opportunities for those who must earn their livelihood at daytime jobs, the University operates an Evening College. The courses offered in the Evening College are fully accredited, and many of the faculty members teach both day and evening courses. As a result, more than 6,000 of the University's student enrollment attended evening courses in their quest for associate, baccalaureate and advanced degrees or for added education in their chosen professions.

**SUMMER SESSIONS —**

for more than 40 years, the University has also offered both daytime and evening classes during summer months. Specific goals of the Summer Sessions are to permit University students to accelerate their academic progress; to help teachers work toward additional or advanced degrees or toward certification during summer vacations; to permit regular engineering students to continue their studies on schedule while working in the cooperative program; for transient students from other universities who wish to work toward their degrees during the vacation; and for high school graduates who may wish to enter the University immediately after their graduation in June.

**OFF-CAMPUS ACADEMIC PROGRAMS**

Since 1968, The University of Akron has offered special institutes, workshops, and courses to professional groups. The University, through its academic departments, Institute for Civic Education, Department of Special Programs, Developmental Programs and its Institutes and Centers will continue to provide "outreach" programs, whenever practical.

As an urban institution of higher learning, the University clearly identifies and supports its Public Service role. Off-Campus programs have been developed throughout the calendar year.

For further information, please call the office of the Executive Dean for Continuing Education and Public Services, 375-7028.

Opening its doors in fall, 1972, Wayne General and Technical College, in Orrville, accepted nearly 500 day and evening students working towards associate degrees and the first year of baccalaureate instruction.

***Location***

Strategically located in the industrial heartland of America, and situated in the central part of a major metropolitan area, the University is uniquely qualified to help men and women seek the enlightening adventure of college education. Its location provides an easily accessible center of learning while permitting the student to examine the many vocational opportunities of a wide variety of business and industrial institutions. And, by offering fully-accredited courses throughout the year, both during daytime hours and at night, it also permits the student to work in one of the area's many industries, thus combining a collegiate education with experience.

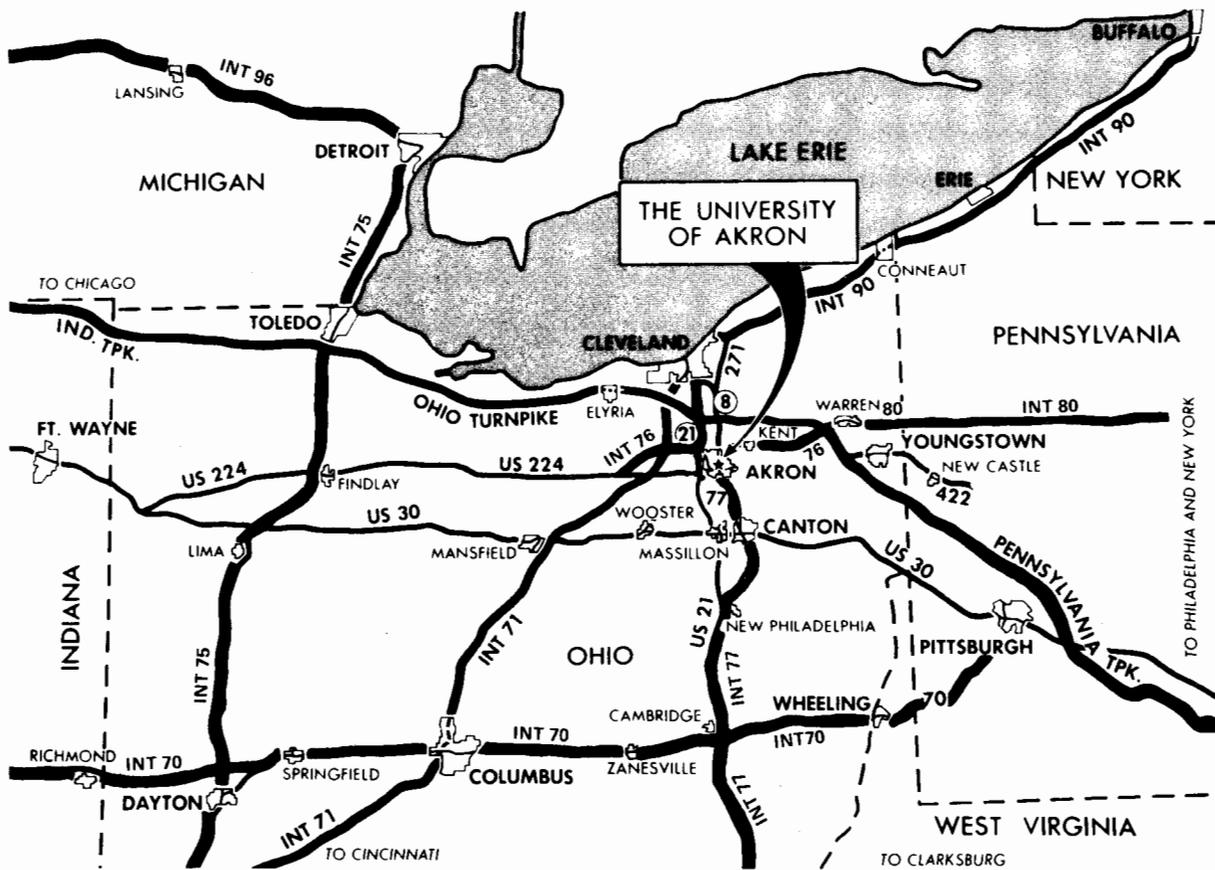
The area surrounding The University of Akron also offers unusual cultural opportunities. Living in an area of the United States called the "culture trail", students have frequent access to plays, lectures and professional performances, either within Akron or in the surrounding area, which includes Warren and Canal Fulton with their famous summer stock theaters and the Cleveland Orchestra's summer home at Blossom Center.

***How to get there***

The location of The University of Akron is ideal from a traveling standpoint. Automobile travelers find Akron but a short drive south of the Ohio Turnpike that ties together the whole eastern half of the nation. The city's suburbs touch on Interstate 71 that stretches from Lake Erie to the Gulf Coast, Interstate 80 that links the nation coast-to-coast, Interstate 77 that links the area with the southeastern coast, and Interstate 90 that ties in with the New York Thruway. Bus travelers will find the Greyhound station but a short walk from the campus. And airline passengers will find Akron the terminal of limousine service from both the Cleveland-Hopkins and the Akron-Canton airports.

***Buildings***

AUBURN SCIENCE AND ENGINEERING CENTER, the home of the four departments of the College of Engineering and the departments of mathematics and biology, the Institute of Polymer Science, also houses the



scientific and engineering holdings of the University's library. The ground floors of the new structure are devoted to vehicular parking for faculty and students.

**AYER HALL**, on the northwest side of the campus, provides classrooms and office space for the history, physics, political science and sociology departments. It is named for the first Dean of the College of Engineering, Frederick E. Ayer, the developer of The University of Akron cooperative work study plan.

**BUCHTEL HALL**, in the center of the main campus, is the administration center of the University. Destroyed by fire in 1971 and restored and reopened in 1973, this building provides office spaces for the offices of the President; Vice Presidents for Planning, Business and Finance, Student Services and Academic Affairs; Executive Director of University Relations and Development; Dean of Graduate Studies and Research; Executive dean of Continuing Education and Public Services; Director of Institutional Research and Systems Development; the Educational Research and Development Center; Assis-

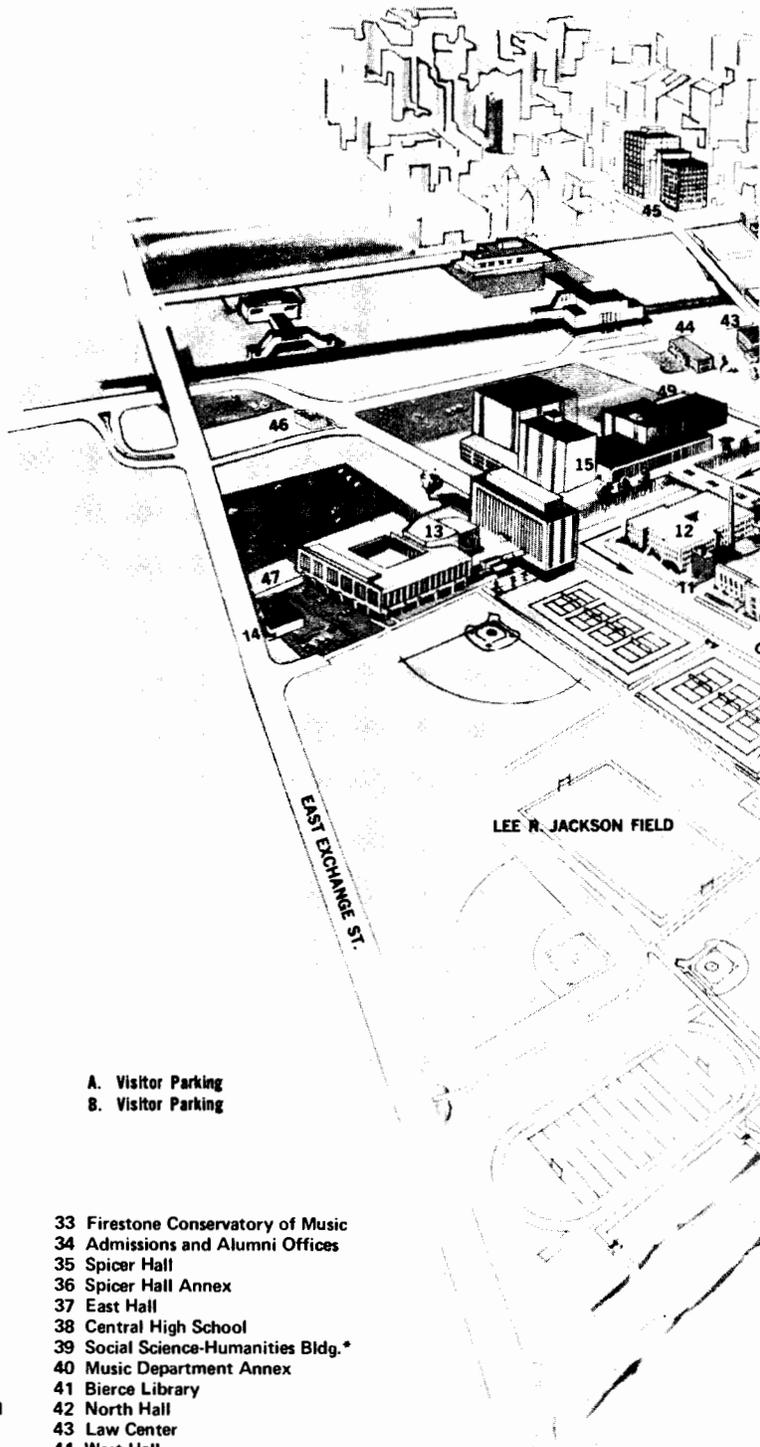
tant to the President; and the Office of Equal Employment Opportunities.

**BUSINESS ADMINISTRATION BUILDING** houses the College of Business Administration plus the John S. Knight Auditorium.

**EDUCATION BUILDING**, providing a lecture room that seats 260, 19 general classrooms, a handi-crafts room, an auxiliary closed circuit television studio, a complete language laboratory, a teaching demonstration classroom and is headquarters for the Dean of the College of Education.

**C. BLAKE McDOWELL LAW CENTER**, opened in 1973, provides space for the 87,000-volume law library, classrooms, Moot Court Room, seminar rooms and faculty offices. The Center is located at the corner of Center and Grant Streets.

**HOME MANAGEMENT HOUSE**, located immediately adjacent to the residence halls, provides home economics majors a place to put into practice what they learn in the classroom.



**LEGEND**

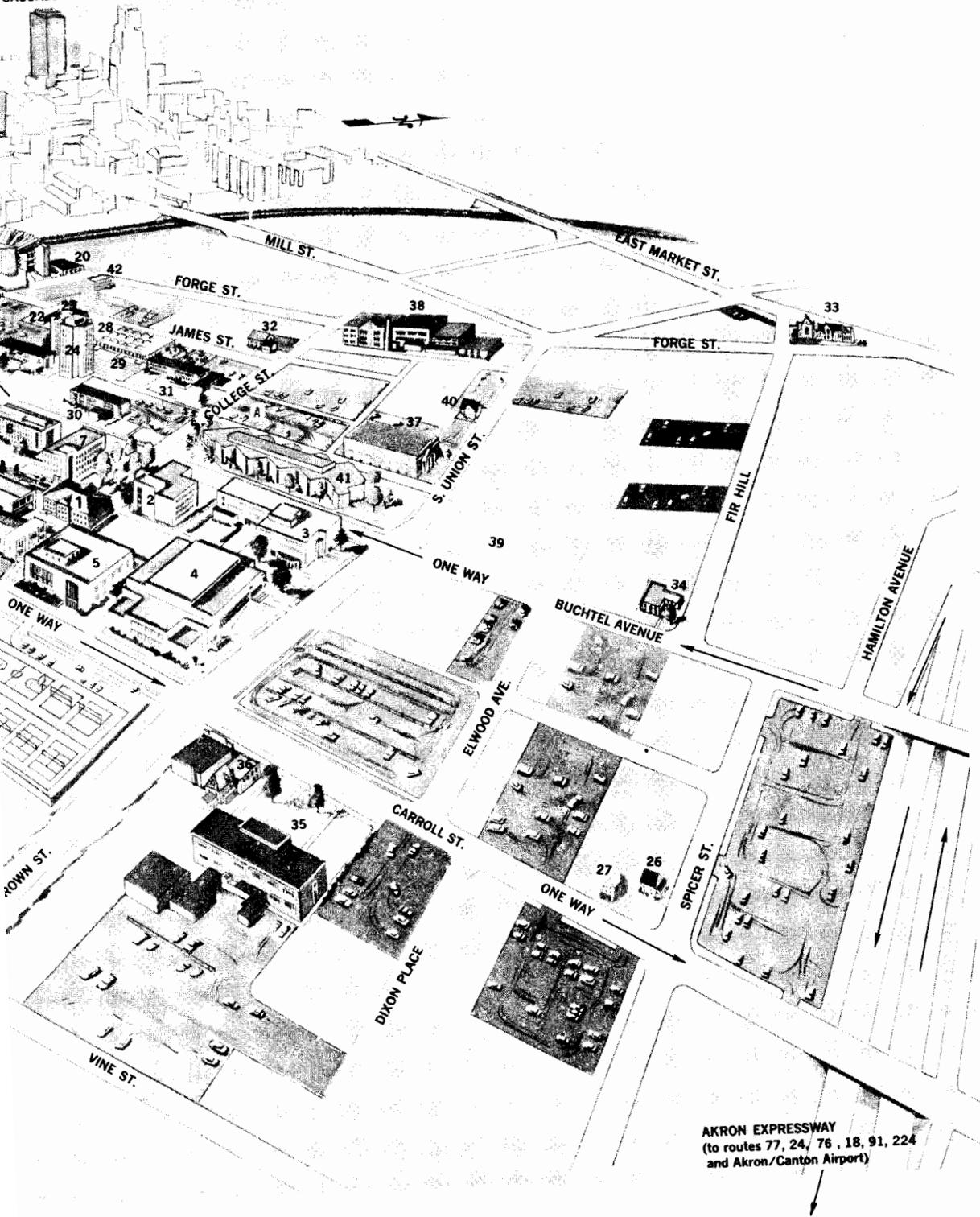
- 1 Buchtel Hall
- 2 Business Administration
- 3 Kolbe Hall
- 4 Memorial Hall
- 5 Carroll Hall
- 6 Gardner Student Center
- 7 Education Building
- 8 Knight Hall
- 9 Ayer Hall
- 10 Student Mail Room
- 11 Power Plant
- 12 Simmons Hall
- 13 Schrank Hall
- 14 Exchange Building
- 15 Auburn Science  
and Engineering Center
- 16 Performing Arts Hall
- 17 Morley Health Center
- 18 Speech and Hearing Clinic
- 19 Service Building #2
- 20 Physical Plant  
Operations Center
- 21 Service Building #1
- 22 Ballet Center
- 23 Spanton Residence Hall
- 24 Bulger Residence Hall
- 25 Sisler-McFawn Residence Hall
- 26 Testing Bureau
- 27 Counseling Bureau
- 28 Infirmary
- 29 Robertson Dining Hall
- 30 Ritchie Residence Hall
- 31 Orr Residence Hall
- 32 Home Management House

- A. Visitor Parking
- B. Visitor Parking

- 33 Firestone Conservatory of Music
- 34 Admissions and Alumni Offices
- 35 Spicer Hall
- 36 Spicer Hall Annex
- 37 East Hall
- 38 Central High School
- 39 Social Science-Humanities Bldg.\*
- 40 Music Department Annex
- 41 Bierce Library
- 42 North Hall
- 43 Law Center
- 44 West Hall
- 45 City-County Safety Bldg.
- 46 Electric Substation
- 47 South Hall
- 48 Comfort Station
- 49 Institute of Polymer Science\*

\* Under Construction

CASCADE PLAZA



AKRON EXPRESSWAY  
 (to routes 77, 24, 76, 18, 91, 224  
 and Akron/Canton Airport)

KNIGHT HALL provides classrooms, laboratories and office space for the chemistry department. It is named for C. M. Knight, head of the first Science Department and developer of the world's first rubber chemistry course.

PARKE R. KOLBE HALL includes classrooms and offices of the Buchtel College of Arts and Sciences, the University Theatre, WAUP-FM radio station, and instructional television studios, as well as the departments of Geology, Geography and Speech and Theatre Arts. It is named for the first president of the municipal University.

THE EDWIN J. THOMAS PERFORMING ARTS HALL, one of the most unique cultural centers in the world, was formerly opened during 1973. Designed to accommodate concerts, opera, ballet and theatre productions, the Hall is a masterpiece in terms of architecture, acoustics and creative mechanisms.

BIERCE LIBRARY is located on Buchtel Avenue. This facility was completed at a cost of \$8 million. Total holdings here and at several locations on campus are 528,500 volumes. The Library also houses the University Archives, an audio-visual materials center, a microfilm department, a map room, the Library for the Division of Rubber Chemistry-American Chemical Society and the Herman Muehlstein rare book collection.

The former University Library, adjacent to Gardner Student Center, houses academic departments, classrooms, offices and study areas.

The Science-Technology Division of the University Library is in the Auburn Science and Engineering Center. It houses circulating, reference, and periodicals collections for the departments of biology, chemistry, geology, mathematics, physics, polymer science and the colleges of engineering and nursing.

MEMORIAL HALL, is the center of men's and women's physical education activities. It contains two large gymnasiums, a swimming pool, classrooms and offices of the Athletic Department faculty. It is dedicated to the memory of Summit County men and women who died in World War II.

SCHRANK HALL is headquarters for the Community and Technical College, the offices of

the College of Fine and Applied Arts, the ROTC and AFROTC units and the department of Art, and Home Economics.

SIMMONS HALL contains offices and classrooms of the Department of Psychology and the University's Computer Center. It is named for the former University President, Hezzleton E. Simmons.

SPICER HALL is the major student contact building, housing the offices of the Registrar, Student Services, Controller, Cashier, Evening College, Department of Special Programs, Institute for Civic Education, and the Deans of the Summer Sessions and of the General College, as well as Executive Dean of Continuing Education and Public Services.

TESTING AND COUNSELING BUILDING. Housing the Testing and Counseling Bureau Student Services, this building is located at 221 E. Center Street.

SPEECH AND HEARING CLINIC, located at 162 E. Center Street, houses classrooms, labs and offices of the department of speech pathology and audiology. The first floor houses an outpatient speech and hearing clinic.

WEST HALL, located at the corner of Buchtel Avenue and Grant Street, houses classrooms plus offices for the Department of English.

## ***Residence Halls***

The University's Residence Halls complex is located on the North Campus adjacent to the Main Campus and within easy walking distance of downtown Akron. The complex contains five dormitory buildings capable of housing 1250 students. Orr, Ritchie, Sisler-McFawn and the ten-story Spanton Residence Hall house a total of 760 women. The 16-story Bulger Residence Hall houses 490 men. Additional housing is also available at the Torrey House and Sumner Hall for men and the Alpha Gamma Delta sorority house for women, all of which are within walking distance of the Main Campus.

All of the modern buildings are fully air-conditioned and equipped with the finest built-in furniture and conveniences. Each building has its own lounges and recreation areas and is equipped with laundry facilities and storage rooms.

The Residence Hall complex also contains a coed dining facility, Robertson Hall, used exclusively by dorm students and a 12-bed infirmary which also serves as the University's Health Center.

GARDNER STUDENT CENTER houses bowling alleys, music rooms, TV lounge, student activity offices and work rooms, game and billiard room, book store, Senior Placement Bureau, and cafeteria and dining facilities.

Pending further construction, several of the University's offices and facilities are housed in temporary structures immediately adjacent to the campus. Temporary faculty offices are also located in areas immediately adjacent to the central campus. The Alumni and Admissions Offices are located at 166 Fur Hill.

## ***Growth***

Growth in size and facilities is part of the story of any dynamic institution and The University of Akron is no exception. In 1951 the student body numbered only 3,673 and the University's 13 acres of ground encompassed only 10 buildings. Since then, however, the student body has quadrupled, reaching in the 1973 academic year, a high of more than 23,000. The campus has also grown, covering 108 acres with 51 buildings.

Nor is the end in sight. As rapidly as the need for an increasing number of educated minds has grown, the University has expanded. The Edwin J. Thomas Performing Arts Hall, a community-university \$13 million auditorium adjacent to downtown Akron to be used for symphonic concerts, opera, drama, ballet and lectures was opened in 1973. The large, modern Bierce Library was recently completed on Buchtel Avenue immediately across from the main campus. A new Law Center was also completed at the corner of Center and Grant Streets and construction began on a new Social Science and Humanities Building.

Thus, although situated on valuable land within easy walking distance from the heart of Akron's downtown business district, The University of Akron continues to grow. New buildings, modern equipment, expanding campus area, adequate parking facilities, comfortable residence halls and many other necessities of modern education are rapidly being added to provide the students of today

and tomorrow with all the facilities required to meet the University's continuing high standards of excellence as an institution of higher learning.

## ***Teaching Aids and Facilities***

While the give-and-take relationships established through personal contact between teacher and student will always remain the keystone of the educational process, numerous studies have established the fact that imparting knowledge through the use of modern teaching aids makes most learning situations more meaningful and lasting. Concern for student learning, in keeping with these facts, resulted in the establishment, in 1967, of the Office of Instructional Media — a major step toward the ultimate creation of The University of Akron's Learning Resource Center. The Office of Instructional Media incorporates the Instructional Television Center and Audio-Visual Services.

THE INSTRUCTIONAL TELEVISION CENTER, which was made operational in 1960, functions as an effective teaching tool through continuous production of daily lectures, originating from the University's instructional television center, and which are transmitted via co-axial cables to campus classrooms. This has proved to be a successful means of presenting educational material to an expanding number of students while maintaining the values of traditional professor-to-student relationships as well as adding new values to the teaching process. Annually, an estimated 7,000 students receive part of their instruction by television.

No courses are presented entirely by television. Each television lecture is presented to a class which meets periodically with its professor "in person."

AUDIO-VISUAL SERVICES dates back to 1945 when the first centralized collection of instructional materials (filmstrips, slides, etc.) was purchased for the purpose of supplementing several University professors' lectures. This new service was eagerly accepted and in 1961 the scope of audio-visual services was greatly expanded. An extensive audio-tape and phonograph collection is stored here for use of faculty and students.

Audio-Visual Services also has a Materials Production Division which prepares original art-work and photographic materials used by instructors for reinforcement of classroom learning principles.

An audio-visual services annex has been established in Simmons Hall to facilitate service to faculty and students.

WAUP-FM AND THE RADIO WORKSHOP are integral parts of the Department of Speech and Theatre Arts. Students gain invaluable experience in mass media by writing, producing, and presenting programs over the University's radio station WAUP-FM. Active participation in the Radio Workshop is open to all qualified students and many professional careers have begun in these radio-television studios.

THE LANGUAGE LABORATORY and the recording studio, a specialized adjunct, are electronically-equipped rooms in the College of Education Building, with sound booths and a monitor's console.

The Laboratory is expressly for the purpose of familiarizing students with a foreign language through the utilization of actual voices of particular countries recorded on tapes and record transcripts.

Student booths are equipped with earphones, microphones with amplifiers, and in some cases, tape recorders. The instructor's console has microphones, eight tape decks, monitoring facilities and a turntable.

THE STRUCTURES, MATERIALS, AND MECHANICS LABORATORY, one of the moderny-equipped facilities of the Department of Civil Engineering, provides training for students interested in structures, foundation engineering, and structural, solid, fluid and soil mechanics.

The Laboratory, equipped with an Elec-To-Matic torsion testing machine and Universal hydraulic testing machines, is used by undergraduate and graduate students and also by faculty members for studies and research.

Faculty and students also have access to hardness testers, an electronically-controlled MTS closed-loop materials testing system, a seven-channel, six-speed tape recorder, strain gage indicators and vibration systems.

Additional equipment includes a complete soil mechanics laboratory, an hydraulic demonstration channel, a modern moisture room, a

loading platform, load cells, hydraulic jacks and items for general use.

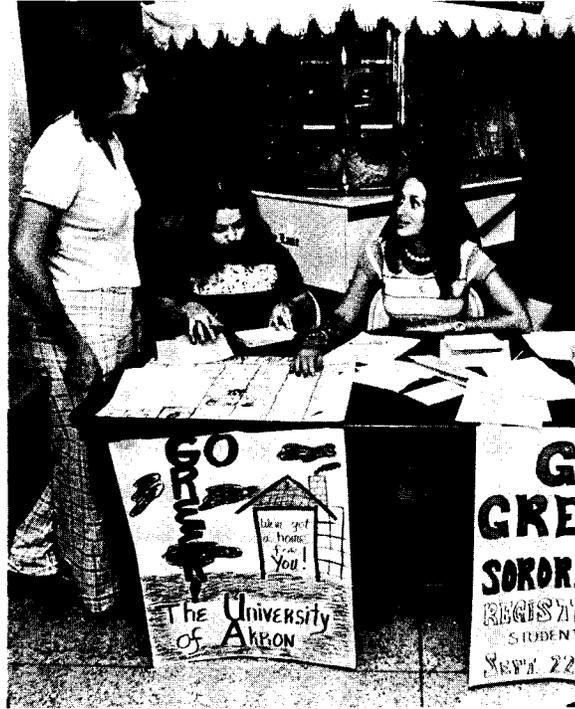
THE SPEECH AND HEARING CLINIC, with its audiology and language laboratories, provides complete hearing and language diagnostic service to both the community and the University. Research and training on the undergraduate and graduate professional levels are assisted by the use of closed-circuit television as well as manual and self-recording audiometers, psycho-acoustic equipment, oscilloscopes and complete selections of taping devices for effective conditioning procedures. A board of medical consultants assists in the aspects of the educational and clinical programs of the Clinic. The faculty and graduate students are affiliated with Akron Children's Hospital.

THE COMPUTER CENTER at The University of Akron provides: (a) the computational support to those academic efforts of research and instruction where such support is feasible, and (b) the administrative data processing to assist in the conduct of the business of the University.

The facilities of the Computer Center are available to faculty, staff, and administrative officers of the University. These facilities are also available on an "if required" basis to all students enrolled in credit (and certain non-credit) courses at The University of Akron. The Computer Center is centrally located on the campus in Simmons Hall.

The Academic Systems group assists student and faculty in making effective use of the Computer Center. They provide consultation and assistance in preparing usable computer programs, as well as assistance in analysis and solution of problems where the use of the computer is indicated. Assistance is also provided in locating and evaluating pre-packaged programs for specific jobs.

The Center is equipped with an IBM 370/155 computer with magnetic tapes, disks, remote terminals and a wide variety of peripheral equipment. An OpScan optical mark scanner that prepares computer readable tapes from specially marked forms provides fast and reliable data entry for test scoring services. Digital plotting can be provided by high-speed printer or line drawings from a thirty inch CalComp plotting machine. "Open shop" equipment — IBM 1401, keypunches, sorters, and the like are available for general use by qualified faculty and students.



## II. *The University of Akron Student Activities and Services*

### ***Extracurricular Activities***

Students today are concerned about their environment — in the University, in the community, and in the world. Through participation in selected extracurricular activities, a student can extend his classroom experiences into relevant programs which will provide him a participatory role in the areas of his interests. A voice in the governance and direction of his University environment can be expressed through such groups as Associated Student Government, Residence Hall Association, Student Center Program Board, Associated Women Students, Interfraternity Council and Panhellenic Council. A student might contribute through the communications media which include the *Buchtelite* (University student newspaper), the *TelBuch* (University yearbook) and the television and radio networks, one of which is the University FM station.

Students can get involved. Nearly all student groups, including sororities and fraternities, participate in local projects which benefit some segment of our community. Because the University is located in the center of a large metropolitan area, there are many opportunities to volunteer services in areas of need. The Akron Tutorial Project is an outstanding example of channeling the University student resources for the younger students in the educational system of our community. The United Fund of Summit County has established an internship for a University student who will coordinate campus programs to meet community needs.

Currently the Extracurricular Activities subcommittee of the Student Affairs Committee, made up of five faculty members, nine students and five administrators, serves to recommend University recognition to student groups. It also makes recommendations regarding the allocation of monies from the Extracurricular Activities Fund. Students interested in forming a group must submit their constitution and charter to the chairman for the Committee's consideration.

A standard of grades must be maintained before a student can enter some of the more time-demanding extracurricular activities. First quarter students must be carrying at least ten credits, other students must have completed ten credits with an average grade of 2.0 (C).

Each student group has a faculty adviser who is recommended by the student members and appointed by the President of the University.

The identification card (I.D.) is the key to campus participation. Upon presentation of the card a student can be admitted free to most athletic, theater, music, and lecture series events including the Town and Gown Series.

## ***Musical Activities***

There are many campus musical groups which perform for the large University functions and also present instrumental and vocal concerts and recitals.

Students may audition for membership in the marching or symphonic bands, the orchestra, or the brass, woodwind, percussion, or string ensembles, if they have talent in playing a musical instrument.

Vocalists may apply for membership in the Opera Workshop, Choral Ensemble, and, with the University Singers or the Evening Chorus,

may perform in the choral concerts of the Akron Symphony Orchestra.

About 400 recitals by individual music students and faculty members are presented each year.

Students with musical ability will find a wide variety of instruments including a three-manual classic-style Moller organ, a Neupert harpsichord, and a concert-style harp owned by the University and offered to students for use in the instrumental groups or as adjuncts of private or group instrumental lessons.

Many off-campus groups avail themselves of the musically trained students and during the course of an academic year, about 75 performances will be presented by instrumental ensembles or singing groups.

Private lessons are offered to University students and also to non-campus musicians, with payments either on a per-lesson plan or through the conventional quarter arrangement as used for other courses of instruction.

## ***Performing Arts***

University students have ample opportunity to develop their abilities to face the public and talk "on their feet" — either to "live" audiences in plays, discussions or debates or to the unseen audiences who tune them in on radio or TV.

The center of dramatic activities is in the University Theatre. This is located in Kolbe Hall which was built in 1955, honoring the former President, Dr. Parke R. Kolbe. Facilities are of the finest for both the on-stage actor and the backstage technician.

Each year, five or more major productions are presented. Open tryouts are held for students in all of the Colleges of the University.

There are outlets for those who aspire to write, produce or act in experimental theatre, also. A series of one-act plays is presented annually with student directors, actors and crews.

Forensic and debate teams complete intercollegiately.

For those who want to gain valuable experience in the mass media, the University has complete facilities for telecasting and broadcasting. It is in the University Television Studio that all Closed Circuit Television lectures originate. The Radio Workshop

presents daily programs which are broadcast to the public over WAUP, the University's independent FM station, and WRHA, which broadcasts directly to the residence halls and through Akron Cablevision to the community.

The newest of the University's performing arts is the Chamber Ballet, a professional training program.

## ***Student Publications***

THE BUCHELITE . . . a newspaper with two issues a week during the academic year. This is the campus "voice" with news, columns, and photographs describing campus events. It is published on regular newsprint, distributed to students free of charge on newsstands located in various spots on campus. A staff of about 50 students works on this publication.

TEL-BUCH . . . a yearbook with a comprehensive editorial and photographic coverage of student life at the University. This is an impressive publication of about 300 pages. Its staff usually numbers about 25 students.

NITE-LIFE . . . a monthly publication with news of interest to students in the Evening College. Each year there are 10 issues. This, too, is distributed free to students on campus newsstands.

YAWP . . . a literary magazine, published twice a year by student editors who seek expression through creative writing and art work.

## ***Sports Activities***

A wide program of sports for both intercollegiate and intramural participants is maintained at the University. Thousands of students can benefit from the intramural programs. Even a late evening volleyball or bowling meet could allow a time slot for students who find challenge in competitive sports.

Competition is keen, especially in the intercollegiate athletic events, but it is stressed that proper focus is to be maintained at all times on principles of basic good health and hygiene; the philosophy is for emphasizing qualities of honor and sportsmanship in all players.

Intercollegiate games, meets and matches are scheduled annually with other colleges for the following athletic teams: football, cross country, basketball, swimming, wrestling, baseball, track, golf and tennis.

Soccer is another intercollegiate sport, and matches are held with other teams in the Ohio Collegiate Soccer Association. Hockey and rugby are new sports which are presently being conducted with other institutions on a club basis.

Students desiring information about eligibility to participate should consult the Registrar.

All athletic contests are under the control of the Director of Athletics (offices in Memorial Hall) and the Faculty Committee on Athletics. This group sets the rules for awards, honors and appointments.

Memorial Hall, built in 1954, honoring the World War II dead of Summit County, has two spacious gymnasiums and a regulation size (75' x 35') swimming pool for the use of both men and women.

## ***Social Organizations***

While in college a student learns much about himself as an individual. One of the best ways to learn who he is can be gained through group membership. There are 9 national sororities for women and 12 national fraternities and one local fraternity for men on the University campus. Although these are University-supervised, the selection of membership and government of each organization is the responsibility of each individual group in accordance with the rules of the Panhellenic Council, the Interfraternity Council, and the University.

The Greeks contribute much to the quality of our student body. They provide sound leadership on our campus and assist in the students' development of scholarship and service.

Although most sororities have limited residence facilities in their houses, one new group now accommodates 52 women students. All fraternities have housing for men. Appointment of a housemother is by the organization itself.

Fraternal organizations contribute to the campus color of the University, conducting a "Greek Week", and competitive events such as the Interfraternity-Panhellenic Songfest.

Many students find the social programs of the Residence Halls Association as their channel for co-ed activities.

Black United Students have organized a group of men and women students who assist in the recruitment, orientation and adjustment of black students. BUS is the group which presents the Black History Week and other cultural programs for the benefit of all University students.

In the A-Book are listed the recognized student groups which cover all facets of extracurricular activities, including the honor societies, professional fraternities, departmental organizations, and military groups. The national senior men and women's honor societies are Omicron Delta Kappa and Mortar Board.

## ***Student Services***

The Office of Student Services is a major division of the University, the purpose of which is to provide the help needed for the student to develop academically, personally and socially. The facilities which help to accomplish this objective include:

### **COUNSELING AND ADVISING**

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

Academic counseling helps the student adjust to the requirements of the curriculum and to utilize course offerings that will better prepare him for his future. Sensible credit hour loads, proper choice of subjects, scholastic achievement, study habits, outside work loads and other circumstances having an effect on successful work are all matters for concern in this kind of counseling.

Personal counseling is that which aids the student when problems of a personal nature are obstructing his academic career or his personal life.

### **TESTING AND COUNSELING BUREAU**

The Testing and Counseling Bureau provides psychological testing and professional counseling, without charge, to all students enrolled for credit at The University of Akron.

Students may come to the Bureau for assistance in identifying aptitudes, interests and personality traits for consideration in the choice of an educational or vocational goal.

Assistance is also offered in dealing with personal or social problems which detract from the student's ability to derive the maximum benefit from his university experience. In addition, the Bureau offers study skills assistance on both individual and group basis.

The Bureau maintains a career library and a study skills laboratory. Students may utilize these facilities in order to improve upon learning skills and study habits.

Counseling services are normally made available through scheduled appointments. However, should a student feel the need to see a counselor immediately a staff member is usually available.

### **PLACEMENT OFFICE**

Career placement assistance is available to students in the Placement Office in business, industry, government, private agencies, and in education. The Office is located on the ground floor of the Gardner Student Center.

For graduating students opportunities are provided for interviews with on-campus representatives of prominent businesses, industries and branches of government, including the military services and education at the primary, elementary, and secondary levels. Information of careers in both administration or teaching at the college and university level is available.

The facilities and services of the Placement Office are for students, from associate through graduate and professional degree levels and for alumni.

More than 400 interviewers come to the University each fall and spring to interview degree candidates.

### **FINANCIAL AIDS**

A detailed statement regarding all of the aspects of the Financial Aids Office, a Division of Student Services, appears in Chapter III of the *Bulletin*. Part-time employment is another responsibility of the Financial Aids Office, and many part-time job opportunities are listed in the Financial Aids Office, which is located in Spicer Hall.

It is the responsibility of each student who holds a job while attending the University to report to his Dean and to the Office of Counseling and Advising, the number of hours

he is employed. Whenever there are significant changes made in the number of hours of employment, the student is expected to keep the information up-to-date in the Dean's office. Disciplinary action may be taken by a Dean if a student neglects to comply with these procedures.

Vocational guidance and information are available to all students throughout their college careers through the counselors in the Office of Counseling and Advising, the Testing and Counseling Bureau, and in the Placement office.

## STUDENT HOUSING

Demand for campus housing is on the rise as nonresident students enroll at the University with increasing frequency.

Regulation of student housing centers in the Director of Residence Halls. Its basic rules are as follows:

Unmarried students under 20 years of age are required to live with their parents, legal guardians, relatives with permission of their parents or legal guardians subject to the parietal rules of the University, or in University Residence Halls or other University approved housing.

Unmarried students 20 years of age but not yet 21 years of age, with permission of their parents or legal guardians, may live in housing of their choice subject to the parietal rules of the University.

The University provides eight new Residence Halls for non-commuting students, three for men and five for women. Comfortable double room accommodations are thereby provided for 1250 students. Each room has ample space for books and clothing. The furniture and decor are attractive and modern. Sun bathing areas and outdoor recreation areas are provided for all residents. The University swimming pool is open to Residence Hall students.

For the annual rate of \$1,320, the student receives living accommodations, bed linen and 20 meals a week.

## STUDENT HEALTH SERVICE

The University constructs every facility with high safety standards and carries out this principle of maintaining physical security for its students by following stringent accident prevention measures. However, The University of

Akron assumes no responsibility for student accidents incurred while attending or participating in classroom, gymnasium or laboratory work.

Increased numbers of University students have brought about the expanded Health Service facilities immediately adjacent to the Residence Halls. First aid services are available in the Health Services, and an infirmary area is provided for 12 in-patients, with facilities for Residence Hall students not requiring hospital treatment.

Complete physical records of the men and women on campus are kept in the Student Health Service Center offices. A physician and a registered nurse are on duty regularly.

Residence Hall students receive bed care for up to 72 hours, without charge. Those students receiving bed care for a greater period of time than 72 hours will be charged the daily rate which is currently charged by local hospitals for similar services.

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

Student health and accident insurance designed specifically for students of The University of Akron is required of all residence hall students and all international students except those who present proof that they already have similar coverage. Other day students carrying nine or more credits may purchase this insurance at the same annual individual rate of \$37.50. The student insurance provides coverage for such items as hospitalization, surgical benefits, and in-hospital medical benefits.

The Speech and Hearing Clinic provides remedial work in speech, hearing and language for full-time University students without charge. Classes for students who speak English as a second language are also offered. These services are also available to people from the community on a fee basis.

## *Religious Guidance*

Chaplains are available to members of the student body and faculty, offering individual and group guidance services.

A minister of the *Protestant* denomination has been appointed by the Akron Area Council of Churches to serve as a full-time adviser to students. His office is located in East Hall at 164 South Union Street.

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

*Catholic* students have a Newman Center available to them about a block from the main campus, at 143 South Union Street. A priest offers Mass regularly and guidance to students is provided by personnel at the center. The Newman Center has an assembly room, library,

kitchen, and conference rooms where students may study or hold discussion group meetings.

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

Many of the extracurricular activities groups have a faith as a focal point of the organization. These include Christian Science, Lutheran Students, Muslim Student Association, Intersity Christian Fellowship, Kappa Phi club, B'nai B'rith and Newman club.

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### *III. The University of Akron Admissions, Requirements, Procedures, and Cost*

#### ***Types of Students***

A university with an enrollment of 22,035, The University of Akron has several classifications of students, each seeking an education according to his own needs and abilities. Classifications include:

**UNDERGRADUATE** — One who has not earned a Baccalaureate degree and is eligible to enroll in undergraduate level credit courses.

**POSTBACCALAUREATE** — One who holds a Baccalaureate degree from an accredited institution, who is eligible to enroll in credit courses on the undergraduate level and who has not been admitted to the Graduate School. Postbaccalaureate students apply for admission to the undergraduate college (Liberal Arts, Education, etc.) in which they wish to earn undergraduate credit.

**GRADUATE** — One who holds a Baccalaureate degree from an accredited institution, has been admitted to the Graduate School, and is eligible to enroll in graduate level credit courses.

**PROFESSIONAL** — One who holds a Baccalaureate degree from an accredited institution, and has been admitted to the School of Law.

**SPECIAL STUDENT** — One who does not meet the Admissions requirements but is admitted by petitioning the Dean concerned for permission to take courses for which he is qualified by certain abilities or maturity. A special student may not take more than 15 credits unless he gains official transfer to the status of a regular student.

**AUDITOR** — One who enrolls in a course with the permission of his Dean but does not receive a grade on his official academic record. Permission to audit a course may be granted if the student has a record of good scholarship or if he has taken and passed the particular course previously or if, in the opinion of his Dean, experience qualifies him to take the course. A student must indicate that he is an auditor at the time of registration. Auditors are required

to do all prescribed course work except the writing of examinations. Audit fees are the same as for credit courses.

**TRANSIENT** — *From another institution* — One who is regularly enrolled and eligible to continue at another institution, and who has written permission from that institution to enroll at The University of Akron for specified courses. Transient students must present to the Admissions Office, The University of Akron, such written permission prior to registration. Graduate students apply through the office of the Dean of the Graduate School.

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

A copy of the record of all work attempted at The University of Akron will be sent to the institution in which the student is regularly enrolled.

*From The University of Akron* — A student enrolled at The University of Akron must obtain written permission of the Dean of his college before enrolling (transient student status) for credit work at any other institution. Credit for such work may be granted at the discretion of the Dean of his college.

## ***Entrance Requirements***

### **RECOMMENDED HIGH SCHOOL COURSES**

All applicants, in order to increase their possibilities for success are strongly urged to complete the following preparatory courses while in high school:

- 4 units of English
- 1 unit of mathematics
- 2 units of Social Studies  
(including American History)
- 1 unit of natural science
- 2 additional units from any of these

Additional subject recommendations for students planning to major in:

- Engineering, Science and Pre-Professional
  - 1½ units of high school algebra
  - 1 unit of geometry
  - ½ unit of trigonometry
  - 1 unit of physics or chemistry

It is strongly recommended that applicants in Engineering present additional credits in mathematics and physical science.

A prospective student who has been graduated from a regionally accredited Ohio

secondary school and takes one of the college entrance tests is eligible to enroll. An applicant may submit scores from either the American College Testing Program (ACT) or from the Scholastic Aptitude Test (SAT) of the College Entrance Examination Board. Out-of-state applicants who meet the above requirements may be admitted upon the basis of the quality of their secondary school work and their standing in the entrance tests.

Students applying for admission who have formerly attended other institutions of higher learning are eligible to transfer to the University if they present satisfactory scholastic records as judged by The University of Akron officials and if the students are eligible to reenter the institution from which they desire to transfer. Students who present fewer than 45 quarter credits or their equivalent of accredited transfer work will be required to take either the ACT or the SAT test. If it appears necessary to validate the transfer credits of students with more than 45 quarter credits, the appropriate admitting officer may require the ACT battery for these persons also.

Admission is necessarily limited by the University's capacity to provide for students' educational objectives. The University reserves the right to approve admission only to those

individuals whose ability, attitude and character promise satisfactory achievement of University objectives.

### **Admission Procedure**

1. Obtain an Application Form from the Admissions Office. If your request is by mail, use this address: ADMISSIONS OFFICE, The University of Akron, Akron, Ohio 44325. Fill it out and return as soon as possible. If you are applying for admission to the University for the first time, include the nonrefundable Application Fee.

2. At the time of your application ask an official of your high school to send your transcript to the Admissions Office. This record of your secondary school standing must be received and evaluated before any admission action can be taken by the University.

3. Take Entrance Tests. You can make arrangements through your local high school to take the ACT or SAT. (The University of Akron's Testing and Counseling Bureau serves as a testing center for both of these nationally recognized tests.) These test scores are needed before an applicant is formally admitted to the University.

4. If you are a transfer applicant, request registrars of all institutions previously attended to send complete and official transcripts to the Admissions Office. If you have completed less than 45 credits of course work at other institutions you must also submit a copy of your high school transcript and the results of either the ACT or SAT. These documents must be received and evaluated before any admission action can be taken by the University.

5. A Health Record will be sent from the Admissions Office after you have been admitted. Take it to your family physician and after he has filled it out, return the form to the University. You should mail this form to the Admissions Office by September 1.

6. After you have been notified of your acceptance to the University, you will be asked to report for counseling in the Counseling and Advising Division of the Office of Student Services. At this time, your suitable courses of study will be chosen and you will sign up for these classes. Also, at this time, you will be told the amount of fees you will be expected to pay to the University.

(All checks should be made payable to: The University of Akron, and should specify *what fees* and for *which student* payment is being made.)

### **TRANSFER FROM NON-BACCALAUREATE PROGRAMS**

The records of incoming transfer students from accredited or "Class A" non-baccalaureate programs are evaluated both in terms of the General Studies program and in terms of major requirements. Since these students will, almost without exception, enter the General College, the Dean of the General College consults with the appropriate Upper College Dean or his designated representative, in order to obtain the major program requirements. Permission to substitute courses taken in a non-baccalaureate program for electives or for required courses in the baccalaureate program is decided on an individual basis by the Upper College Dean in consultation with the appropriate department head. These requirements along with the General Studies requirements are transmitted to the student in his letter granting transfer admission.

### **International Student Program**

The University of Akron welcomes qualified students from other lands and seeks to make their educational experiences a pleasant and meaningful one. During the 1973-74 academic year, approximately 400 students with citizenship other than the United States attended the University. These students represent 65 countries and are pursuing studies in 51 major fields.

The international student is requested to transmit a letter from an appropriate governmental or bank official showing that he has sufficient funds to cover the cost of his education while attending The University of Akron and that these funds will be available to him in this country.

## ADMISSION PROCEDURES

Acceptance as a new applicant from abroad will be made only for enrollment in September, the beginning of the academic year. All admission requirements must be completed by June 1, preceding the September in which the student desires to enroll.

In addition to those records mentioned under "Admission Procedures" for all students, two additional documents are required of the international student:

1. Proof of English language proficiency. The University of Akron requires all students for whom English is not the native language to participate in the Test of English as a Foreign Language (TOEFL). This test is administered throughout the world in major cities. Applications may be obtained from bi-national agencies, U.S.I.S. offices, or by applying directly to Educational Testing Service, Princeton, New Jersey 08540. Because it normally takes 4 to 6 weeks for the University to receive the results of the TOEFL, students are encouraged to take the examination in October or January. The University cannot guarantee the student who takes the examination in March that his records will be processed completely before the June 1 deadline.

2. Proof of adequate financial support. It is estimated that the international student will need a minimum of \$3,950 per year for undergraduate study and \$3,200 for graduate study for his tuition and living expenses while attending The University of Akron. Immigration regulations prevent the student from earning any substantial portion of this amount. There are virtually no scholarships available to undergraduates from abroad. Graduate students may request and often receive financial aid through fellowships and graduate assistantship. The graduate student who is interested in applying for this aid should request the necessary forms at the time he applies for admission.

## HOUSING

The University of Akron maintains no separate housing facilities for international students. The international student may apply for housing in the residence halls and is encouraged to make application early. Most residence hall facilities have been reserved by March for

the following academic year. The request for deposit fee can be waived for the international student who is unable to arrange financial exchange before his admission is concluded.

## ORIENTATION

International students are required to attend a special orientation program which begins two weeks before classes. During the two week orientation period, some international students are housed with families from the local community. During the orientation, international students are given an English language placement examination. *This is in addition to the proficiency examination overseas.* Students may be required to participate in non-credit English classes if it is felt the results of this placement examination warrant such action.

## SPECIAL NOTE

The University of Akron has a Dean of International Studies, a full-time foreign student adviser and instructors of English as a Second Language. If the international applicant has questions about housing, climate or immigration regulations, he is encouraged to contact the foreign student adviser directly.

The University of Akron is a member of the Regional Council for International Education and The National Association for Foreign Student Affairs.

## SPECIAL INTERNATIONAL EDUCATION PROGRAMS

The University of Akron has been headquarters for the Engineering Management of Water Supply Systems program sponsored by the Agency for International Development (AID). It is open to top management and middle management of non-U.S. water supply systems. Applications for this program may be made through AID or directly to The University of Akron.

The University of Akron also participates in the International School at Basel, Switzerland, by sending qualified U.S. students overseas for their junior year of study. This program is administered by the Regional Council for International Education.

In 1972 The University of Akron sent students to Europe as part of its continuing program "Classrooms Around the World". This program is offered for graduate or undergraduate credit. The European trip was the twelfth.

## ***Procedures and Requirements***

### ORIENTATION

The first major contact a new student has with the University after having been admitted

comes during an Orientation period held prior to the beginning of each quarter. During Orientation, new students learn a great deal about

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the University and about what it expects from students. They meet many of the University's administrative officers and faculty members and discuss their problems and questions with upper college students. In this way, new students have an opportunity to become acquainted with their chosen University and clear up many of the questions that arise when embarking on a new enterprise.

#### COUNSELING

During Orientation, and each quarter thereafter, each student sits down with a counselor to discuss his progress to date and the next logical steps toward completion of his academic program. During that session, the counselor and student together review the areas of success and of problems that the student has encountered in previous quarters and determine what courses the student's academic record calls for in future quarters. During that session the two then work out a list of courses to be taken during the following quarter.

#### REGISTRATION

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

The student may elect to register by mail or in person. Details relative to each of these options is described in the Schedule of Classes published every academic period and available upon request from the student's advising agency Office of Student Services, Evening College or Upper College. A non-refundable late Registration Fee is assessed registrants enrolling after the official Open Registration Week.

#### ATTENDANCE

Each student is expected to attend all class meetings for which he is registered. A student may be dropped from a course by his Dean if he is repeatedly absent and the instructor recommends this action; said student can gain readmission only with permission of the instructor and his Dean.

#### MODIFICATION OF STUDENT SCHEDULES

A student must register for a course before the end of the first week of the quarter. A student may alter the schedule of courses for which he is registered only with the permission of his Dean or Dean's designate.

**Day students in the General College and the Community and Technical College should make all changes through their**

**advisers in the Counseling and Advising Office, Spicer 201; Evening students in these colleges should contact the Evening College Office, Spicer 118.**

#### WITHDRAWAL

A student may withdraw from a course for any reason up to the mid-point of a quarter or summer session (the end of the fifth week of a quarter and the equivalent point of a summer session) with the signature of his/her advisor.

After mid-point of a quarter or a summer session but prior to the last week of classes, a student must have the written approval of both his/her instructor and his/her advisor. Should either refuse to sign the withdrawal form, the student may appeal to the Dean of his College, who shall make the final decision. This requirement need not be met when the student is requesting complete withdrawal from the University.

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

#### TRANSFER CREDIT

Course work taken at an institution of higher education in the United States of America which:

- (1) is fully accredited by an appropriate regional accrediting association, or
- (2) is not fully accredited by an appropriate regional accrediting association but which has an "A", "B", "C", or "I" listing in the *Report of Credit Given*, the American Association Collegiate Registrars and Admissions Officers (AACRAO)

will be listed on The University of Akron official academic record. Each course will reflect the course number, title, grade, and credit value; no quality point value will appear on the record and no grade point average will be calculated for the course work listed. In addition, the name of the institution will be listed on The University of Akron official academic record as well as the time period during which the courses were taken.

For courses which have been taken at an institution of higher education of the types listed above, the Dean of the College in which the student intends to obtain the degree will specify which courses listed, other than General Studies, will apply toward the degree requirements at The University of Akron. This specification will be made at the time the student

enters the degree granting college. The Dean of the General College will specify which courses listed will apply toward the General Studies requirements when the student enters the University.

For courses which have been taken at an institution which has a "B", "C", or "I" listing in the AACRAO *Report of Credit Given*, the specification will be made by the student's Dean on a provisional basis and must be validated by successful completion of credit work at The University of Akron. The validation will normally consist of completing 24 credits of designated course work at The University of Akron with a grade point average of 2.000 or better.

#### TRANSIENT STUDENT

A University of Akron student may take course work at another institution of higher education as a transient student. For all courses other than General Studies, the student must obtain prior written permission from the Dean of the College in which he is enrolled; for General Studies courses, prior written permission must be obtained from the Dean of the General College. Courses taken by a transient student will be listed on The University of Akron official academic record. Each course will reflect the course number, title, grade and credit value; no quality point value will appear on the record and no grade point average will be calculated for the course work listed. The name of the institution will be listed on The University of Akron official academic record as well as the date that the course work was taken.

#### CREDIT BY EXAMINATION

A student interested in earning credits by special examination may do so with the permission of the Dean of his college and the Dean of the college in which a particular course is offered and by payment of the Special Examination Fee of \$14.00 per credit. The grade obtained in such an examination is recorded on the student's permanent academic record. Credit by examination is not permitted in the quarter before graduation.

#### CREDIT/NON-CREDIT OPTION (UNDERGRADUATE ONLY)

1. Students who take a course on a "Credit" or "Non-Credit" (CR/NC) basis, and who earn a grade equivalent to A, B, or C, shall receive credit (CR) for the course and have the grade, CR, placed on their permanent record; a grade equivalent to D or F will be recorded with the Non-Credit grade, NC.

2. Undergraduates who have completed 50% of the number of credits required for a degree with a G.P.A. of at least 2.3, shall be allowed, with the consent of their adviser, to take one free-elective\* course per quarter on a CR/NC basis.

3. With the consent of the student's adviser, the first or second year of foreign languages may be taken on a CR/NC basis at any time the student is registered, and regardless of the G.P.A.

4. No more than 24 credits of non-language courses and no more than 30 credits in total, including language courses, may be taken on a CR/NC basis. (For an associate degree, half this number is permitted).

5. The election to take a course on a CR/NC basis can be made *only* at the time of registration for that course. Students who elect to take a course on a CR/NC basis cannot withdraw and register to take that course for a letter grade after the first week of that quarter. The Registrar will notify the instructor by means of the final class list of those students who have elected to utilize the CR/NC option.

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

7. A student may repeat a course for Credit (CR), or a quality point grade (A, B, C, D, F) after receiving a grade of NC.

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

9. Students taking the course on non-credit basis are expected to meet the full requirements of the course as required by the instructor.

#### RE-EXAMINATION

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

#### REPEATING COURSES

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

- (1) In order to secure a quality point value grade (A, B, C, D, F) or a grade of NC, CR or AUDIT, the student may repeat a course in which he previously

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

received the grade of D, F, AUDIT or NC. Registrations under the CR/NC option are subject to the restrictions in the CR/NC policy.

- (2) The student must repeat the same course within 12 months of the completion of the prior attempt unless given special permission by the student's Dean to extend this period or substitute another course if the previous course is no longer offered. Such course must be repeated at The University of Akron.
- (3) Grades for all attempts at a course will appear on the student's official academic record.
- (4) Only the grade for the last attempt will be used in the grade point average.
- (5) All grades for attempts at a course will be used in grade point calculation for the purpose of determining graduation with honors and the student's class standing.
- (6) For purposes of this section, credit for this course or its equivalent will apply only once toward meeting degree requirements.

#### ACADEMIC REASSESSMENT

An undergraduate student who has not attended an institution of higher education (which is fully accredited by an appropriate regional accrediting association or which has an 'A' listing in the Report of Credit Given, the American Association of Collegiate Registrars and Admissions Officers) for at least three calendar years and enrolls at The University of Akron and maintains a grade point average of 2.5 or better for his first 36 credits may petition his Dean to delete from his grade point average the grades of his previous enrollment at The University of Akron. If the student qualifies, all previous grades will be deleted from the grade point average up to the maximum allowed.

The number of credits deleted from the grade point average shall not exceed 30 percent of the hours required for the degree objective of the student. If the number of credits earned before the three year interval exceeds 30 percent of his degree requirements, the 30 percent factor will apply to the first credits earned.

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

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

#### DISCIPLINE

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

#### GRADES AND THE GRADING SYSTEM

Students at the University receive grades on various types of classroom performance during the progress of most courses and a final grade at the end of the quarter. At the end of the quarter, the Registrar's office mails the quarter grade reports to students' home addresses.

Individual tests throughout the course are usually graded with percentage or letter marks, but permanent records are maintained with a quality point system.

This method of recording grades is explained as follows:

<i>Percentage</i>	<i>Grade</i>	<i>Quality Points Per Credit</i>
93-100 inclusive	A	4
85- 92 inclusive	B	3
77- 84 inclusive	C	2
70- 76 inclusive	D	1
Below 70	F	0
Incomplete*	I	
In Progress***	IP	
Permanent Incomplete**	PI	
Audit	AUD	0
Credit	CR	0
Non-Credit	NC	0

\*"Incomplete" means that the student has done passing work in the course, but that some part of the work is, for good and acceptable reason, not complete at the end of the term. Failure to make up the omitted work satisfactorily by the end of the following quarter, not including summer sessions, converts the "I" to an "F". When the work is satisfactorily completed within the allotted time, the I is converted to whatever grade the student has earned. If the Instructor wishes to extend the "I" grade beyond the following quarter for which the student is registered, prior to the end of the quarter he must notify the Registrar's Office in writing of the extension and indicate the date of its termination. It is the responsibility of the student to make arrangements to make up the incomplete work. The faculty member should submit the new grade to the Registrar's office in writing. It should be accompanied by the receipt for the fee which is charged for the removal of an "Incomplete."

\*\*The student's Instructor and the Instructor's Dean may for special reason authorize the change of an Incomplete (I) to a Permanent Incomplete. (PI).

\*\*\*In Progress means that the student has not completed the scheduled course work during the quarter because the nature of the course does not permit completion within a single quarter, such as work toward a thesis.

### IMPORTANCE OF GRADES

1. A student becomes either eligible or ineligible to remain at the University, according to the quality point value of each grade for each course which he has completed.

2. The student who maintains specified levels of scholastic achievement receives privileges to participate in extra-curricular activities.

3. On the basis of grades, students receive opportunities to take additional courses which will accelerate their academic progress.

4. A student must maintain a quality point average of at least 2.0 (C) and complete approximately 45 credits to be eligible to be transferred to an upper college from the General College. His acceptance is dependent on the approval of the Dean of the upper college which he has chosen to enter and on his academic performance to date.

5. To receive a degree, each student must have attained a quality point average of at least 2.0 both as an overall average and for all work taken at The University of Akron.

6. High grades are essential for persons planning to go on into graduate work.

### PROBATION, DISMISSAL

A student who fails to maintain a quality point average of 2.0 (C) is placed on academic probation and may be subject to a change of courses, suspension or some other form of discipline. Academic discipline is determined by the Dean of the college in which the student is enrolled. Reinstatement of a student is also determined by the Dean of the college.

Students who have been dismissed from the University are not eligible to register for credit courses until readmitted.

### GRADUATION WITH HONORS

If he has earned 90 or more credits at the University, a student receiving his initial baccalaureate degree will be graduated "summa cum laude" if he has an overall quality point average of 3.75 or higher; he will be graduated "magna cum laude" if his overall average is between 3.50 and 3.74; and "cum laude" if it is between 3.25 (B plus) and 3.49.

Students receiving the first two-year associate degree who have earned a quality point ratio of 3.25 or higher for all work taken and who have a minimum of 45 credits at The University of Akron are honored at graduation with the designation, *with distinction*.

### REQUIREMENTS FOR BACCALAUREATE AND ASSOCIATE DEGREES

A candidate for the Baccalaureate or the Associate degree must:

1. File an application for graduation with the Registrar

a. For June Commencement, on or before January 15.

b. For December Commencement, on or before July 15.

2. Earn a minimum 2.000 grade point average as computed by the Registrar for work attempted at The University of Akron consistent with the REPEATING COURSES policy.

3. Earn the minimum grade point average specified in the CREDIT AND GRADE POINT REQUIREMENTS FOR GRADUATION TABLE as computed by the appropriate college and/or major department for work attempted in the major field at The University of Akron consistent with REPEATING COURSES policy.

4. Meet all degree requirements which are in force at the time a transfer is made to a degree granting college. If the student should transfer to another major, then the requirements should be those in effect at the time of the transfer. For a student enrolled in an associate degree program in the Community and Technical College, the requirements shall be those in effect upon entrance into the program.

5. Be approved for graduation by the appropriate college faculty, University Council and Board of Trustees.

6. Complete the requirements for a degree in not more than five calendar years from the date of transfer, as defined below. In the event the student fails to complete the degree requirements within five calendar years from the date of transfer, the University reserves the right to make changes in the number of credits and/or courses required for a degree.

The date of transfer for a student in a baccalaureate program will be the date that the student is accepted by the degree granting college. For a student enrolled in an associate degree program in the Community and Technical College, the date of transfer refers to the date of entrance into the program.

7. Earn the last 48 credits in the baccalaureate degree total or 24 credits in the associate degree total in residence at The University of Akron unless excused in writing by the Dean of the College in which the student is enrolled.

8. If a student who has transferred from another institution wishes to present for his major fewer than 20 credits earned at The University of Akron he must have the written permission of both his Dean and head of the

department concerned.

9. Discharge all other individual obligations to The University of Akron.

Recommended implementation dates for all proposed changes:

<i>Policy</i>	<i>Effective Date For All Students Entering Fall Quarter 1973</i>	<i>Will students presently enrolled be covered by new policy after effective date?</i>
ACADEMIC REASSESSMENT	September 1973	Yes
AUDITING OF COURSES	September 1973	Yes

2. Earn a minimum of
  - a. 48 credits which have not counted toward the first baccalaureate degree.
  - b. 24 credits which have not counted toward the first associate degree.
3. Earn the above credits in residence.

### CHANGE OF REQUIREMENTS

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

Unless the change in a rule or regulation specifies otherwise, it shall become effective immediately with respect to each student who sub-

sequently enters the University, whatever the date of his matriculation.

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

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

The Dean of a College, in consultation with the Department or Division Head of the student's major field of study, may grant waivers in writing, in the event a change in rules affecting degree requirements operates with undue hardship upon a student enrolled before the change was effective. The action of the Dean of the College in granting or refusing a waiver must be reviewed by the Vice President for Academic Affairs on his own motion, or at the request of the Dean of the College of the student affected or at the request of the student affected.

## CREDIT AND QUALITY POINT REQUIREMENTS FOR GRADUATION

<i>College</i>	<i>Degrees Granted</i>	<i>Minimum Quarter Credits</i>	<i>Minimum Qual. Pt. Average Required</i>	
Arts and Sciences	Humanities:	Bachelor of Arts	192	2.0
	Social Sciences:	Bachelor of Arts	192	2.0
		Bachelor of Science in Labor Relations	192	2.0
	Natural Sciences:	Bachelor of Arts	192	2.0
		Bachelor of Science	192	2.0
	Bachelor of Science in Medical Technology	192	2.0	
Engineering	Bachelor of Science in Chemical Engineering	204	2.0	
	Bachelor of Science in Civil Engineering	201-202	2.0	
	Bachelor of Science in Electrical Engineering	204	2.0	
	Bachelor of Science in Mechanical Engineering	204	2.0	
Education	Bachelor of Arts in Education	192	2.0*	
	Bachelor of Science in Education	192	2.0*	
Business Administration	Bachelor of Science in Business Administration	192	2.0	
	Bachelor of Science in Industrial Management	192	2.0	
	Bachelor of Science in Accounting	192	2.0	
College of Fine and Applied Arts	Bachelor of Music	193	2.0	
	Bachelor of Arts	192	2.0	
	Bachelor of Fine Arts	192	2.0	
College of Nursing	Bachelor of Science in Nursing	195	2.0	

## CREDIT AND QUALITY POINT REQUIREMENTS FOR GRADUATION (Continued)

<i>College</i>	<i>Degrees Granted</i>	<i>Minimum Quarter Credits</i>	<i>Minimum Qual. Pt. Average Required</i>
Community and Technical College	Associate Degree in:		
	Arts	96	2.0
	Associate Degree in Applied Science in:		
	Chemical Technology	99	2.0
	Commerce	96	2.0
	Commercial Art	96	2.0
	Community Services Technology	96	2.0
	Cytotechnology	96	2.0
	Data Processing	96	2.0
	Educational Technology	96	2.0
	Electronic Technology	102	2.0
	Food Service Management	96	2.0
	Industrial Technology	96	2.0
	Instrumentation Technology	101	2.0
	Criminal Justice Technology	96	2.0
	Mechanical Technology	102	2.0
	Office Services Technology	96	2.0
	Sales and Merchandising	96	2.0
	Secretarial Science	96	2.0
	Surveying and Construction Technology	102	2.0
	Transportation	96	2.0
	Bachelor of Technology Degree in:		
	Electronic Technology	202	2.0
	Mechanical Technology	202	2.0

\*Quality point average of 2.5 in major field is required.

## ***Fees and Expenses***

(Fees subject to change without notice)

Despite willingness of taxpayers and generous friends of the University to help support higher education, some portion of this total expense must be borne by the student. Typical costs for one year (September through June) based on an average academic load of 48 credits for the three quarters are:

	<i>Commut- ing Resi- dents of Ohio</i>	<i>Resi- dents of Ohio Living in Dorms</i>	<i>Non- Ohio Resi- dents</i>
Undergraduate fee for regular load	\$612	\$ 612	\$1,572
General Service Fee	135	135	135
Books (average)	150	150	150
Food and Housing in Residence Halls	—	1,320	1,320
	<u>\$897</u>	<u>\$2,217</u>	<u>\$3,177</u>

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

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

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

It is the responsibility of the Registrar to assess fees and surcharges at the time of registration; information given by the student at that time is used in the assessment. Each

registration is later audited by the University Auditor, and appropriate additional charges or refunds will be made.

All fees and surcharges are due at the time of registration or on the specified fee payment deadline. The status of the student as of the opening day of the quarter or session for which he is registered, will determine the final, correct amount of fees and surcharges.

## FEES

(Fees subject to change without notice.)

### 1. INSTRUCTIONAL FEE\* (ALL STUDENTS)

#### Undergraduate

1-13 $\frac{1}{2}$ credits	\$14 per credit
14-15 credits	190 per quarter
15 $\frac{1}{2}$ and over credits	\$190 + 14 per credit over 15

#### Graduate and Professional (Law)

1 or more credits	\$23 per credit
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### 2. TUITION SURCHARGE\* (Non-residents of Ohio pay the surcharge in addition to the Instructional Fee)

#### Undergraduate

$\frac{1}{2}$ or more credits	\$ 20 per credit
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#### Graduate and Professional (Law)

1 or more credits	\$ 6 per credit
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### 3. GENERAL FEE

#### Undergraduate

	\$ 4 per credit to a maximum of 45 per quarter (Maximum General Fee for three combined Summer Sessions is \$45.)
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#### Graduate and Professional (Law)

Full-time (9 or more credits in any quarter)	\$ 15 per quarter
Part-time (8 $\frac{1}{2}$ or less credits in any quarter)	5 per quarter

### 4. ADMISSION APPLICATION FEE

(non-refundable)

Undergraduate and Postbaccalaureate	\$ 20
Entering Graduate Student	20

Entering School of Law Student	20
Transient Student (each period of enrollment)	20

### 5. SPECIAL FEES

#### Late Registration Fee

Charged to students who have not completed registration and paid fees before close of registration or by final date of payment.	\$ 20
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#### Music Fees

No fees are charged for enrollment  
of qualified students in Music  
Organizations.

Private lessons in Band Instrument,  
Organ, Piano, Violin and Voice (in  
addition to normal instructional fees):

Two 1/2 hour lessons per week (Undergraduate)	\$ 50
Two 1/2 hour lessons per week (Graduate)	50

One 1/2 hour lesson per week (Undergraduate)	\$ 25
One 1/2 hour lesson per week (Graduate)	25
One 1/2 hour practice per week on pipe organ	-0-

#### Thesis and Binding Fees

Binding Fee (per volume)	7
Microfilming Fee (for Ph.D. degrees only)	25

#### Graduation Fees

Each Degree	12
In Absentia, per degree (add'l)	2

#### Informal Course Fee

Per course unless otherwise noted	22
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### 6. MISCELLANEOUS FEES

A.C.T.	\$ 7
Transcripts, each	2
I.D., late or lost	5
Credit by Examination (Undergraduate and Postbaccalaureate), per credit	14
Student Teaching Fee (Course 515:402)	25
Language Tape Rentals (refundable)	10
Locker Fee (\$1.00 refundable) (September - June)	5
Locker Fee, Physical Education (\$1.00 refundable)	3
Towel Rental	5
Change of Course Registration (add/drop)	
Summer School for Children (per course)	25

\*Does not include special or miscellaneous fees, i.e.: music, late registration, etc. Zero credit courses (such as 352:205) are charged on the basis of the number of hours of class per week.

Summer School for Gifted Children (per course)	25
Laboratory Breakage Deposit (refundable)	10
"Non Sufficient Funds" or Returned Check Charge	5
Co-op Course Fee	15
Home Management Fee (Course 740:422)	85

**7. PARKING FEES**

Students enrolled for 9 or more credits	\$ 20 per quarter
Students enrolled for 8½ or fewer credits	10 per quarter
Summer Session students	10 per session
Workshop participants	8
Department of Special Programs	5 per quarter

**8. DAY CARE**

Per Hour	\$ .75
Maximum per week	25.00

**9. NURSERY SCHOOL**

Per quarter (for 3 mornings)	\$ 44
Per quarter (for 4 afternoons)	55

**ROOM AND BOARD**

On the Boarding Plan at the University, young men and women living in the residence halls obtain both board and room for a yearly total of \$1,320. Payment plans can be arranged with the Director of Housing.

**VETERANS' EXPENSES**

Disabled veterans who are eligible for admission to the University may register for courses without payment of fees, if they are certified by the Veterans' Administration.

Full payment of fees is required if the veteran does not have his Certificate of Eligibility at the time of registration. The cash payment will be refunded when the veteran presents his Certificate of Eligibility.

Non-disabled veterans must pay their fees at the time they register. They will receive specified allowances under Public Law 89-358.

Sons and daughters of deceased veterans covered under Public Law 634, must pay their fees at the time of registration. They will receive specified allowances under Public Law 634.

**AUDITORS**

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

**STUDENT HEALTH AND ACCIDENT INSURANCE**

Student health and accident insurance designed specifically for students of The University of Akron is required of all residence hall students and all international students except those who present proof that they already have similar coverage. Other day students carrying nine or more credits, graduate students carrying six or more credits may purchase this insurance at the same annual individual rate of \$37.50.

**RULES GOVERNING NON-RESIDENT SURCHARGE****RESIDENCY REQUIREMENTS**

Payment of non-resident tuition is required of any student who does not qualify as a permanent resident of Ohio as defined by one or more of the sections as contained in Division B of the Regulations of the Board of Trustees Governing Business and Financial Administration for The University of Akron.

For purposes of assessing fees and tuition, the Board defines a "bona fide resident" as a person who resided in the State of Ohio for a minimum of 12 consecutive months immediately preceding the date of enrollment, or who is gainfully employed full-time in the State of Ohio and who has in good faith established a dwelling place or abode in the State of Ohio, with the intent to make the State of Ohio his permanent home for purposes other than attending The University of Akron. A fraternity house, sorority house or University residence hall shall be presumed not to be a permanent home or abode for the purpose of this regulation.

A student who properly qualifies under one of the following rules is a bona fide resident; one who fails to so qualify is a non-resident:

a. The student is under 21 years of age, never married, and one of his natural parents is a bona fide resident.

b. The student is under 21 years of age, never married, and a person other than a natural parent is his guardian, and such guardian is a bona fide resident. Such person may be a grandparent who stands in *loco parentis* to the child after the death of his father and mother, his legal guardian, his adoptive parents, or other person who under the laws of the State of Ohio is a natural guardian. However, if the University finds that the intent of establishing a guardianship is for the primary purpose of achieving bona fide residence status for purpose of attending The

University of Akron, such residence status will be denied.

c. The student is under 21 years of age and can establish satisfactory evidence of emancipation and that he is a bona fide resident.

d. The student is 21 years of age or older and is gainfully employed full-time in the State of Ohio while pursuing a part-time program of instruction and there is reason to believe that he did not enter the state for the primary purpose of enrolling at The University of Akron.

e. The student is 21 years of age or older and a bona fide resident. A student who did not qualify as a bona fide resident on his 21st birthday does not change his residence status unless he can qualify under (d) above, or provide other evidence satisfactory to "The Committee on Residence Status."

f. The student, regardless of age, is married and is a bona fide resident or whose spouse is a bona fide resident.

g. The student, regardless of age, who was married then divorced or separated must have been a bona fide resident in his own right in order to retain the residence status.

h. The student is a teacher taking up residency in the State of Ohio preparatory to teaching in Ohio schools or colleges and who has signed a contract committing him to service in Ohio.

i. The student is a bona fide resident who entered the military service or is a dependent of a bona fide resident who entered the military service and has continuously resided or voted in the State of Ohio or is a dependent of a person in the military assigned to duty in the State of Ohio.

j. The alien student holding an immigrant visa may establish Ohio residency in the same manner as citizens of the United States. An alien student admitted to the United States on a student visa other than an immigrant visa shall be classified as a non-resident student.

The Registrar shall classify a student as a bona fide resident or non-resident student at the time of registration for each quarter or session. A student may appeal to the Committee on Residence Status for a change from a non-resident classification by executing and filing with the Registrar a form entitled "Application for Resident Status."

### REGULATIONS REGARDING REFUNDS

Registration does not automatically carry with it the right of a refund or reduction of in-

debtedness in cases of failure or inability to attend class or in cases of withdrawal. The student assumes the risk of all changes in business or personal affairs.

*Free Subject to Refund are:*

1. Instructional and Non-resident Surcharge
2. General Fee
3. Special Programs (Informal Courses)
4. Parking (Only if permit is returned)
5. Student Teaching
6. Laboratory Breakage Fee
7. Residence Hall Fees (Note special refund policy)

*Amount of Refund:*

A. In full

1. If the University cancels the course.
2. If the University does not permit the student to enroll or continue.
3. If the student dies before or during the quarter or is drafted into military service by the United States or if the student enlisted in the National Guard or Reserves prior to the beginning of the quarter in which he is called to active duty, presents his notice of induction or Orders to Active Duty. Students who enlist voluntarily for active duty, see "D" below.

B. In full less \$3 per enrolled credit hour to a maximum of \$30:

If the student requests in writing official withdrawal from credit courses before the first day of the enrolled term.

C. In full less \$8

If the student requests in writing official withdrawal from Department of Special Programs courses before the first day of the term for which enrolled.

D. In part

If the student requests in writing official withdrawal on or after the first day of the term for which he is enrolled the following percentage refunds apply:

	<i>College Credit Courses</i>	<i>Department of Special Programs</i>
1-21 calendar days	50%	50%
Thereafter	0	0

If the student requests in writing official withdrawal on or after the first day of any summer session for which he is enrolled, the following refund percentages apply:

1-14 calendar days	50%	50%
Thereafter	0	0

Refunds will be determined as of the date of formal withdrawal unless proof is submitted that circumstances beyond control of the student prevented the filing of the formal withdrawal earlier, in which case the refund will be determined as of the date he last attended class. The student assumes responsibility for filing for a refund.

Refunds will be mailed as soon as possible. Refund checks are subject to deduction for any amount owed to The University of Akron by the student.

#### E. No refund

If a student is dismissed or suspended by the University for disciplinary reasons he will receive no refund.

### RESIDENCE HALL REFUNDS

In the event of cancellation of an accepted residence hall room and board contract (for any reason) \$50.00 will be retained by The University as a forfeiture.

In the event of cancellation of a residence hall room and board contract in writing prior to the start of a quarter, a full refund of monies paid less \$50.00 will be made if the residence halls housing the same sex as the cancelling student are filled to capacity at the start of a quarter.

In the event of cancellation of a residence hall room and board contract in writing prior to the start of a quarter and the residence halls housing the same sex as the cancelling student

are not filled to capacity, a refund will be made of \$172.00.

In the event of cancellation of a residence hall room and board contract in writing after the start of a quarter and the residence halls housing the same sex as the cancelling student are not filled to capacity, a refund will be made of \$2.25 per day for each day remaining in the quarter.

In the event of cancellation of a residence hall room and board contract in writing after the start of a quarter and a replacement can be found for the cancelling student and the residence halls housing the same sex as the cancelling student are filled to capacity, a refund will be made of \$5.40 per day for each day remaining in the quarter, but in no event will the refund exceed \$365.00.

In the event of cancellation of a board only contract in writing, a refund will be made of \$2.25 per day for each day remaining in the quarter.

In the event of cancellation of a residence hall room and board contract due to the academic dismissal of the student, a full refund will be made of monies paid for the balance of the academic year.

In the event of cancellation of a residence hall room and board contract by The University due to all halls housing the same sex as the cancelled student being filled beyond capacity, a full refund of all monies paid will be made.

## ***Financial Aids***

An entering freshman or an enrolled student at the University in undergraduate, graduate or post-graduate courses has several possibilities of receiving financial aid which can facilitate his acquiring a college degree. A student transferring from another institution must complete a regular quarter at the University before he is considered for scholarship assistance.

Students who are intellectually capable of completing University courses and have indication of this on their academic records are eligible for consideration as recipients of a fellowship, scholarship, award, loan, or employment opportunity. Applicants wishing to be considered on the basis of need must submit a Parents' Confidential Statement to the National College Scholarship Service.

#### *Definition of terms:*

**FELLOWSHIP** — an endowment or sum of money paid for the support of a graduate or postgraduate student.

**SCHOLARSHIP** — an endowment or sum of money paid for the support of a student, usually undergraduate, while he is studying at the University.

**AWARD** — a sum of money given to a University student as special recognition of an achievement, to aid him in continuing his higher education.

**LOAN** — an amount of money which a student may borrow, with a planned schedule of repayment.

Information and application forms for fellowships can be obtained from the Office of the Dean of the Graduate School. Information and

application forms for scholarships, awards and loans are available in the Student Financial Aids Office.

Currently offered fellowships, scholarships and awards as well as sources of money which can be loaned to worthy students are listed as follows:

### SCHOLARSHIPS, FELLOWSHIPS AND GRANTS

#### AIR FORCE ROTC COLLEGE SCHOLARSHIP PROGRAM

These scholarships, authorized by Public Law through the Vitalization Act of 1964, are designed to offer assistance to outstanding young men and women who enroll in either the four-year or two-year Air Force ROTC program. Each scholarship provides for full payment of tuition, laboratory and associated fees, an allowance for textbooks, and includes a tax-free allowance of \$100.00 each month during the period the student is in school and on scholarship status.

#### AKRON AREA PLUMBERS AND PIPEFITTERS INDUSTRY SCHOLARSHIP FUND

These scholarships are designed to provide educational opportunities for students interested in careers in fields related to the Akron Area Plumbers and Pipefitters Industry, such as public health, sanitation, community planning, mechanical and civil engineering. First preference will be given to children of journeyman plumbers and contractor members of the organization who are pursuing programs in civil engineering, mechanical engineering, business administration or nursing at The University of Akron.

#### THE AKRON BAR ASSOCIATION AUXILIARY SCHOLARSHIP

This fund, established by the Akron Bar Association Auxiliary, provides an annual scholarship from principal and income not to exceed \$1,000 to an entering student in a full-time program of law study. The University Scholarship Committee, on the basis of scholarship, legal aptitude, character and need, and with the advice of the Dean of the School of Law shall make the selection, giving first preference to a resident of Summit County, Ohio. A recipient may apply for an annual renewal of the scholarship.

#### AKRON BRICK AND BLOCK COMPANY FOUNDERS MEMORIAL SCHOLARSHIPS

A fund established in 1967 by the Akron Brick and Block Company in memory of the company founders, Messrs. Henry Camp, Kenneth Kutz, Albert A. Hilkert and George H. Meyers for the purpose of providing scholarships to students with serious financial need. Preference will be given to male students in the field of Engineering or Business Administration.

#### AKRON COUNCIL OF ENGINEERING AND SCIENTIFIC SOCIETIES SCHOLARSHIP

Funds contributed by the Akron Council of Engineering and Scientific Societies provide a \$500 award to a rising senior majoring in engineering, chemistry, physics or mathematics on the basis of academic performance, character, financial need and co-curricular activity.

#### AKRON DISTRICT SOCIETY OF PROFESSIONAL ENGINEERS SCHOLARSHIP

The Akron District Society of Professional Engineers sponsors this scholarship in the amount of \$300 per year to a junior or senior engineering student recommended by the Dean of the College of Engineering.

#### AKRON EDUCATION ASSOCIATION SCHOLARSHIP

A scholarship, sponsored jointly by The University of Akron, the Akron Board of Education and the Akron Education Association to cover registration fees. The scholarship will be awarded to a student planning to enter the teaching profession. The award will be granted by the University Scholarship Committee upon recommendation of a committee of the Akron Education Association. First preference will be given to a son, daughter, niece, nephew, brother, sister or spouse of certificated employees of the Akron Board of Education who is enrolled in the College of Education as a full-time student.

#### AKRON FIRE FIGHTERS ASSOCIATION SCHOLARSHIP

This scholarship was established by the Akron Fire Fighters Association with equal amounts going to the selected students and the University's general operating expenses. It is awarded to a worthy student in need of financial assistance to meet college costs. Selection is made by the University Scholarship Committee.

#### AKRON RUBBER GROUP SCHOLARSHIPS IN CHEMISTRY

Awards of \$660 per year are made to entering students and/or undergraduate students majoring, or intending to major, in chemistry or chemical engineering. Outstanding ability in science and chemistry will be given primary emphasis in awarding these scholarships.

#### AKRON U. ALUMNI FUND SCHOLARSHIPS

Scholarships to men and women of excellent scholastic achievement are awarded by the University Scholarship Committee.

#### AKRON UNIVERSITY ASSOCIATES SCHOLARSHIPS

Scholarships for qualified students are available from funds provided by corporations which hold membership in Akron University Associates. Those which have held active membership since June, 1973, are: The Akron, Canton & Youngstown Railroad Company; Akron Brick & Block; Akron Coca-Cola Bottling Company; Akron Equipment Company; Akron National Bank & Trust Company; The Fred W. Albrecht Grocery Company; Alcoa Foundation; The

American Bank of Commerce; The Babcock & Wilcox Company; Bellows-Valvair Division of IBEC; Brown Derby, Inc.; The Burger Iron Company; Cabot Corporation; Chrysler Corporation; Danner Press Corporation and Akron Typesetting Company; E. I. duPont de Nemours and Company; The East Ohio Gas Company; Eastman Kodak Company; Eaton Corporation, Molded Products Division; Ernst & Ernst; The Firestone Bank; Firestone Foundation; The Firestone Tire & Rubber Company; First National Bank of Akron; Firwood Manufacturing Company; Forest City/Dillon, Incorporated; General Motors, Earthmoving Equipment Division; The General Tire & Rubber Company; The B. F. Goodrich Company; The Goodyear Tire & Rubber Company; HWH Associates, Inc.; The Hardware & Supply Company; Harwick, Inc.; Hesselbart & Mitten; Hoover Foundation; J. M. Huber Corporation; Knight Foundation, Inc.; Lord Corporation; Mack Trucks, Inc.; Massey Ferguson, Inc.; McNeil Corporation; Merrill Lynch, Pierce, Fenner & Smith, Inc.; Moffitt Foundation; Monsanto Company; NRM Corporation; Norton Company; Ohio Edison Company; Ohio Match Company; The M. O'Neil Company; Owens-Corning Fiberglas Company; Pepsi-Cola Bottlers of Akron, Inc.; Petro-Tex Chemical Company; Phillips Petroleum Company; Polsky's; PPG Industries, Inc.; Readers Digest; Reilly Foundation; John G. Ruhlin Construction Company; A. Schulman, Inc.; The Spohn Corporation; Teledyne Monarch Rubber; Temperature Control Company; The Timken Company; The Tower Agencies; Union Carbide Corporation; Western Electric Company; Witco Chemical Company, Inc.; Xerox Corporation.

#### AKRON WOMEN IN CONSTRUCTION SCHOLARSHIP

A scholarship in the amount of \$300 a year is awarded to a female student from the Akron area, majoring in a construction related field.

#### ARMY ROTC SCHOLARSHIPS

The Army's one, two, three, and four year scholarships provide financial assistance to highly qualified and motivated male and female students interested in pursuing careers as commissioned officers in the Army following graduation from college. Each scholarship pays tuition, activity and laboratory fees, provides required texts and other educational supplies, and, in addition, pays a tax-free subsistence allowance of \$100 per month for up to ten months each academic year for the period of the scholarship.

#### THE ART AUCTION SCHOLARSHIP FUND

These scholarships are made possible from the proceeds from the Annual Art Auction held by the Art Department.

#### DAVID BRUCE AUBURN SCHOLARSHIP

An endowed fund established by the Schaefer Foundation in honor of David Bruce Auburn, the youngest child of Dr. and Mrs. Norman P. Auburn. The income and/or the principal is to be used for scholarship purposes for deserving students from the State of Ohio enrolled in the Community and Technical College of Akron as determined by the University Scholarship Committee. An amount equal to one half disbursed for scholarship purposes will be set aside for faculty salaries.

#### KATHLEEN MONTGOMERY AUBURN SCHOLARSHIP FOR GRADUATE STUDY

Contributions from major women's campus groups, alumnae, and faculty members make possible this scholarship which will enable women to pursue graduate or professional study.

#### KAY AUBURN CHAMBER BALLET SCHOLARSHIP

A fund established by The Women's Committee of The University of Akron as a special honor to Mrs. Norman P. Auburn for the purpose of assisting a full-time student who has been recommended by the Artistic Director of the Chamber Ballet and approved by the Dean of the College of Fine and Applied Arts. The amount of the award is \$200 annually.

#### THE NORMAN P. AUBURN SCHOLARSHIP IN ENGINEERING

An annual \$1,500 scholarship to a first-year College of Engineering student who shows promise of high academic achievement. This scholarship is for the first academic year only (resident or nonresident). The selection of the recipient is to be made by the University Scholarship Committee and the Dean of the College of Engineering. This scholarship, in honor of President Emeritus Norman P. Auburn, is in recognition of his dedicated academic leadership of the University (1951-71), and especially in the development and expansion of the College of Engineering in comprehensive programs through the doctorate.

#### THE EDWARD SPENCER BABCOX SCHOLARSHIP FUND

This endowed fund was established by the Babcox Business Publications in honor of the company founder, Mr. Edward Spencer Babcox. One half of the income will be used for scholarship assistance as determined by the University Scholarship Committee and the remaining half will go into the University's current operating fund. Students in the field of rubber and tire journalism will be given preference.

#### SUMMERFIELD BALDWIN III SCHOLARSHIP

In memory of the late Dr. Summerfield Baldwin III, Professor of History, an award in the amount of fees for one year is presented to a student in the junior class who is majoring in the field of history and who scholastically and intellectually proves that he or she intends to pursue studies in this field, preferably to the graduate level.

#### MARY LOUISE BEVERLY SCHOLARSHIP

A fund established in 1965 by Mr. Robert F. Harris, Class of 1928, in memory of his sister, Mrs. Mary Louise Beverly, Class of 1940, who was for many years principal of Spicer School and more recently Director of Elementary Education in the Akron Public Schools. The income will be used to assist worthy students in the College of Education. Memorial contributions are still being accepted as additions to this fund.

**RAY C. AND ELLEN P. BLISS  
POLITICAL SCIENCE SCHOLARSHIP FUND**

This endowment fund was established in 1972 by Mr. Ray C. Bliss, Class of 1935, and Mrs. Ray C. Bliss (Ellen Palmer), Class of 1931, for the purpose of making scholarship awards to any full-time undergraduate student, without regard to race, color, creed, sex, or national origin who is in need of a grant in pursuing a major in Political Science within the Buchtel College of Arts and Sciences. First preference is to be given to students from Summit County, State of Ohio. All applicants must have demonstrated scholastic ability, possess high qualities of citizenship, moral character, promise and leadership. The recipients and amount of scholarships shall be determined by the University Scholarship Committee. Contributions to the Fund are accepted from interested donors.

**BREWSTER SCHOLARSHIP**

A fund established by Mr. and Mrs. Evan B. Brewster (Margaret Zink, Class of 1925) to provide scholarship assistance to junior and senior students in amounts up to \$200 a year.

**MILDRED HETER BUCKINGHAM  
MEMORIAL SCHOLARSHIP**

This endowment fund was established by Mr. Lisle M. Buckingham for the purpose of making awards to full-time students who show promise in the field of applied music and who are recommended by the Department of Music.

**LELAND STANFORD  
BUCKMASTER SCHOLARSHIP**

An endowment fund established by friends and relatives of the late Mr. Leland Stanford Buckmaster, a member of the Board of Directors of The University of Akron from 1957 to 1962, and supported in large measure by contributions from the American Federation of Labor — Congress of Industrial Organizations of which he was Vice President, and many unions affiliated with the United Rubber Workers of which he was International President. The income is used to assist worthy students who are selected by the University Scholarship Committee. Memorial Contributions are still being accepted as additions to this fund.

**THE BURGNER MEMORIAL  
MEDICAL SCHOLARSHIP**

An endowed fund established in memory of the late Dr. Earl W. Burgner by his wife Lois A. (Class of 1922) and friends for the purpose of providing financial assistance to a premedical student at The University of Akron selected on the basis of academic achievement. In the event the University adds a Medical School, this scholarship will be awarded to one or more students of the Medical School.

**HERVEY E. CHAMBERS  
SCHOLARSHIP**

The trust agreement of Hervey E. Chambers provides scholarship assistance not to exceed \$500 per year to worthy and deserving persons attending The University of Akron. The recipients and the amount of scholarships to be determined by the University Scholarship Committee.

**THE CHILTON, STUMP & DAVERIO  
AWARD TO OUTSTANDING JUNIORS  
MAJORING IN ACCOUNTING**

Two \$250 scholarship awards to outstanding juniors ma-

joring in accounting at The University of Akron. This award was established in 1974 by the certified public accountants firm, Chilton, Stump & Daverio, in recognition of the contributions made by the Accounting Department and faculty of The University of Akron.

**THE CARL COFFEEN  
EDUCATIONAL SCHOLARSHIP**

A \$300 per year scholarship offered annually by the Summit Federal Credit Union in honor of Dr. Carl Coffeen, retired Superintendent of Summit County Schools. Preference will be given to any student who is a member or son or daughter of a member of the Credit Union who will enter the Junior year at The University of Akron and who expects to enter the field of Education. Recipients will be selected on the basis of financial need, academic achievement and leadership.

**COLLEGE CLUB OF  
AKRON SCHOLARSHIP**

A scholarship sponsored by the College Club of Akron in the amount of \$600 per year for one year to an entering freshman girl. Recipients are selected by the Scholarship Committee of the College Club of Akron upon the recommendation of The University of Akron Scholarship Committee. Need, character and ability to succeed in college work are important qualifications.

**HUGH F. COLLIER  
SCHOLARSHIP**

A Scholarship to cover student fees and text books, established in 1971 by Mr. Hugh F. Collier, a long time employee of The Goodyear Tire and Rubber Company. Selection will be made by the University Scholarship Committee based on financial need and satisfactory academic progress.

**COPPERWELD STEEL COMPANY'S  
WARREN EMPLOYEES' TRUST SCHOLARSHIP**

The Aristoloy Steel Division of the Copperweld Steel Company provides scholarship assistance to worthy students attending The University of Akron. Preference is given to students who are Copperweld Steel Company employees or dependents of employees, retirees, or former employees who become deceased while still associated with the firm. Recipients must meet the qualifications prescribed by the University Scholarship Committee.

**ROBERT CRAFTS  
MEMORIAL SCHOLARSHIP**

A fund established in 1969 by Mrs. Robert Crafts in memory of her husband, Robert Crafts, Esq. The income or principal or both will be used to assist worthy students in the School of Law who enter under the Council on Legal Education Opportunity program, and students similarly situated, on the recommendation of the Dean of the School of Law.

**THE GEORGE J. CURTIS SCHOLARSHIP**

A \$300 per year scholarship offered annually by the Summit Federal Credit Union in honor of George J. Curtis, an official of long standing on the Credit Committee and a director on the Board. Preference will be given to any student who is a member or son or daughter of a member of the Credit Union who will enter the Senior year at The University of Akron and who expects to enter the field of Education.

Recipients will be selected on the basis of financial need, academic achievement and leadership.

**FRED AND RUBY DANNER  
MEMORIAL SCHOLARSHIP**

A fund established by Mr. Bob F. Danner in 1967 in memory of his parents, Fred and Ruby Danner, for the purpose of providing scholarship assistance to worthy students. First preference is given to students from the Canton, Ohio, area. The University Scholarship Committee selects the recipient and determines the amount of the grants.

**ROSE AND JULIUS DARSKY  
SCHOLARSHIP**

An endowed fund made possible by Dorothy and Samuel Cohen, Shirley and Stanford Lerner, Arlene and Bertram Lockshin, Arlene and Hugh Allen Lockshin, and Joyce and Robert Lockshin. The income will be used for the purpose of providing scholarship assistance to any worthy person attending The University of Akron without regard to race, creed, sex, or national origin. Preference will be given to those who are unable to be employed while attending college due to a physical handicap. Selections of the recipients will be made by the University Scholarship Committee.

**THE MALCOLM J. DASHIELL  
SCHOLARSHIP FUND**

Established in the memory of the late Malcolm J. Dashiell, Professor of Art, an award is granted annually to an Art student in the B.F.A. program in the College of Fine and Applied Arts.

**ELIZABETH C. DELLENBERGER  
AWARD**

This fund has been established by Miss Elizabeth C. Dellenberger for the purpose of making awards to students who are in need of financial assistance and who have demonstrated satisfactory scholarship. Selection is made by the University Scholarship Committee.

**DELTA GAMMA — RUTH K. BILLOW  
MEMORIAL SCHOLARSHIP**

Established by Akron Alumnae Chapter of Delta Gamma, this scholarship provides assistance on the basis of need, to a visually handicapped undergraduate or graduate student who is a resident of Summit County.

**DELTA GAMMA FOUNDATION  
SCHOLARSHIPS**

Scholarships in varying amounts are awarded by the Delta Gamma Foundation to women in universities in the United States and Canada.

**DELTA KAPPA GAMMA  
SCHOLARSHIP**

This scholarship is offered by the Akron Area Chapters of the Delta Kappa Gamma Society. The award of \$300 annually is made to a woman in her junior year who expects to enter the field of teaching.

**MR. AND MRS. CHARLES D. DILLEY  
SCHOLARSHIP**

An endowed fund established in 1966 by Mr. and Mrs.

Charles C. Dilley. The income is used to assist worthy students selected by the University Scholarship Committee.

**BETTY DOBKIN  
NURSING SCHOLARSHIPS**

Two or more scholarships of \$300 each are granted annually by the Women's Auxiliary to the Summit County Medical Society to students enrolled in or entering The University of Akron or the Akron Hospital Schools of Nursing. First preference will be given to Summit County residents. Recipients will be chosen on the basis of need, academic achievement and leadership.

**RICHARD H. ELLISON  
SCHOLARSHIP**

A fund established in 1970 by Mr. Richard H. Ellison in the amount of \$50 per quarter for the purpose of providing scholarship assistance to a worthy student in the College of Business Administration, a male of the Negro race, and an American citizen, preferably Akron area.

**ENJAY CHEMICAL  
COMPANY SCHOLARSHIP**

A fund established by the Esso Education Foundation for the purpose of providing financial assistance to junior or senior students in the Department of Chemistry. The selection of recipients will be made on the basis of academic achievement and financial need.

**ETHYL CORPORATION  
FELLOWSHIP**

This award is provided by the Ethyl Corporation Research and Development Department in support of a graduate student in polymer science.

**EVANS FOUNDATION  
SCHOLARSHIPS**

The Evans Foundation Scholarships in varying amounts are open to full-time students enrolled at The University of Akron who have demonstrated scholastic ability, possess high qualities of citizenship, promise and leadership, and who have financial need. For equally qualified students, preference shall be given to those enrolled in the College of Business Administration.

**FIRESTONE TIRE AND RUBBER  
COMPANY FELLOWSHIP**

This fellowship is awarded to a graduate student in Polymer Science. It is open to graduates of accredited American colleges and universities.

**ARTHUR L. FOSTER  
SCHOLARSHIPS**

Awards in the freshman year are made to graduates of Akron high schools. Awards are based on scholastic achievement, citizenship, promise and leadership.

**IRL A. FREDERICK  
SCHOLARSHIPS**

An endowment fund established under the will of the late Irl A. Frederick, Class of 1909, provides scholarship assistance to worthy students wishing to continue their education. The recipients and the amount of scholarships are determined by the University Scholarship Committee.

**ERVIN D. FRITCH AND ADA B. FRITCH  
SCHOLARSHIPS**

Scholarships are awarded annually to worthy and capable young women and men selected by the University Scholarship Committee on the basis of scholarship, financial need, moral character and ability.

**FUTURE SECRETARIES  
ASSOCIATION SCHOLARSHIP**

The Future Secretaries Association Scholarship has been established to provide funds for a promising Secretarial Science student in FSA. Academic standing, financial need, and participation in FSA are the requirements for a member to receive the scholarship.

**GENERAL MOTORS  
SCHOLARSHIP**

Supported by the General Motors Corporation, this scholarship provides an annual stipend ranging from \$200 to \$2,000 annually depending upon the recipient's need. The University Scholarship Committee selects an entering freshman student on the basis of academic potential and achievement and leadership qualities.

**GENERAL TIRE & RUBBER  
COMPANY RESEARCH FELLOWSHIP**

This fellowship is awarded to a graduate student in Polymer Science.

**THE GLAUS, PYLE, SCHOMER, BURNS,  
AND DE HAVEN SCHOLARSHIP**

The firm of Glaus, Pyle, Schomer, Burns, and DeHaven, Architect and Consulting Engineers, established this fund of \$500 in appreciation of the University's contributions to the community. Proceeds will provide scholarship assistance to worthy students in the College of Engineering.

**B. F. GOODRICH  
COMPANY GRANT**

This grant supports a fellowship to a graduate student in the field of Polymer Science.

**THE GOODYEAR TIRE AND RUBBER  
COMPANY ACCOUNTING  
SCHOLARSHIP**

A scholarship established by The Goodyear Tire and Rubber Company for the purpose of assisting one or two junior or senior students majoring in accounting who are recommended by the Accounting Department Faculty. The recipients must be United States citizens, desire to enter business or industry upon graduation and require financial assistance. The total amount awarded is \$1,000 annually.

**GOODYEAR INTERNATIONAL  
CORPORATION FELLOWSHIP**

The Goodyear International Corporation Fellowship is the value of \$2,300 per annum plus fees and tuition for the fellowship recipient. To be eligible for this fellowship, a candidate must be working toward a Master of Science in Engineering or Chemistry Degree and be an employee or family member of an employee in the overseas operation of the Goodyear International Corporation.

**GOODYEAR SERVICE PIN  
ASSOCIATION SCHOLARSHIPS**

These scholarships were established by the Goodyear Service Pin Association of the Goodyear Tire & Rubber Company. Annual scholarships of \$450 each are awarded to an entering freshman, a sophomore, a junior, and a senior student. To be eligible, a candidate must be a United States citizen, desire to enter industry upon graduation, and a child whose parent is an employee with five (5) years or more service with the Goodyear Tire & Rubber Company or one of its domestic subsidiaries.

**GOODYEAR TIRE & RUBBER  
COMPANY FELLOWSHIP**

This fellowship is awarded to a graduate student in Polymer Science. It is open to graduates of accredited American colleges and universities.

**GOODYEAR TIRE & RUBBER COMPANY  
FUND FOR COUNCIL ON LEGAL  
EDUCATION OPPORTUNITY  
(CLEO) STUDENTS**

A fund established in 1969 by Goodyear Tire & Rubber Company Fund. The principal and income will be used for living expenses of students admitted to the School of Law under the Council on Legal Education Opportunity program, on the recommendation of the Dean of the School of Law. The fund is administered by The University of Akron Development Foundation.

**GRAND LODGE OF FREE AND  
ACCEPTED MASONS OF OHIO  
SCHOLARSHIP**

One \$400 scholarship is awarded to a deserving student meeting the scholarship requirements.

**CARLOTTA C. GREER  
SCHOLARSHIP**

An undergraduate scholarship in the Department of Home Economics, established 1962-63 by Miss Carlotta C. Greer, Class of 1903.

**THE CHARLOTTE HANTEN  
ART SCHOLARSHIP**

A scholarship established in 1971 by Charlotte Hanten to provide financial assistance in the amount of \$300 a year (\$100 each quarter) to a student who has presented evidence of financial need and who has demonstrated superior art ability during at least one year of college work. Selection is made by a committee of the Art Department Faculty without consideration of the candidate's race, sex, color, religion or political beliefs.

**M. M. HARRISON  
MEMORIAL SCHOLARSHIP**

An award for a male chemistry student with a high scholastic average. The amount per year is determined by the University Scholarship Committee.

**OTIS C. HATTON SCHOLARSHIP**

This Scholarship in the amount of \$375 a year was established by the Akron Council of the Parent-Teachers

Associations in honor of the late Otis C. Hatton, former Superintendent of Schools. Preference is to be given to students planning to enter the education profession.

**ELLEN HERBERICH  
BALLET SCHOLARSHIPS**

Full tuition scholarships awarded annually to members of The University of Akron Chamber Ballet, who are full-time students at The University of Akron, and who have been recommended by the artistic director of the Ballet and selected by the Dean of the College of Fine and Applied Arts. This scholarship was established in 1970 by Ellen (Mrs. Charles) Herberich, Chairman of the Women's Board of The University of Akron Chamber Ballet. Contributions to the Fund are accepted from interested donors.

**WALTER & MARY EFFIE HERBERICH  
SCHOLARSHIP**

Established in 1965 by Mrs. Walter Herberich with income from endowment used to provide scholarship assistance as determined by the University Scholarship Committee. First consideration shall be to a blind student in the Department of Music, or if not applicable, to a meritorious student in the Department of Music as recommended by the Head of the Department. If no student in the Music Department is eligible, the scholarship should be awarded by the University Scholarship Committee in accordance with normal scholastic requirements.

**HESELBART AND MITTEN  
SCHOLARSHIP**

This fund was established by the Hesselbart and Mitten Advertising Agency to provide scholarship assistance in the amount of \$500 to a student selected by the University Scholarship Committee on the basis of academic achievement and need. Preference will be given to unmarried sons or daughters of employees of the agency.

**MR. & MRS. JOHN S. HEUSS  
SCHOLARSHIP**

This fund has been established by Mr. & Mrs. John S. Heuss for the purpose of making awards to students who are in need of financial assistance and who have demonstrated satisfactory scholarship. Selection is made by the University Scholarship Committee.

**KENNETH M. AND BARBARA HINEY  
SCHOLARSHIP**

A scholarship established by Mr. and Mrs. Kenneth A. Hiney. Preference will be given to a young man from the Akron area. Selection will be made by the University Scholarship Committee based on financial need and satisfactory academic progress.

**ALICE HESLOP HOOVER  
SCHOLARSHIP**

This scholarship is to be used for the purpose of aiding talented young women at The University of Akron, studying voice culture, who merit assistance.

**FRED F. AND BESSE WILLETT HOUSEHOLDER  
MEMORIAL SCHOLARSHIPS**

A fund established under the will of the late Fred F. Householder, Professor Emeritus of Physics, provides

scholarships to students in the Department of Physics.

**THE FRANK C. HOWLAND  
SCHOLARSHIP**

An endowed fund established by Mrs. Frank C. Howland in memory of her late husband. The income will be used to assist worthy students in the form of scholarships as determined by the University Scholarship Committee.

**CLARENCE L. HYDE  
MEMORIAL SCHOLARSHIP**

This scholarship of \$250 for the academic year was created by the Clarence L. Hyde League, and is a living commemoration of Dr. Hyde and his service to humanity. It shall be awarded each year to an outstanding senior student residing in Akron. (1970-71)

**ITALIAN AMERICAN PROFESSIONAL  
AND BUSINESS MEN'S  
CLUB SCHOLARSHIPS**

Established in April, 1973, by the Italian American Professional and Business Men's Club of Akron, three scholarships valued at \$500 each are awarded annually to deserving students entering the senior year majoring in Music, Art and Theatre Arts. Selection of a recipient from each of these categories will be made by the University Scholarship Committee upon the recommendation of the Dean of the College of Fine and Applied Arts.

**JUNIOR WOMEN'S CIVIC  
CLUB SCHOLARSHIP**

Annual scholarships in varying amounts are awarded to deserving students. Recommendations are made by the University Scholarship Committee with final approval by the Junior Women's Civic Club Scholarship Committee.

**KAUFMAN FOUNDATION SCHOLARSHIP**

One half of the income derived from this fund, established by Mr. Jerome J. Kaufman, is to be used to assist worthy students in the form of scholarships with an equal amount being used for faculty salaries.

**THE WALTER P. AND FAMA N. KEITH  
SCHOLARSHIP**

Scholarships awarded annually to students majoring in music. Recipients to be selected by the Dean of the College of Fine and Applied Arts upon recommendation of the Head of the Department of Music based on need and achievement. This scholarship fund was established in 1971 by Mr. and Mrs. Walter P. Keith.

**DR. KEVIN E. KELLEHER  
MEMORIAL FUND**

An endowed fund established by the immediate family of the late Dr. Kevin E. Kelleher, former Assistant Professor of Biology. The income will be used to provide scholarship assistance to worthy students specializing in ecology selected by the University Scholarship Committee.

**ALICE M. KESSLER  
MEMORIAL SCHOLARSHIP**

A fund established in 1973 by Mr. George W. Kessler in memory of his wife, Alice M. Kessler, for the purpose of providing scholarship assistance to worthy students majoring in

arts and/or music. The selection of the recipients will be made by the university Scholarship Committee.

**GEORGE S. KETTER  
MEMORIAL SCHOLARSHIP**

A scholarship established in 1972 by Mrs. George S. Ketter in memory of her late husband. Recipients shall be selected by the University Scholarship Committee based on financial need and satisfactory academic progress. Preference shall be given to freshmen or sophomore students in Electrical Engineering.

**MARTIN LUTHER KING, JR.,  
MEMORIAL SCHOLARSHIP**

A fund established in memory of the late Dr. Martin Luther King, Jr., for the purpose of providing scholarship assistance to worthy students attending The University of Akron. The selection of recipients will be made by the King Scholarship Committee on the basis of financial need without regard to race, creed, color or national origin.

**DR. WALTER C. KRAATZ MEMORIAL  
SCHOLARSHIP FUND**

A fund to memorialize the late Dr. Walter C. Kraatz, Professor Emeritus of Biology and former Head of the Department, in recognition of his dedication to teaching, especially in premedical training. Qualified and deserving students in biology will be selected by the University Scholarship Committee for the Kraatz Scholarship awards.

**THE E. P. LAMBERT  
COMPANY SCHOLARSHIP**

An endowed fund established by the E. P. Lambert Company. Income will be used to assist worthy students selected by the University Scholarship Committee. Students with an interest in rubber chemistry will be given preference.

**RUTH E. LEOPOLD  
SCHOLARSHIP FUND**

An endowed fund established under the will of the late Ruth E. Leopold. The income is used to aid needy worthy students to obtain an education at The University of Akron. The recipients are selected by the University Scholarship Committee without regard to race, creed or color.

**ISAAC LIBERMAN  
MEMORIAL SCHOLARSHIP**

An endowment fund, established by the Wooster Sheet Metal and Roofing Company in memory of Isaac Liberman, with earnings going toward a scholarship for a student demonstrating college potential and financial needs. The selection will not be limited in any way by race, color or creed of applicants and, if qualified candidates are available, family members of employees of the Wooster Sheet Metal and Roofing Company will be given primary consideration.

**BETTY JANE LICHTENWALTER  
SCHOLARSHIP**

This scholarship was established from a memorial fund in the name of Betty Jane Lichtenwalter. The income from this account is to be awarded to worthy students with music or speech majors.

**LOCAL 296 UAW  
MEMORIAL SCHOLARSHIP**

A memorial scholarship established by a grant from Local 296 United Automobile, Aerospace and Agricultural Implement Workers of America. First preference shall be given to the children of the Roger M. Crowe family in memory of a deceased member of the family.

**LOUIS LOCKSHIN SCHOLARSHIP**

An award up to \$350 a year for a deserving entering freshman established by the employees of the Workingmen's Overall Supply, Inc., in honor of Louis Lockshin. The applicant will be chosen on the basis of scholarship and need. Preference will be given to immediate family relatives of the employees. Race, color, creed or sex shall not be considered in making the award.

**VIRA DUNN MEYERS SCHOLARSHIP**

The proceeds from this fund may be used for the benefit of any worthy person attending The University of Akron. The recipient of this assistance will be selected by the University Scholarship Committee.

**LUBRIZOL SCHOLARSHIP**

An award is given to a student or students nominated by the Department of Chemistry. No restriction as to year of study.

**PHILIP P. AND FAYE LUTZ  
SCHOLARSHIP**

The \$100,000 trust agreement established by Mr. and Mrs. Philip P. Lutz provides scholarship assistance to students on the basis of need, scholastic potential and ultimate advantage to the student as meriting such scholarship grants. The University Scholarship Committee will determine the amount of the grants and the number of recipients. A graduating senior who has been a Lutz Scholarship recipient and who, in the opinion of the University Scholarship Committee, has used the scholarship grant to his or her own and the University's best advantage will receive an incentive award in the amount of \$1,000 or in such amount as determined by the Committee.

**GEORGE W. MATHEWS  
SCHOLARSHIP FUND**

Established in 1964 by Mr. George W. Mathews with income used to provide scholarships to students demonstrating ability and potentiality and requiring financial help. The award to be made without regard to race, creed, color or national origin. The number of scholarships, recipients, and the amount of aid to be determined each year by the University Scholarship Committee, with an equal amount going to the University current operating fund.

**C. BLAKE McDOWELL SCHOLARSHIPS**

The proceeds from this fund may be used for the benefit of any person attending The University of Akron. The recipient of this assistance will be selected by the University Scholarship Committee.

**RUTH McKNIGHT SCHOLARSHIP**

Scholarships in varying amounts are granted by the Ellet Women's Club to graduates of Ellet High School who are financially deserving and who wish to attend The University of Akron as full-time students.

**McNEIL CORPORATION SCHOLARSHIPS**

Four-year scholarships for students enrolled in the College of Engineering, preferably in mechanical engineering, have been provided by the McNeil Corporation. These are full scholarships for residents of Akron and include a grant for books.

**CARL MIRMAN SCHOLARSHIP**

This scholarship was established by The Akron Scrap Iron Company and Clean-Way Disposal System in memory of their founder, Carl Mirman. It is awarded to students who are in need of financial assistance and who have demonstrated satisfactory scholarship. Selection is made by the University Scholarship Committee.

**DR. LEON F. MOLDAVSKY SCHOLARSHIP**

This scholarship was established in 1957 by Leon F. Moldavsky, M.D. and since his death in December 1969 is being continued by his sister, Mrs. Sophie M. Leuchtag. It is awarded to an outstanding sophomore majoring in the biological sciences who must have a minimum of 3.0 grade point average for all work taken. The recipient must have demonstrated high quality of citizenship, good moral character and high aptitude and motivation in his major field.

**VICTOR I. MONTENYOHL SCHOLARSHIPS**

This scholarship fund for advanced study was established in memory of Victor I. Montenyohl, in recognition of his devotion to the rubber industry, and his belief that The University of Akron offered an unique opportunity for rubber research. The income from this fund is awarded to a student well qualified and interested in the field of rubber chemistry.

**HERMAN MUEHLSTEIN FUND  
FOR SCHOLARSHIP AID**

Earnings on a \$700,000 grant from the Herman Muehlstein Foundation of New York will provide scholarships for qualified men students at The University of Akron who came from the New York City area.

**JULIUS MUEHLSTEIN SCHOLARSHIP AWARDS**

Awards of varying amounts are made to promising students in the field of rubber chemistry who might otherwise find it impossible to continue their education.

**THE UNIVERSITY OF AKRON  
NATIONAL MERIT SCHOLARSHIPS**

Through an arrangement with the National Merit Scholarship Corporation, The University of Akron sponsors National Merit Scholarships. Selections are made by the University Scholarship Committee from National Merit Finalists who indicate a desire to attend the University. The amounts of the awards range from \$100 to \$1,500 annually depending upon the student's need as estimated by the National Merit Scholarship Corporation.

**NATIONAL SECRETARIES ASSOCIATION  
SCHOLARSHIP**

The Louise Gamble Annual Scholarship in the amount of fees and books is awarded to an outstanding student in secretarial science to defray normal college expenses.

**WRIGHT NORMAN AND  
ASSOCIATES SCHOLARSHIP**

This fund, established in 1971 by Wright Norman and

Associates, Kent, Ohio, provides scholarship assistance to an entering freshman student without regard to race, creed, sex or national origin. Selection of the recipient by the University Scholarship Committee is based on academic achievement, civic and community involvement and financial need. The scholarship will award a minimum of \$300 annually, and is subject to increase on the basis of the recipient's self development and academic growth. Preference shall be given to a student enrolled in the College of Business Administration. The donor firm also offers the recipient fee-waived career counseling service upon request.

**THE NORTH CENTRAL: (AKRON)  
CHAPTER OF THE NATIONAL ELECTRICAL  
CONTRACTORS ASSOCIATION AWARD**

An annual scholarship of \$500 to an electrical engineering student whose father is affiliated with the electrical industry in Ohio.

**NORTH HIGH SCHOOL  
PARENT-TEACHERS  
ASSOCIATION SCHOLARSHIP**

Funds donated by the North High School PTA provide scholarships in the amount of \$180 each to two graduates of North High School with good academic records and financial need.

**EUGENE O'NEIL SCHOLARSHIP**

Proceeds from an endowment fund established at The University of Akron by Mr. Eugene O'Neil, Class of 1936, will provide a scholarship for a qualified student, preferably from the New England area.

**HUGH MICHAEL O'NEIL SCHOLARSHIP**

Originally established in 1959 as the Ferdinand A. and Larry Brubaker Scholarship Fund, this fund now honors Hugh Michael O'Neil who lost his life in the heroic attempt to save the lives of others in July of 1964. It is hoped that this fund will grow through contributions of others. The income will be used to render financial assistance to students selected by the University Scholarship Committee.

**M.G. O'NEIL FOUNDATION SCHOLARSHIP**

A scholarship established by the M.G. O'Neil Foundation which will provide funds for a needy and promising entering male student, preferably of the Negro race, who otherwise would be unable to attend college. Funds will cover living expenses, fees and books for the year.

**DOWNTOWN OPTIMIST CLUB  
OF AKRON SCHOLARSHIP**

This scholarship was established with the purpose of encouraging talented young people to enroll in the University and pursue a career of benefit to themselves and society.

**JUDGE AND MRS. W.E. PARDEE  
MEMORIAL SCHOLARSHIP**

Established in 1965, in memory of Judge and Mrs. W. E. Pardee by their daughter Caroline, this scholarship, maximum amount of \$500 per year, is awarded to a full-time student in The University of Akron School of Law day program.

**WILLIAM E. PASCHAL AND  
GRADE D. PASCHAL SCHOLARSHIP**

An endowment established in 1967 by Mr. and Mrs. William E. Paschal the income from which is used to provide scholarship assistance to students participating in intercollegiate football.

LEMUEL G. PENCE  
MEMORIAL SCHOLARSHIP

This endowed scholarship was established in 1973 in memory of Lemuel G. Pence. An annual award will be made to a student selected by the University Scholarship Committee.

PETRO-TEX SCHOLARSHIP

The Petro-Tex Chemical Corporation has established a scholarship of \$725 per year for a student or students entering the junior or senior year in Chemistry or Chemical Engineering and intending to specialize in the field of rubber and polymer chemistry. The University Scholarship Committee, with the advice of the head of the Chemistry Department, shall make the selection.

HELEN PETROU SCHOLARSHIP

A fund established by the Barberton Brookside Country Club which provides athletic awards to students selected by Coach Gordon Larson or such person as he may appoint. Selection is to be made from qualified applicants from the Barberton-Norton-Wadsworth area of Ohio.

PHILLIPS PETROLEUM COMPANY  
RESEARCH FELLOWSHIP

This fellowship is awarded to a graduate student in Polymer Science.

PHI SIGMA ALPHA SCHOLARSHIP

This scholarship in the amount of \$600 is awarded each year to a full-time Buchtel College of Arts and Sciences junior or senior with at least a 3.0 cumulative average.

PIXLEY SCHOLARSHIPS

From the Frank Pixley Memorial Fund, awards are made to students of outstanding ability and promise in the fields of literature, music and speech.

PPG INDUSTRIES  
FOUNDATION SCHOLARSHIPS

Funds established by the PPG Industries Foundation provide three scholarships in the amount of \$700 each to students pursuing an associate degree in data processing or the several curricula of engineering and science technology.

PREFERENTIAL SCHOLARSHIPS

Two scholarships in the amount of \$300 per year each are available to worthy students selected by The University of Akron Scholarship Committee. Sons and daughters or grandchildren of Negro employees of The B.F. Goodrich Company are given preferential attention, but the award of the scholarships is not necessarily restricted to such individuals.

GEORGE E. PRICE MEMORIAL  
SCHOLARSHIP (II)

A scholarship in the amount of \$100 each quarter of the Senior year for no more than three quarters, established by the Purchasing Management Association of Akron in honor of George E. Price, Jr., a former member of the Chapter who was National President of the Purchasing Management Association, for his contribution to the field of industrial purchasing. The award will be made annually to a Junior majoring in Business Administration. Selection will be made

by the University Scholarship Committee upon recommendation of the Dean of the College of Business Administration.

ERROL S. PRINGLE  
SCHOLARSHIP

A Scholarship in the amount of \$500 or more for a student in the data processing program of the Community and Technical College. Selection is made by the University Scholarship Committee based on academic achievement and with consideration for financial need. This scholarship was established in 1971 by Errol S. Pringle, a 1961 graduate of the University.

THE G. A. PROFITA  
SCHOLARSHIP FUND

A fund established by friends and associates of G. A. Profita for the purpose of providing assistance to an undergraduate student at The University of Akron who after one year of college work has demonstrated superior qualities of leadership and scholastic achievement and who is in need of financial assistance.

THE QUAKER OATS FOUNDATION  
SCHOLARSHIPS

These scholarships were established in 1972 in recognition of the great role the City of Akron has played in the development of the cereal industry and the history of The Quaker Oats Company. The Quaker Oats Foundation Scholarship Fund provides financial assistance to worthy students attending The University of Akron, with preference being given to students majoring in the areas of science, nutrition, and home economics.

RADNEY CIGARETTE SERVICE  
SCHOLARSHIPS

These scholarships are open to any student enrolled at The University of Akron who has demonstrated ability to do college work. Scholastic achievement, citizenship, leadership, and need are qualities used as a basis for making the awards. The amount of these scholarships is \$300 a year, payable \$100 per quarter, upon satisfactory scholastic progress.

WILLIAM S. RICHARDSON FELLOWSHIP

This is an annual fellowship in the amount of \$1,200 for a student who will serve as a graduate assistant in the undergraduate teaching program while pursuing graduate work in chemistry.

MABEL M. RIEDINGER  
SCHOLARSHIP

On April 22, 1972, Beta Lambda Chapter of Pi Lambda Theta announced an annual scholarship for a woman, preferably a Pi Lambda Theta, attending The University of Akron and majoring in the field of education.

MERLE DAVID RIEDINGER  
SCHOLARSHIPS

This scholarship in the amount of \$300 a year is awarded to students from the Akron area. Although unrestricted as to field of study, students in retail merchandising are given preference, all other qualifications being equal. Candidates are chosen on the basis of scholarship, character and need.

**WILLIAM EBER ROBINSON  
SCHOLARSHIP**

A scholarship in the amount of \$400 a year from The Robinson Clay Product Company Fund. Scholarships awarded on the basis of scholarship and need with preference given to a son or daughter of the Robinson Clay Product employee. An amount equal to the scholarship is given annually to the University General Operating Fund.

**CLETUS G. AND CLARA E. ROETZEL  
SCHOLARSHIPS**

An endowment fund with earnings to be used to provide a scholarship or scholarships to worthy students and a matching amount to be used for the general operating expenses of the University.

**RUBBER MANUFACTURERS  
ASSOCIATION SCHOLARSHIP**

The Rubber Manufacturers Association has established a scholarship fund in the amount of \$2,100 annually to be awarded to students who are U.S. citizens enrolled in Engineering or Natural Science who are preparing to enter the rubber and plastics industry. The scholarships are renewable each quarter upon satisfactory performance, scholarship and the student's continued preparation for a career in the rubber and plastics industry.

**THE CHARLES AND ADA H. SACKS  
SCHOLARSHIP**

This scholarship fund was established in 1969-70, the Centennial Year of the University, in honor of Mr. and Mrs. Charles Sacks by their children, Robert and Naomi Christman, Sy and Laurel Fischer and Harvey and Shirley Friedman. Income from the fund will be used to provide scholarships to deserving students in the School of Law. Recipients of the scholarship will be selected by the Dean of the School of Law.

**MORRIS SACKS SCHOLARSHIPS**

This scholarship was established in memory of Morris Sacks. The income from this fund is to be used annually for scholarships, with matching amounts to be used for current operating expenses. It is to be awarded to a worthy student.

**ALEX SCHULMAN SCHOLARSHIPS**

The income from the Alex Schulman Endowment Fund is to be used to provide scholarships to worthy students with matching amounts to be used for current operating expenses.

**THE ALEX SCHULMAN  
MEMORIAL AWARD**

This endowed fund was established by Ernest Kirtz, Bernard S. Schulman and William C. Zekan in memory of the late Alex Schulman. The income will be used to assist worthy students preferably of the Negro race. The recipients and the amount each receives will be determined by the University Scholarship Committee.

**THE DR. SAMUEL M. SELBY  
SCHOLARSHIP**

An endowed fund, established in honor of Dr. Samuel M. Selby, Distinguished Professor of Mathematics at The

University of Akron who served as head of the department from 1945 until his retirement in 1968. The income from the fund will be used for scholarship assistance for outstanding undergraduate or graduate students pursuing courses in mathematics at the University. The recipients and the amount each receives will be recommended by the faculty of the department and approved by the University Scholarship Committee.

**CARL D. AND MARGARET A. SHEPPARD  
MEMORIAL SCHOLARSHIP**

A fund established by the family and friends in memory of the late Carl D. Sheppard and Margaret A. Sheppard for the purpose of providing scholarship assistance to worthy students. Preference will be given to undergraduate or graduate students of journalism in the Department of English.

**THE H. E. SIMMONS  
MEMORIAL SCHOLARSHIPS**

The H. E. Simmons Memorial Scholarship Fund was established in memory of President Emeritus H. E. Simmons. The earnings from this endowment will be awarded to a freshman student or students interested in chemistry. The University Scholarship Committee will determine the amount of the awards and make the selection of the scholarship recipients.

**SIMON PERKINS JR. HIGH SCHOOL  
PTA SCHOLARSHIP**

Established by the Simon Perkins Jr. High School Parent-Teacher Association in the amount of \$300 annually to be administered by the University Scholarship Committee with no restrictions except that first preference be granted to Simon Perkins graduates.

**JASON AND CORINNE SUMNER  
SCHOLARSHIP**

Established by Mrs. Beatrice S. Williamson, Class of 1908, in memory of her father and mother, Jason and Corinne Sumner, this fund provides financial assistance to worthy students attending The University of Akron. Recipients are selected by the University Scholarship Committee.

**TOUCHDOWN CLUB AWARDS**

Touchdown Club awards vary in amount and periods of coverage. Scholastic achievement, citizenship, athletic ability, need and leadership will be used as a basis for making these awards.

**TRAFFIC CLUB OF  
AKRON SCHOLARSHIP**

A fund established by the Traffic Club of Akron for the purpose of providing scholarship assistance to a student or students pursuing a program in Transportation.

**TREADGOLD POLYMER SCIENCE AWARDS  
IN CARBON BLACK TECHNOLOGY**

Awards of not less than \$50.00 are available annually to one or more qualified graduate students in Polymer Science who are engaged in research on the application and/or function of carbon black. These awards are available

from a fund established in 1970 by the children and grandchildren of Elodie and Anthony Galen Treadgold in honor of their Fiftieth Wedding Anniversary.

#### TUESDAY MUSICAL CLUB SCHOLARSHIPS

Awards up to \$500 each to music majors for advanced study of music at The University of Akron for the entire academic year. Awards to students at The University of Akron to cover the cost of courses in applied music in the Department of Music for one term of the academic year.

#### UNION CARBIDE CORPORATION RESEARCH FELLOWSHIP

This fellowship is awarded to a graduate in Polymer Science.

#### UNIVERSITY BOARD OF TRUSTEES SCHOLARSHIPS

Scholarships are available for entering law students to the School of Law, and these are renewable from year to year on superior performance. The faculty of the School of Law makes the selections based on the quality of the collegiate record, the Law School Admission Test score, and need.

#### UNIVERSITY OF AKRON ALUMNAE OF MORTAR BOARD FUND

A fund established by The University of Akron Alumnae of Mortar Board for the purpose of providing grants in the amount of \$50 to worthy female students at the sophomore or junior level who are in good academic standing and have financial need. The recipients will be selected by the University Scholarship Committee.

#### THE UNIVERSITY OF AKRON MEMORIAL FUND SCHOLARSHIPS

A fund established as the result of miscellaneous contribution by individuals and organizations in memory of friends of the University. Recipients are determined by the University Scholarship Committee.

#### THE UNIVERSITY OF AKRON PREMEDICAL SCHOLARSHIP

This scholarship, in the amount of \$500 a year, was established by The Sacks Electric Supply Company and is awarded to a worthy student who is entering the field of medicine.

#### THE UNIVERSITY CLUB OF AKRON SCHOLARSHIP

This scholarship was established by The University Club of Akron to provide \$500 per year to a full-time senior male student in the baccalaureate program who is from a community within a twenty mile radius of The University Club of Akron.

#### DR. AND MRS. GEORGE VAN BUREN SCHOLARSHIPS

A scholarship each year in the amount of \$100 awarded to one graduate from each of the following Akron Schools: East High, North High, South High, Buchtel High, Ellet High, Kenmore High, Central Hower High, Firestone High and Garfield High. The selection of the graduating senior at

each school to receive the scholarship is to be made by teachers of juniors and seniors at the respective schools. These scholarships were endowed by a contribution of Dr. and Mrs. George Van Buren in 1970.

#### EDWARD AND ELEANOR VOKE FAMILY SCHOLARSHIP

This scholarship is available to full-time and part-time students enrolled at the University who have demonstrated scholastic ability, possess high quality of citizenship, promise and leadership and who have financial need.

#### PINDY WAGNER, JR., BOWLING SCHOLARSHIPS

These scholarships in the amount of fees, not to exceed \$400 per year, for two years are awarded to high school senior men and women who are candidates for admission to The University of Akron.

#### JUDGE WALTER B. WANAMAKER MEMORIAL SCHOLARSHIP

The Judge Walter B. Wanamaker Memorial Scholarship was created in 1966 by Frederick H. Gillen to give financial assistance to worthy students. The recipients are selected by the University Scholarship Committee.

#### THE WAYNE GENERAL AND TECHNICAL COLLEGE BRANCH OF THE UNIVERSITY OF AKRON IN ORRVILLE GRANT

For students attending Wayne College, the Orrville Campus Foundation provides grants which pay one-half of the tuition per quarter. In order to qualify for these grants a student must be officially admitted as a full-time student at Wayne. Determination of recipients will be based upon individual financial need.

#### WESTERN ELECTRIC FUND SCHOLARSHIP

This fund provides an annual scholarship for a student in engineering. Amounts will vary, but in no case will exceed tuition and fees, for a fourth or fifth year student in an engineering curriculum. The recipient shall be a citizen of the United States and shall be chosen without regard to color, creed, or national origin.

#### WOMEN'S AUXILIARY OF THE AKRON DISTRICT SOCIETY OF PROFESSIONAL ENGINEERS

An award of \$300 a year is made to a sophomore student in the College of Engineering who has acquired a minimum of 42 quarter hours of credit at The University of Akron.

#### MR. AND MRS. WILLIAM D. ZAHRT SCHOLARSHIPS

Scholarships in the amount of \$500 per year will be awarded to outstanding and deserving students at The University of Akron.

#### ZETA TAU ALPHA FOUNDATION AWARD

These awards are made available to women students

on campuses throughout the country. The majority of these awards are \$200 grants made to undergraduate students. Recipients are recommended by the University Scholarship Committee with final selection resting with the Foundation Scholarship Committee.

## HONORS AND PRIZES

### SENIOR ALUMNI PRIZE

This award is given to that senior student who has completed the regular undergraduate curriculum with the highest grade for the work taken, having carried a minimum load of 12 credits per quarter.

### ALPHA CHI SIGMA CHEMISTRY FRATERNITY FRESHMAN RECOGNITION

A student is selected by the fraternity from nominees chosen by the Department of Chemistry from the freshman chemistry classes on the basis of academic records.

### ALPHA LAMBDA DELTA AWARD

The National Chapter of Alpha Lambda Delta awards a book at the June Commencement to the senior woman with the highest scholastic average who has graduated at any time during the current academic year.

### AKRON DISTRICT SOCIETY OF PROFESSIONAL ENGINEERS AWARD

A plaque is awarded to the outstanding senior engineer based on scholarship, citizenship, promise of excellence in the profession and leadership. In addition, a permanent plaque is mounted in The Auburn Science and Engineering Center on which successive winners of the award will be listed.

### AKRON NATIONAL BANK & TRUST COMPANY AWARD IN TRUSTS AND ESTATES

An annual award of \$200 to the graduating law student who excels in the study of the law of trusts and estates. Selection to be made by the Dean of the School of Law.

### AKRON SECTION OF THE AMERICAN CHEMICAL SOCIETY AWARDS

Awards of student memberships and subscriptions of two of the Society's official publications are made to a chemistry major student of junior rank on the basis of scholarship.

### THE HOMER F. ALLEN MEMORIAL AWARD

The Homer F. Allen Memorial Award, to be presented annually in the name of the late President of the Goodyear Musical Theatre, through an endowment created by the Goodyear Employees Activities Committee, Inc., to an outstanding undergraduate major in the area of Theatre Arts. The selection of the recipient of this award will be determined by the Dean of the College of Fine and Applied Arts upon the recommendation of the Head of the Department of Speech and Theatre Arts.

### AMERICAN INSTITUTE OF CHEMISTS AWARD

The American Institute of Chemists awards to the outstanding seniors in chemistry a certificate and a one year subscription to *The Chemist*, the publication of the A.I.C. This award is granted upon the recommendation of the head of the department.

### AMERICAN LAW BOOK COMPANY AWARD

An annual award of selected titles of *Corpus Juris Secundum* to be made at the discretion of the Dean of the School of Law for high scholarship and leadership in student affairs, in each of four classes.

### AMERICAN MARKETING ASSOCIATION AWARD

This award is made to the outstanding Senior Marketing Student by the Akron-Canton Chapter of the American Marketing Association.

### AMERICAN SOCIETY OF CIVIL ENGINEERS MEMORIAL AWARD

The purpose of this fund is to honor the memory of members of American Society of Civil Engineering who have made outstanding contributions to the civil engineering profession. The fund will pay one year's dues in the Society to a graduating member of The University of Akron Student Chapter of American Society of Civil Engineers. The student is to be selected by the Dean of the College of Engineering as representing the best qualities of a civil engineer.

### W. H. ANDERSON COMPANY AWARD

An award of law books made annually to two graduating law students displaying scholarship in the study of the law of Corporations and Wills.

### ASHTON PRIZES

Cash awards are given to undergraduates for excellence in oral interpretation and original oratory.

### THE EDWARD S. BABCOX POLITICAL SCIENCE BOOK AWARD

An annual award of selected books established by the Department of Political Science in memory of Edward S. Babcox. The award will be given to an outstanding Political Science major as determined by the faculty of the Department of Political Science.

### BANKS-BALDWIN LAW PUBLISHING COMPANY AWARD

An award of *Baldwin's Ohio Civil Practice Manual* is made to the graduating law student displaying scholarship in the study of Code Pleading.

### THE NEWTON D. BECKER AWARD FOR EXCELLENCE IN ACCOUNTING

An award of \$100 given to an outstanding accounting major as determined by the department faculty.

**MR. AND MRS. EVAN B. BREWSTER  
LAWBOOK AWARD**

An annual award established by Mr. and Mrs. Evan B. Brewster (Margaret Zink, Class of 1925) in the sum of \$130 half of which is to assist a deserving law student who ranks in the upper half of his class to obtain the use of assigned case and text books, and half for the expansion of the Law Library Collection.

**BUREAU OF NATIONAL  
AFFAIRS INC. AWARD**

This award, a year's complimentary subscription to *Law Week*, is given to the graduating law student who, in the judgement of the Law Faculty, has made the most satisfactory progress in his final year.

**CRC FRESHMAN CHEMISTRY  
ACHIEVEMENT AWARD**

The Chemical Rubber Company awards a scroll and a copy of the current *CRC Handbook of Chemistry and Physics* to a student designated by the faculty for outstanding scholastic achievement in the freshman chemistry course.

**PETER C. DANEMAN POLITICAL  
SCIENCE HONORS AWARD**

In recognition of the 75th birthday of her father, Mr. Daneman, Dr. Betty Daneman Fox and her husband, Dr. James Fox, established this award which provides the sum of \$50 to be awarded each year to a political science major graduating with an average about 3.5 and with at least a 3.2 overall average, such student to be designated by the Dean of the Buchtel College of Arts and Sciences.

**DELTA SIGMA PI**

This award is presented annually to that male senior who upon graduation ranks highest in scholarship in the College of Business Administration.

**ERNST AND ERNST ACCOUNTING  
ACHIEVEMENT AWARD**

An annual award of \$250 to the outstanding senior accounting student based upon scholarship and leadership.

**FELLOWS OF THE OHIO STATE BAR  
ASSOCIATION FOUNDATION AWARD**

Two annual awards of \$245 each have been established by the Fellows of The Ohio State Bar Association Foundation. One award is to a law student with the highest academic average for the first third of his law school work, and the second is to a law student with the highest academic average for the second third of his law school work.

**DR. E. B. FOLTZ  
PREMEDICAL PRIZE**

Under the provisions of the will of the late Dr. E. B. Foltz a fund was established to provide for a premedical prize of \$100, which is awarded each year to that member of the graduating class who makes the highest average grade in all work taken in the four-year premedical course and who plans to enter medical college the following year. The

actual award is not made until the winner has enrolled in medical college.

**DR. FRED S. GRIFFIN AWARD**

An award of \$100 established by the Akron Section of the American Society of Mechanical Engineers in honor of Dr. Fred S. Griffin, Professor Emeritus and former Head of the Department of Mechanical Engineering, given annually to the senior showing the greatest proficiency in design.

**THE WILLIAM S. HEIN LAW BOOK  
COMPANY AWARD**

The William S. Hein Law Book Company has provided a cash award of \$200 and law books to a law student (or students), who in the judgment of the Dean of the School of Law has excelled in scholarship and student leadership.

**HOUSEHOLDER PHYSICS PRIZE**

A fund established under the will of the late Fred F. Householder, former Professor and Head of the Department of Physics, provides recognition and cash awards to outstanding students majoring in Physics, as selected by the Physics faculty.

**DUANE R. KELLER  
MEMORIAL FUND**

An award of \$50 to the senior engineering student who has made the greatest improvement in his cumulative grade average during his pre-junior and junior years.

**THE J. K. LASSER & COMPANY AWARD  
TO THE OUTSTANDING STUDENT  
MAJORING IN ACCOUNTING**

A scholarship award of \$250 from J. K. Lasser & Company to the outstanding junior majoring in accounting as selected by the faculty of the Accounting Department.

**THE LAW WIVES CLUB AWARD**

An award of \$50 to a law student displaying scholarship and leadership in student affairs. Selection is at the discretion of the Dean of the School of Law.

**THE LAWYERS CO-OPERATIVE PUBLISHING  
COMPANY AND THE BANCROFT-WHITNEY  
COMPANY AWARD**

An annual award of a separately bound volume from *American Jurisprudence* to the highest ranking law student in each of the courses listed: Administrative Law, Agency-Partnerships, Bills and Notes, Civil Procedure, Conflicts, Constitutional Law, Contracts, Corporations, Creditors' Rights, Criminal Law, Damages, Domestic Relations, Estate Planning, Evidence, Future Interests, Insurance, Labor Law, Personal Property, Real Property, Remedies, Torts, Trusts and Wills.

**MERCK AWARD**

An award from Merck & Company, Inc., of a complimentary copy of *The Merck Index of Chemicals and Drugs* to the outstanding senior of the year in the Department of Chemistry.

NATIONAL ASSOCIATION OF  
ACCOUNTANTS AWARD

An award made annually by the Akron Chapter of the National Association of Accountants to an outstanding senior student in the Accounting Department of the College of Business Administration.

JUDGE W. E. PARDEE  
MEMORIAL AWARD

Established in 1963 in memory of the Hon. W. E. Pardee, Judge on the original Ninth District Court of Appeals of Ohio, the grant of \$150 is awarded annually to a participant, or team of participants, in Bracton's Inn, the Case Club of the School of Law, who best displays advocacy skill and professional decorum.

THE PHI DELTA DELTA LEGAL FRATERNITY  
(WOMEN'S INTERNATIONAL)  
BETA XI CHAPTER AWARD

An annual award of \$25, in memory of Judge Florence E. Allen, to a graduating woman law student excelling in the study of law. Selection of recipient is at the discretion of the Dean of the School of Law.

PHI SIGMA AWARD

An annual award by the National Phi Sigma Society to an outstanding student in the biological sciences.

PHI SIGMA ALPHA  
SCHOLARSHIP

This scholarship in the amount of \$600 is awarded each year to a full-time Buchtel College of Arts and Sciences junior or senior at least a 3.0 cumulative average.

PHI SIGMA ALPHA  
JUNIOR PRIZE

The Phi Sigma Alpha Junior Prize of \$50, to the student in the Buchtel College of Arts and Sciences having the highest average for 120-144 quarter hours in residence.

PRENTICE-HALL, INC. AWARD

Prentice-Hall, Inc., provides an annual award of its three volume Federal Tax Guide, Edition "A", to the graduating senior who has excelled in the study of federal tax law, as determined by the Dean of the School of Law.

RUBBER AGE AWARDS

These are awards of \$100 each to the students writing the best master's thesis and the best doctoral dissertation on some aspect of rubber chemistry or technology.

SIGMA TAU ENGINEERING FRESHMAN  
AWARD MEDAL

The engineering honorary fraternity, Sigma Tau, presents the Award Medal to the sophomore who earned the highest quality point ratio for his freshman year.

DR. AND MRS. GEORGE VAN BUREN  
MEDICAL AWARD

A \$200 award to be made each year to a deserving student at The University of Akron who has been accepted as a medical student by a medical college. The award to be

applied to the first year tuition of the medical college. Selection will be made by a committee appointed by the President of The University of Akron and will be based on character, scholarship and need. This award was endowed by a gift of Dr. and Mrs. George Van Buren in 1967. Dr. Van Buren received his premedical training at The University of Akron.

WALL STREET JOURNAL AWARD

This award is made annually to the senior student in the field of finance for academic achievement.

WEST PUBLISHING COMPANY AWARDS

An annual award of law books to the law student with the highest academic average in each of the four classes.

WOMEN'S ART LEAGUE  
OF AKRON AWARDS

Awards made to promising women art students.

BASIC EDUCATIONAL OPPORTUNITY GRANT

This program provides gift assistance in the form of grants ranging from \$50 to \$800 annually to students demonstrating financial need. Students must enroll on a full-time basis and must have begun their post-secondary school education after April 1, 1973.

THE EDUCATIONAL OPPORTUNITY  
GRANT PROGRAM

The Higher Education Act of 1965 provides gift assistance to students in the form of Educational Opportunity Grants. Grants to students will be made and will range from \$200 to \$1000 per year. They are to be awarded to students who have demonstrated good academic achievement and come from *low income families* and are to be part of a "package" type of assistance which will also include other scholarships, National Direct Student Loans, and/or wages from the student's employment — the total package designed to meet the educational costs that cannot be met through parental contributions.

THE COLLEGE WORK-STUDY PROGRAM

This program provides on-campus work opportunities at the prevailing campus wage rates to students from low-income families. Up to 15 hours per week is permitted while school is in session and 40 hours weekly during vacation periods. Every attempt will be made to place students in work related to their major field of interest. To be eligible a student must carry at least 12 credits, must be capable of maintaining a minimum of 2.0 or "C" grade average and must meet a financial means test based on family income. Generally speaking, any student who finds he must gain employment to meet educational expenses is eligible.

GUARANTEED STUDENT LOAN PROGRAM

A Federally guaranteed student loan program operation through private lending institutions. Loans up to \$1500 per year may be available to an applicant who is enrolled as a more-than-half-time undergraduate, graduate or professional student in good academic standing. Contact the Student Financial Aids Office for application procedures.

### LAW ENFORCEMENT EDUCATION PROGRAM GRANT

This program provides grants of up to \$250 per academic quarter for tuition, fees, and books for full-time employees of a publicly-funded law enforcement or criminal justice agency. The recipient must agree to remain in full-time criminal justice employment for at least two years after completion of the courses covered by the grant.

### LAW ENFORCEMENT EDUCATION PROGRAM LOAN

This program provides loans of up to \$2200 per academic year for tuition, fees, and books for students enrolled full time in a program of study leading to a degree in criminal justice. Cancellation of the loan will be made at the rate of 25% of the total amount for each year of full-time employment in a publicly-funded law enforcement or criminal justice agency.

### NATIONAL DIRECT STUDENT LOAN FUND

The University administers these loans under the following provisions: the student must (a) be in need of the amount of the loan to pursue a course of study; (b) be capable of maintaining good standing in such course; and (c) have been accepted for enrollment as a more-than-half-time student, or if already attending an institution, be in good standing as an undergraduate or graduate student with a more-than-half-time academic load. Repayment begins nine months after a borrower ceases to pursue a full-time course of study at an institution of higher education, and ends 11 years thereafter. Interest rate is 3%.

### NURSING STUDENT LOAN PROGRAM

A loan program with eligibility requirements similar to National Direct Student Loan program except that a student must be enrolled full-time in the course leading specifically to a Bachelor of Science in Nursing. Cancellation of the loan will be made in varying amounts for each full year the borrower is employed full-time as a professional nurse in any public or nonprofit private institution or agency.

### NURSING SCHOLARSHIP GRANT PROGRAM

A program which provides grants ranging from \$90 to \$720 to residents of Ohio who are full-time students and who have exceptional financial need. Contact Student Financial Aids Office for details.

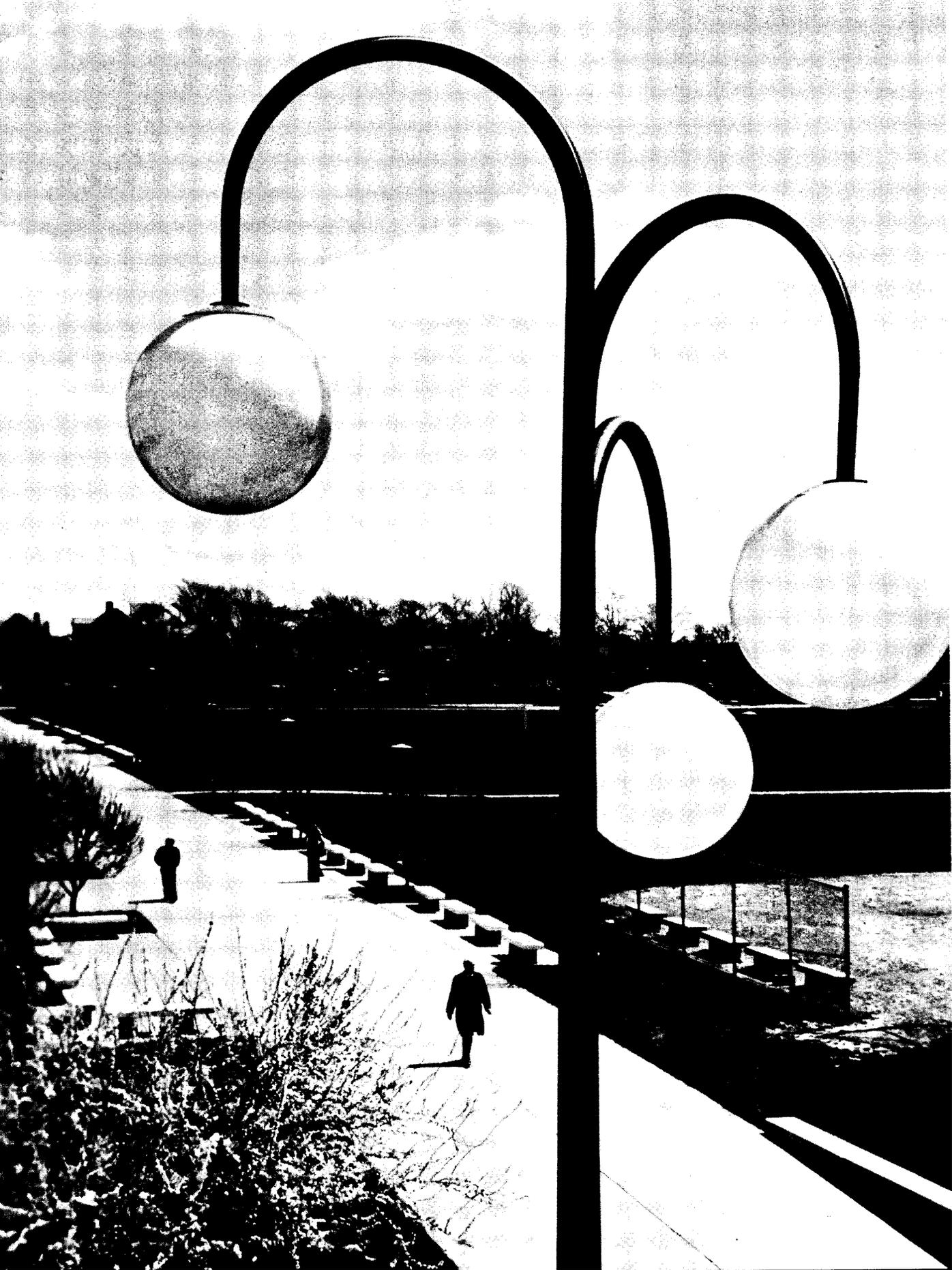
### OHIO INSTRUCTIONAL GRANT PROGRAM

A program which provides grants ranging from \$90 to \$720 to residents of Ohio who are full-time students and who have exceptional financial need. Contact Student Financial Aids Office for details.

### STUDENT LOAN FUNDS

The following funds are available for loans to students who need financial assistance to continue their education at The University of Akron:

Akron Council of Parent-Teacher Associations Loan Fund  
 Altrusa Loan Fund  
 Homer C. Campbell Fund  
 Evening College Loan Fund  
 Martha Blanche Cook Loan Fund  
 Harriet Hale Loan Fund  
 Hermine Z. Hansen Loan Fund  
 Jessie and William Hyde Memorial Fund  
 Indian Trail Chapter of Daughter of the American Colonist Loan Fund  
 William A. and Ethel E. Keller Loan Fund  
 Lodge No. 547 Independent Order of Odd Fellows Loan Fund  
 Lichter Foundation Loan Fund  
 Litchfield-Thomas Fund  
 Ellen Nadolski Loan Fund  
 Stephen Richard Chesrown Loan Fund  
 Katherine Claypole Loan Fund  
 Cuyahoga Portage Chapter D.A.R., Loan Fund  
 National Defense Student Loan Fund  
 Ohio Society of Certified Public Accountants Loan Fund  
 George and Elizabeth Pfaff Student Loan Fund  
 Jesse A. Riner and Blanche Pease Riner Fund  
 Mabel Jane Rogers Memorial Fund  
 Milo W. Sample Loan Fund  
 Philip H. Schneider Scholarship Loan Fund  
 Richard R. Shreve Fund  
 Albert E. Sidnell Loan Fund  
 May Steves Memorial Loan Fund  
 Richard J. Witner Memorial Fund





## *IV. The University of Akron Academic Programs*

Here are definitions and examples which help explain the academic organization at The University of Akron.

**THE UNIVERSITY** — the entire institution; an academic whole. *For example: The University of Akron.*

**A COLLEGE** — a wide area of specialized higher learning within the framework of the University itself. *For example: The Buchtel College of Arts and Sciences.*

**A DIVISION OF INSTRUCTION** — a generic grouping within a college. *For example: The Buchtel College of Arts and Sciences has three divisions: Humanities, Social Sciences and Natural Sciences.*

**A DEPARTMENT OF INSTRUCTION**— a closely defined area of specialization within a division. *For example: The Humanities Division within the Buchtel College of Arts and Sciences has four departments: English, Classics, Modern Languages, Philosophy.*

**SUBJECTS OF INSTRUCTION** — the most minutely specialized part within each department; the actual point of academic contact between faculty and student. *For example: The Chemistry Department has more than 108 subjects of instruction or courses.*

**CREDITS** — when used in this Bulletin, credits refer to the number of quarter hour credits for any course.

**THE STUDENT** — the individual receiver of all academically imparted information; the focal point of University instruction. The University's subdivisions of colleges, divisions and departments are basically designed so that students of similar interests and ambitions may study together and spend their college years most advantageously.

Two other terms it would be helpful to know are *Code Numbers* and *Course Numbers*. Because these terms are similar they are often confused.

Code Number	Course Number
(Mechanical Engineering) 460:320	(Kinematic Analysis of Mechanisms)

In the above example the first three digits of that number (460) are called the *Code Number*. These numbers refer only to the college and department in which the course is taught. In this case the number refers to the Mechanical Engineering Department (60) of the College of Engineering (400). A complete listing of Department Code Numbers appears at the beginning of Chapter VI, Courses of Instruction.

The second set of digits (320), following the colon, make up the *Course Number*. These numbers pin down exactly which course in the Mechanical Engineering Department is being specified.

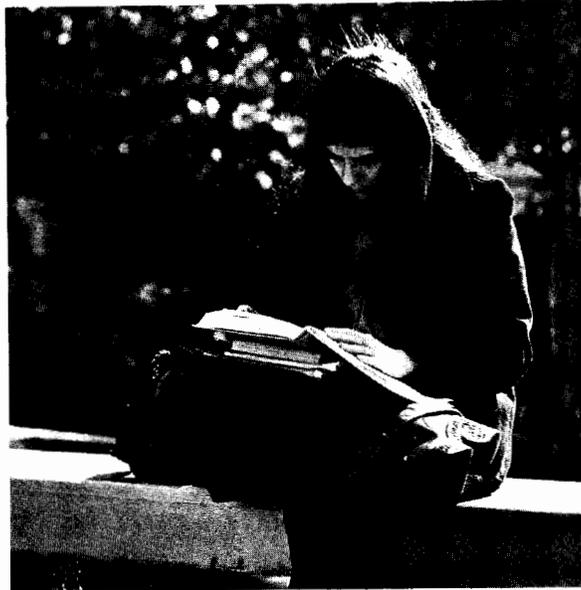
The Course Numbers also tell at what level the course is being taught or at what point in his college career the student is ready to take the course.

An explanation of that numbering system follows:

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

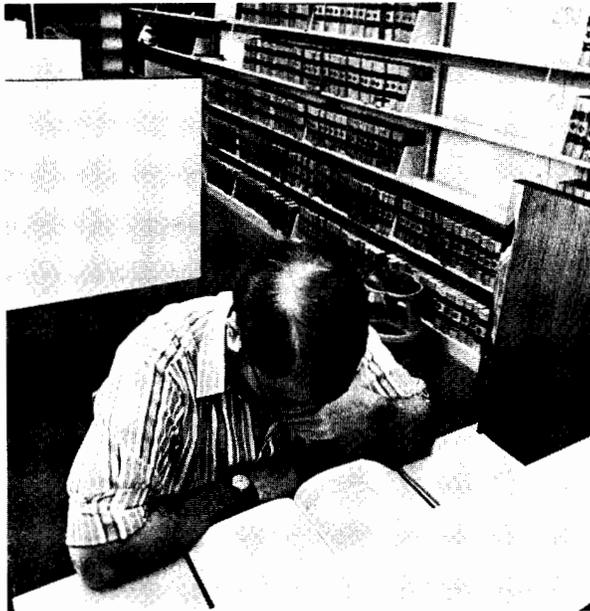
When approved 400-level undergraduate courses are taken for graduate credit they become 500-level courses. Students must apply for and be admitted to the Graduate School to receive graduate credit for any course.

In the pages that follow, the curricula of the various colleges will be discussed along with the general requirements of each, the degrees offered and other information needed for fuller understanding of their programs. In addition, a complete list of the courses offered, detailing the Code and Course Number, course title, number of credits, prerequisites and general course description, may be found in a later chapter. Curricula leading to Master's or Doctor's degrees are detailed under the Graduate School rather than with the Upper College through which it is offered.



### ***Associate Degree Programs***

Specialized programs of study directly applicable to professions in technical and highly skilled fields are offered through the Community and Technical College. These programs, leading to the Associate degree, are provided for high school graduates who do not consider it desirable to pursue a baccalaureate program of study, but do have the conviction that education beyond the high school is necessary if they are to be self-supporting, useful intelligent members of our modern, complex society. Associate programs require two years for their completion and are designed to give the graduating student the concepts and skills that are demanded in today's commercial and industrial world.



# Community and Technical College

Robert C. Weyrick, M.S., *Assistant Dean*

## OBJECTIVES

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

To offer specialized technical programs in the areas of Business Technology, Engineering Technology, and Public Service Technology.

To provide nonvocationally oriented students with a two year Associate Degree program in the liberal Arts.

To counsel students with respect to their adjustment to the collegiate environment and to their academic, personal and vocational objectives.

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

The College offers both pre-service and in-service training: pre-service for the recent High School graduate who can receive an Associate Degree upon the satisfactory completion of two years of full time studies and in-service training through the Evening College where employed persons may pursue the same degrees while working full time.

## ASSOCIATE PROGRAMS

Departments within the four divisions of the College offer programs of study leading to the Associate Degree in Arts or Associate Degree in Applied Science (carrying a designation of the program completed).

### Associate Studies Division

Arts  
 Commercial Art  
 Community Services Technology  
 Educational Technology  
   Counselor Aide  
   Elementary Aide  
   Inner City Head Start Aide  
   Child Development Aide  
   Library Aide

Criminal Justice Technology  
 Business and Office Technology Division  
   Commerce  
     General  
     Real Estate  
   Data Processing  
   Food Service Management  
   Sales and Merchandising  
   Secretarial Science  
     Technical  
     Executive  
     Legal  
     International  
     Medical Assistant  
   Office Services Technology  
   Transportation  
     General  
     Commercial Aviation  
 Engineering and Science Technology Division  
   Chemical Technology  
   Electronic Technology  
   Industrial Technology  
   Instrumentation Technology  
   Mechanical Technology  
   Surveying and Construction Technology  
 Health Technology Division  
   Nursing (Diploma)  
   Cytotechnology

## BACCALAUREATE PROGRAMS

The Engineering and Science Technology Division also offers a program of study leading to the Bachelor of Technology degree in either Electronic Technology or Mechanical Technology. Requirements for the Bachelor of Technology degree are listed in the section on Baccalaureate Degree Programs.

## REQUIREMENTS FOR GRADUATION

Candidates for the Associate Degree must

1. Earn credit in all of the required courses listed in the program.
2. Complete successfully as a minimum the number of credits listed for each program.
3. Complete a program of study that includes at least 24 credits in the *general studies* or *general educational* areas. These courses shall be based on a broad interpretation of the liberal arts concept and will include courses offered by the University in such areas as written

and oral communications, humanities, and social and physical sciences.

4. Earn a minimum quality point ratio of 2.0 in all work attempted and all work taken at The University of Akron.

5. Be recommended by the faculty.

6. Spend his last two quarters in residence (earning a minimum of 24 credits) at the University unless excused by the Dean of the College.

7. Other requirements are set forth in the section on "Requirements for Graduation" in Chapter 3.

A student who expects to receive a second Associate Degree must earn a minimum of 24 credits in residence which have not counted toward his first degree.

Note: In all Associate Programs, students electing ROTC will substitute 1<sup>1</sup>/<sub>2</sub> credits ROTC each quarter for elective hours.

ARTS

A program of general education beyond the high school level intended to produce a socially intelligent individual, one who understands effective social behavior and appreciates social values as well as scientific facts.

<i>First Year</i>		<i>Second Year</i>	
<i>First Quarter</i>	<i>Credits</i>	<i>First Quarter</i>	<i>Credits</i>
110:111 English Composition	4	110:317 Western Cultural Traditions	4
202:242 American Urban Society*	4	110:22- Science Requirement**	3
110:211 Numbers Communication	4	110:108 Effective Speaking	4
Elective	4	Elective	5
	<hr/> 16		<hr/> 16
<i>Second Quarter</i>		<i>Second Quarter</i>	
110:112 English Composition	4	110:318 Western Cultural Traditions	4
202:240 Human Relations*	4	110:22- Science Requirement**	3
110: Physical Education	1	Electives	9
Electives	7		
	<hr/> 16		<hr/> 16
<i>Third Quarter</i>		<i>Third Quarter</i>	
110:205 Types of Literature	4	110:319 Western Cultural Traditions	4
202:247 Survey of Basic Economics*	5	110:22- Science Requirements**	3
110: Physical Education	1	Electives	9
Electives	6		
	<hr/> 16		<hr/> 16
		Total Credits 96	

\*See pages 70-71 for alternative course options.

\*\*Three of the following four are required: 110:221 Biology, 110:222 Chemistry, 110:223 Geology, 110:224 Physics.

220: EDUCATIONAL TECHNOLOGY

This program prepares individuals for employment as Educational Technicians to assist the professional teacher, counselor and administrator. It includes a core of general and education courses. Elective courses can be chosen to satisfy any one of the following five options: Counselor Aide; Elementary Aide; Inner City Head Start Aide; Child Development Aide; or Library Aide.

CORE PROGRAM

<i>First Year</i>		<i>Second Quarter</i>	
<i>First Quarter</i>	<i>Credits</i>	<i>Second Quarter</i>	<i>Credits</i>
202:118 English	4	202:120 English	3
254:150 Beginning Typewriting	4	565:157 Human Development & Learning	4
375:141 General Psychology	5	110:211 Numbers Communication	4
110: Physical Education	1	Electives	5
Elective	2		
	<hr/> 16		<hr/> 16

<i>Third Quarter</i>		<i>Credits</i>		<i>Credits</i>	
110:108	Effective Speaking	4	202:254	The Black American	2
510:156	Education in American Society	3	226:278	Techniques of Community Work	5
110:	Physical Education	1	386:270	Poverty in the Inner City	4
	Electives	8		Electives*	2
		<hr/>			<hr/>
		16			15

*Second Year*

<i>First Quarter</i>		
202:240	Human Relations	4
515:410	Audio-Visual Education	3
202:247	Survey of Basic Economics	5
	Electives	4
		<hr/>
		16

<i>Second Quarter</i>		
202:242	American Urban Society	4
555:311	Red Cross First Aid	2
	Electives	10
		<hr/>
		16

<i>Third Quarter</i>		
585:280	Education Technician	
	Field Experience	5
	Electives	11
		<hr/>
		16

Total Credits: 96

**Counselor Aide Option**

Required Courses:		
585:100	Introduction to Pupil Personnel Work	3
585:104	Seminar in Pupil Personnel	3
585:105	Pupil Personnel Service Roles	3
585:201	Information Services in Guidance and Special Education	3
585:207	Mechanics of Student Appraisal	3
585:260	Special Education Technology	3
		<hr/>
		18

**Elementary Aide Option**

Required Courses:		
585:120	Mechanics of the Language Arts Program	4
585:207	Mechanics of Student Appraisal	3
	Electives*	8
		<hr/>
		15

**Inner City Head Start Aide Option**

Required Courses:		
202:253	Intergroup Relations	2

**Child Development Option**

Required Courses:		
386:270	Poverty in the Inner City	4
740:265	Child Development	5
740:133	Nutrition Fundamentals	3
740:200	Marriage and Family Relations	2
740:275	Theory and Guidance of Children's Play	3
740:285	Creative Expression Programs for Child Care Centers	3
740:295	Administration of Child Care Centers	5
		<hr/>
		25

**Library Aide Option**

Required Courses:		
220:201	Processing, Cataloguing and Classifying Materials	4
220:202	Organizing and Administering Library Media Centers	4
220:203	Materials Selection	4
220:204	Reference Procedures	4
		<hr/>
		16

\*Elective credits must be selected from required courses in other options or from the electives listed below.

**Recommended Electives**

202:251	Work Relations	2
244:120	Introduction to Information Processing	4
244:121	Introduction to Programming	3
254:151	Intermediate Typewriting I	4
254:125	Business Machines	2
292:121	Technical Drawing I	3
520:141	Handicrafts in the Elementary School	3
555:338	Health and Physical Education Activities for the Elementary Grades	5

Additional courses to meet the requirements of 96 credits may be chosen from the required courses in other options, from the above list of recommended electives, or from among any of the University courses which will fit the student's vocational goals. All selection of courses beyond the core requirements will be made with the assistance and approval of the student's academic adviser.

**222: CRIMINAL JUSTICE TECHNOLOGY**

A program to prepare young people seeking a career in criminal justice and to provide additional education to those employed in criminal justice areas. The curriculum includes the technical functions of criminal justice and courses to develop a better understanding of our rapidly changing society.

<i>First Year</i>		<i>Credits</i>	<i>Second Quarter</i>		<i>Credits</i>
<i>First Quarter</i>					
202:118	English	4	202:253	Intergroup Relations	2
202:131	Math Analysis I	3	222:240	Law Enforcement Administration & Supervision	3
375:141	General Psychology	5	222:250	Criminal Justice Theories and Practices*	3
222:100	Introduction to Criminal Justice	3		Elective	8
110:	Physical Education	1			
		16			16
<i>Second Quarter</i>					
202:240	Human Relations	4	<i>Third Quarter</i>		
222:102	Criminal Law for Police	4	222:252	Police Community Relations	3
385:100	Introduction to Sociology	5	222:256	Criminal Investigation	3
202:120	English	3	222:258	Traffic Planning & Operations*	3
		16	222:204	Vice and Narcotic Control	3
				Elective	4
<i>Third Quarter</i>					
222:104	Criminal Evidence & Court Procedures	4			16
284:100	Basic Chemistry	4	Total Credits 96		
110:108	Effective Speaking	4			
202:122	Technical Report Writing	3			
		15	<i>Recommended Electives:</i>		
<i>Summer Quarter</i>					
222:259	Police Internship	6	222:244	Industrial Security	3
	(for pre-service students only with approval of department)		202:132	Math Analysis II	4
			202:247	Survey of Basic Economics	5
			202:254	The Black American	2

NOTE: Elective credits to be reduced by number of credits of Police Internship.

385:104	Social Problems	4
242:211	Basic Accounting I	3
385:314	Criminology	4

\*Students with a particular interest in *Corrections* may vary their program of study by substituting 385:314, Criminology (4 credits), 385:424, Probation and Parole (4 credits), and 385:425, Corrections (4 credits), for courses: 222:202, Basic Criminalistics, 5 credits; 222:250, Criminal Justice Theories and Practices\*, 3 credits; and 222:258, Traffic Planning and Operations, 3 credits. Students electing this pattern of courses will have one less hour of electives thus their total program will still require a total of 96 credits.

## 224: COMMERCIAL ART

A program enabling the individual to gain skill as an artist and designer for employment in developing materials of visual advertising and communication for art studios, advertising agencies, and industry. The curriculum includes courses in design, drawing, photography, illustration techniques, package design and presentation methods.

<i>First Year</i>		<i>Credits</i>	<i>Third Quarter</i>		<i>Credits</i>
<i>First Quarter</i>					
224:245	Design in Commercial Art	3	224:124	Commercial Art Studio Mechanics	3
710:131	Drawing I	5	710:375	Intermediate Photography	3
202:118	English	4	202:240	Human Relations	4
252:103	Principles of Advertising	3	292:122	Technical Drawing II (for students enrolling 292:121)	3
110:	Physical Education	1	110:	Physical Education	1
		16		Electives*	16
<i>Second Quarter</i>					
224:140	Typography & Lettering	3	<i>Second Year</i>		
710:275	Introduction to Photography	5	<i>First Quarter</i>		
202:120	English	3	224:243	Commercial Art Problems I	3
710:232	Instrument Drawing	5	202:242	American Urban Society	4
or				Math Elective	
292:121	Technical Drawing I	3		Electives*	16
		16			



<i>First Year</i>		<i>Second Year</i>	
<i>First Quarter</i>	<i>Credits</i>	<i>First Quarter</i>	<i>Credits</i>
254:119 Business English	3	254:293 Business Communications	3
228:135 Food Purchasing	4	242:211 Basic Accounting I	3
228:121 Fundamentals of Food Preparation I	3	242:102 Personnel Practices	4
242:101 Elements of Distribution	4	228:236 Menu Planning & Cost Control	4
Elective	2	Elective	3
	<hr/>		<hr/>
	16		17
<i>Second Quarter</i>		<i>Second Quarter</i>	
202:240 Human Relations	4	242:180 Essentials of Law	4
202:120 English	3	242:212 Basic Accounting II	3
228:122 Fundamentals of Food Preparation II	3	228:237 Food Service Internship I	4
252:103 Principles of Advertising	3	228:233 Quantity Food Service	5
110: Physical Education	1		
Elective	2		
	<hr/>		<hr/>
	16		16
<i>Third Quarter</i>		<i>Third Quarter</i>	
110:108 Effective Speaking	4	228:238 Food Service Internship II	4
242:170 Business Math	3	310:177 Introductory Bacteriology	3
228:123 Fundamentals of Food Preparation III	3	228:243 Food Equipment and Plant Operations	3
740:133 Nutrition Fundamentals	3	202:247 Survey of Basic Economics	5
110: Physical Education	1		
Elective	2		
	<hr/>		<hr/>
	16		15
			<b>Total Credits 96</b>

## 242: COMMERCE

This program provides training in varied business activities in preparation for a beginning management or supervisory career with a company or as a self-employed manager. The broad program includes study of finance, marketing, personnel practices, and office management. An option is available for a speciality in Real Estate.

## GENERAL OPTION

<i>First Year</i>		<i>Second Year</i>	
<i>First Quarter</i>	<i>Credits</i>	<i>First Quarter</i>	<i>Credits</i>
254:119 Business English	3	202:247 Survey of Basic Economics	5
254:150 Beginning Typewriting	4	244:120 Introduction to Information Processing	4
242:104 Introduction to Business	4	256:110 Transportation Econ. Policy I	3
202:240 Human Relations	4	242:102 Personnel Practices	4
110: Physical Education	1		
	<hr/>		<hr/>
	16		16
<i>Second Quarter</i>		<i>Second Quarter</i>	
242:170 Business Mathematics	3	242:180 Essentials of Law	4
202:120 English	3	288:232 Labor-Management Relations	4
242:101 Elements of Distribution	4	254:125 Business Machines	2
242:211 Basic Acctg. I	3	Elective	6
110: Physical Education	1		
Elective	2		
	<hr/>		<hr/>
	16		16
<i>Third Quarter</i>		<i>Third Quarter</i>	
242:212 Basic Acctg. II	3	242:243 Survey in Finance	4
254:293 Business Communications	3	242:121 Administrative Office Supervision	4
110:108 Effective Speaking	4	202:242 American Urban Society	4
252:210 Consumer Service Fundamentals	3	Elective	4
Elective	3		
	<hr/>		<hr/>
	16		16
			<b>Total Credits 96</b>

<i>Recommended Electives</i>		254:253 Advanced Typewriting	3
244:121 Introduction to Programming	3	252:212 Principles of Salesmanship	3
252:202 Retailing and Franchising	3	202:251 Work Relationships	2
254:121 Office Problems	4	202:254 The Black American	2
252:103 Principles of Advertising	3	256:221 Transportation Traffic Principles	3
254:151 Intermediate Typewriting I	4	202:253 Intergroup Relations	2
254:152 Intermediate Typewriting II	4	202:241 Man and Technology	4

### REAL ESTATE OPTION

<i>First Year</i>			
<i>First Quarter</i>	<i>Credits</i>	<i>Second Quarter</i>	<i>Credits</i>
254:119 Business English	3	202:242 American Urban Society	4
242:104 Intro. to Business	4	242:265 Real Estate Brokerage	3
242:180 Essentials of Law	4	252:212 Prin. of Salesmanship	3
242:105 Real Estate Principles	3	242:121 Admin. Office Supervision	4
110: Physical Education	1	Elective	2
	<hr/>		<hr/>
	15		16
<i>Second Quarter</i>		<i>Third Quarter</i>	
242:170 Business Mathematics	3	242:243 Survey in Finance	4
202:120 English	3	242:111 Public Relations	3
242:211 Basic Accounting I	3	202:240 Human Relations	4
242:185 Real Estate Law	3	Elective	5
Electives	4		<hr/>
	<hr/>		16
	16		Total Credits 96

<i>Third Quarter</i>		<i>RECOMMENDED ELECTIVES</i>	
242:212 Basic Accounting II	3	<i>Technical Electives</i>	
254:293 Business Communications	3	244:121 Intro. to Programming	3
110:108 Effective Speaking	4	252:202 Retailing & Franchising	3
242:245 Real Estate Financing	3	254:121 Office Problems	4
110: Physical Education	1	252:103 Prin. of Advertising	3
Electives	3	254:151 Intermediate Typing I	4
	<hr/>	254:152 Intermediate Typing II	4
	17	254:253 Advanced Typing	3
		252:212 Prin. of Salesmanship	3
		256:221 Trans. Traffic Principles	3
<i>Second Year</i>		<i>General Electives</i>	
<i>First Quarter</i>		(Minimum 3 credits required)	
202:247 Survey of Basic Economics	5	202:251 Work Relationships	2
244:120 Intro. to Info. Proc. I	4	202:254 The Black American	2
242:255 Valuation of Residential Property	3	202:253 Intergroup Relations	2
242:102 Personnel Practices	4	202:241 Man & Technology	4
	<hr/>	740:200 Marriage and Family Relations	2
	16		

### 244: DATA PROCESSING

This program prepares individuals for careers in electronic data process-operating, programming, and systems analysis. The program gives a practical understanding of computers in business functions; extensive programming and processing experience is provided through laboratory assignments.

<i>First Year</i>			
<i>First Quarter</i>	<i>Credits</i>	<i>Second Quarter</i>	<i>Credits</i>
242:104 Introduction to Business	4	202:120 English	3
202:131 Mathematical Analysis I	3	202:132 Mathematical Analysis II	4
254:119 Business English	3	202:240 Human Relations	4
244:120 Introduction to Information Processing	4	254:125 Business Machines	2
110: Physical Education	1	244:121 Introduction to Programming	3
	<hr/>		<hr/>
	15		16



## 254: SECRETARIAL SCIENCE

Prepares students for the different but often overlapping fields of secretarial, stenographic, or clerical work; provides thorough training in typing, shorthand, and communications; includes courses that prepare graduates for work as technical, executive, and legal secretaries, and as medical assistants. An international option provides secretarial training for overseas assignments.

## EXECUTIVE SECRETARIAL SCIENCE OPTION

<i>First Year</i>		<i>Credits</i>		<i>Credits</i>
<i>First Quarter</i>			254:253 Advanced Typewriting	3
254:119 Business English		3	110: Physical Education	1
254:150 Beginning Typewriting		4		<hr/>
254:171 Shorthand Principles		4		16
202:240 Human Relations		4	<i>Second Quarter</i>	
110: Physical Education		1	242:212 Basic Accounting II	3
		<hr/>	254:257 Secretarial Machines	4
		16	254:291 Data Communications	3
<i>Second Quarter</i>			254:275 Advanced Dictation & Transcription II	4
110:111 English Composition		4	254:241 Records Management	2
254:121 Office Problems		4		<hr/>
254:151 Intermediate Typewriting I		4		16
254:172 Intermediate Shorthand & Transcription		4	<i>Third Quarter</i>	
		<hr/>	254:276 Executive Dictation & Transcription	4
		16	242:102 Personnel Practices	4
<i>Third Quarter</i>			110:108 Effective Speaking	4
254:125 Business Machines		2	202:242 American Urban Society	4
254:293 Business Communications		3		<hr/>
242:170 Business Mathematics		3		16
254:152 Intermediate Typewriting II		4	<i>Recommended Electives</i>	
254:173 Shorthand & Transcription		4	242:111 Public Relations	3
		<hr/>	252:212 Principles of Sales	3
		16	254:126 Advanced Business Machines	3
<i>Second Year</i>			244:120 Introduction to Information Processing	4
<i>First Quarter</i>			242:101 Elements of Distribution	4
242:211 Basic Accounting I		3	242:104 Introduction to Business	4
202:247 Survey of Basic Economics		5		<hr/>
254:274 Advanced Dictation & Transcription I		4		Total Credits 96

## TECHNICAL SECRETARIAL SCIENCE OPTION

<i>First Year</i>		<i>Credits</i>		<i>Credits</i>
<i>First Quarter</i>			254:293 Business Communications	3
254:119 Business English		3		<hr/>
254:125 Business Machines		2		16
254:150 Beginning Typewriting		4	<i>Second Year</i>	
254:171 Shorthand Principles I		4	<i>First Quarter</i>	
242:170 Business Mathematics		3	242:211 Basic Accounting I	3
		<hr/>	254:274 Advanced Dictation and Transcription I	4
		16	254:253 Advanced Typewriting	3
<i>Second Quarter</i>			254:291 Data Communications	3
110:111 English Composition		4	254:241 Records Management	2
254:121 Office Problems		4	110: Physical Education	1
254:151 Intermediate Typewriting I		4		<hr/>
254:172 Introduction to Shorthand and Transcription		4		16
		<hr/>	<i>Second Quarter</i>	
		16	202:242 American Urban Society	4
<i>Third Quarter</i>			242:212 Basic Accounting II	3
110:108 Effective Speaking		4	254:275 Advanced Dictation and Transcription II	4
110: Physical Education		1	254:257 Secretarial Machines	4
254:152 Intermediate Typewriting II		4	Elective	1
254:173 Shorthand and Transcription		4		<hr/>
				16

<i>Third Quarter</i>	<i>Credits</i>	<i>Recommended Electives</i>	<i>Credits</i>
202:122 Technical Report Writing	3	242:101 Elements of Distribution	4
202:240 Human Relations	4	242:111 Public Relations	3
202:247 Survey of Basic Economics	5	252:212 Principles of Sales	3
254:278 Technical Dictation and Transcription	4	256:110 Transportation Economic Policy I	3
	—	242:243 Survey in Finance	5
	16	254:126 Advanced Business Machines	3
<b>Total Credits</b> 96		242:104 Introduction to Business	4

### LEGAL SECRETARIAL SCIENCE OPTION

<i>First Year</i>		<i>Credits</i>		<i>Credits</i>
<i>First Quarter</i>			202:247 Survey of Basic Economics	5
254:119 Business English	3	110: Physical Education	1	
202:240 Human Relations	4		—	16
254:150 Beginning Typewriting	4			
254:171 Shorthand Principles	4	<i>Second Quarter</i>	242:212 Basic Accounting II	3
110: Physical Education	1	254:275 Advanced Dictation and Transcription II	4	
	—	Elective	3	
	16	254:241 Records Management	2	
<i>Second Quarter</i>		254:257 Secretarial Machines	4	
110:111 English Composition	4		—	16
254:121 Office Problems	4	<i>Third Quarter</i>	242:180 Essentials of Law	4
254:151 Intermediate Typewriting I	4	254:277 Legal Dictation and Transcription	4	
254:172 Intermediate Shorthand and Transcription	4	110:108 Effective Speaking	4	
	—	202:242 American Urban Society	4	
	16		—	16
<i>Third Quarter</i>			<b>Total Credits</b> 96	
254:152 Intermediate Typewriting II	4	<i>Recommended Electives</i>		
254:173 Shorthand and Transcription	4	244:120 Introduction to Information Processing	4	
242:170 Business Mathematics	3	242:101 Elements of Distribution	4	
254:293 Business Communications	3	242:111 Public Relations	3	
254:125 Business Machines	2	252:212 Principles of Sales	3	
	—	254:126 Advanced Business Machines	3	
	16	254:291 Data Communications	3	
<i>Second Year</i>		242:104 Introduction to Business	4	
<i>First Quarter</i>				
242:211 Basic Accounting I	3			
254:253 Advanced Typewriting	3			
254:274 Advanced Dictation and Transcription I	4			

### INTERNATIONAL SECRETARIAL SCIENCE OPTION

<i>First Year</i>		<i>Credits</i>	<i>Second Year</i>		<i>Credits</i>
<i>First Quarter</i>			<i>First Quarter</i>		
254:119 Business English	3		202:242 American Urban Society	4	
254:150 Beginning Typewriting	4		254:253 Advanced Typewriting	3	
254:171 Shorthand Principles	4		254:274 Advanced Dictation and Transcription I	4	
Beginning Foreign Language	4		Intermediate Foreign Language	3	
110: Physical Education	1		254:241 Records Management	2	
	—			—	16
	16				
<i>Second Quarter</i>			<i>Second Quarter</i>		
110:111 English Composition	4		242:170 Business Mathematics	3	
254:151 Intermediate Typewriting I	4		254:275 Advanced Dictation and Transcription II	4	
254:172 Intermediate Shorthand and Transcription	4		Intermediate Foreign Language	3	
Beginning Foreign Language	4		254:125 Business Machines	2	
	—		254:257 Secretarial Machines	4	
	16			—	16
<i>Third Quarter</i>			<i>Third Quarter</i>		
110: Physical Education	1		254:276 Executive or Legal Dictation		
254:152 Intermediate Typewriting II	4		and Transcription	4	
254:173 Shorthand and Transcription	4		254:277 Intermediate Foreign Language	3	
254:293 Business Communications	3		254:121 Office Problems	4	
Beginning Foreign Language	4				
	—				
	16				

	<i>Credits</i>		<i>Credits</i>
202:240 Human Relations	4	242:111 Public Relations	3
Elective	1	254:291 Data Communications	3
	—	254:126 Advanced Business Machines	3
	16	242:104 Introduction to Business	4
Total Credits	96	340:209 Modern Europe 1870-Present	4
		370:220 American Foreign Policy	4
		Process and Problems	4

*Recommended Electives*

244:120 Introduction of Information Processing	4
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**MEDICAL ASSISTANT OPTION**

<i>First Year</i>		<i>Credits</i>		<i>Credits</i>
<i>First Quarter</i>				
254:119 Business English	3	242:180 Essentials of Law	4	
254:150 Beginning Typewriting	4	254:283 Medical Terminology	4	
284:100 Basic Chemistry	4	254:253 Advanced Typewriting	3	
310:147 Anatomy and Physiology	3	Elective	2	
Elective	2		—	
	16		16	
<i>Second Quarter</i>				
202:120 English	3	242:212 Basic Accounting II	3	
254:121 Office Problems	4	254:181 Office Nursing Techniques I	3	
254:151 Intermediate Typewriting I	4	202:240 Human Relations	4	
310:148 Anatomy and Physiology	3	555:311 Red Cross First Aid	2	
110: Physical Education	1	254:257 Secretarial Machines	4	
	—		—	
	15		16	
<i>Third Quarter</i>				
254:293 Business Communications	3	242:102 Personnel Practices	4	
254:152 Intermediate Typewriting II	4	254:125 Business Machines	2	
110: Physical Education	1	254:282 Medical Machine Transcription	3	
110:108 Effective Speaking	4	254:182 Office Nursing Techniques II	3	
242:170 Business Mathematics	3	254:241 Records Management	2	
Elective*	2	Elective	2	
	—		—	
	17		16	
<b>Total Credits 96</b>				
<i>Second Year</i>				
<i>First Quarter</i>				
242:211 Basic Accounting I	3	Electives should be selected from: Psychology, Sociology, Humanities, Art or Home Economics.		
		*310:149 Anatomy and Physiology is recommended.		

**255: OFFICE SERVICES TECHNOLOGY**

The Office Services Technology career program emphasizes skill development for clerical and record-keeping occupations and prepares the student to perform the various services that are a vital part of the modern business office. Studies include the development of skills in operating office machines and systems, records management, and personnel supervision.

<i>First Year</i>		<i>Credits</i>	<i>Third Quarter</i>		<i>Credits</i>
<i>First Quarter</i>					
254:119 Business English	3	110:108 Effective Speaking	4		
254:150 Beginning Typewriting	4	254:125 Business Machines	2		
202:240 Human Relations	4	254:152 Intermediate Typewriting II	4		
242:104 Introduction to Business	4	254:293 Business Communications	3		
	—	110: Physical Education	1		
	15	Elective	2		
			—		
			16		
<i>Second Quarter</i>					
242:170 Business Mathematics	3	<i>Second Year</i>			
202:120 English	3	<i>First Quarter</i>			
254:121 Office Problems	4	202:242 American Urban Society	4		
254:151 Intermediate Typewriting I	4	242:211 Basic Accounting I	3		
110: Physical Education	1	242:102 Personnel Practices	4		
Elective	2	254:241 Records Management	2		
	—	254:253 Advanced Typewriting	3		
	17		—		
			16		

<i>Second Quarter</i>		<i>Credits</i>		<i>Credits</i>
202:247	Survey of Basic Economics	5	242:101	Elements of Distribution <i>OR</i>
254:257	Secretarial Machines	4	252:212	Principles of Salesmanship
242:180	Essentials of Law	4		Electives
254:126	Advanced Business Machines	3		5 or 6
		<hr/>		<hr/>
		16		16
				Total Credits 96
<i>Third Quarter</i>				
254:291	Data Communications	3	Electives should be selected from: Psychology,	
242:121	Administrative Office Supervision	4	Sociology, Humanities, Art or Home Economics.	

256: TRANSPORTATION

This program provides qualified personnel for the field of transportation in such areas as sales, traffic and operations, personnel management, and public relations. The program includes courses in traffic practices and procedures, rate theory, and terminal management as they pertain to the movement of goods and people by rail, highway, water, and air.

GENERAL OPTION

	<i>First Year</i>		<i>Second Year</i>	
<i>First Quarter</i>		<i>Credits</i>	<i>First Quarter</i>	<i>Credits</i>
110:	Physical Education	1	202:247	Survey of Basic Economics
254:119	Business English	3	256:220	Transportation Terminal Management and Operations
202:242	American Urban Society	4	256:225	Interstate Traffic Practices and Procedures I
256:110	Transportation Economic Policy I	3	242:104	Introduction to Business
256:115	Transportation Commercial Motor Elective	3 2		
		<hr/>		<hr/>
		16		15
<i>Second Quarter</i>			<i>Second Quarter</i>	
110:	Physical Education	1	110:108	Effective Speaking
202:120	English	3	254:293	Business Communications
202:240	Human Relations	4	256:221	Transportation Traffic Principles
256:111	Transportation Economic Policy II	3	256:226	Interstate Traffic Practices and Procedures II
256:116	Transportation Commercial Air	3	242:170	Business Mathematics
288:141	Safety Procedures	3		
		<hr/>		<hr/>
		17		16
<i>Third Quarter</i>			<i>Third Quarter</i>	
242:101	Elements of Distribution	4	202:122	Technical Report Writing
242:180	Essentials of Law	4	242:102	Personnel Practices
256:117	Transportation Commercial Water	3	242:111	Public Relations
256:118	Transportation Freight Rates and Classification	3	256:222	Transportation Traffic Practices and Procedures
	Elective	2	256:227	Interstate Traffic Practices and Procedures III
		<hr/>		<hr/>
		16		16
				Total Credits 96

COMMERCIAL AVIATION OPTION

	<i>First Year</i>			<i>Credits</i>
<i>First Quarter</i>		<i>Credits</i>		
256:110	Transportation Economic Policy I	3	256:116	Transportation: Commercial Air
242:170	Business Mathematics	3	242:211	Basic Accounting I
254:119	Business English	3	202:120	English
254:150	Beginning Typewriting	4	110:	Physical Education
110:	Physical Education	1		Elective
	Elective	3		
		<hr/>		<hr/>
		17		16
<i>Second Quarter</i>		<i>Credits</i>	<i>Third Quarter</i>	<i>Credits</i>
256:111	Transportation Economic Policy II	3	242:212	Basic Accounting II
			202:240	Human Relations
			242:104	Introduction to Business

	<i>Credits</i>		<i>Credits</i>
256:118 Transportation Freight Rates and Classification*	3	110:108 Effective Speaking	4
Elective	2	Elective	5
	<hr style="width: 100px; margin-left: 0;"/>		<hr style="width: 100px; margin-left: 0;"/>
	16		16
<i>Second Year</i>			
<i>First Quarter</i>			
242:102 Personnel Practices	4	256:222 Transportation Traffic Practices	3
244:120 Introduction to Information Processing	4	202:247 Survey of Basic Economics*	5
242:111 Public Relations	3	242:180 Essentials of Law	4
256:220 Transportation Terminal Management and Operations*	3	252:212 Principles of Sales	3
Elective	2		<hr style="width: 100px; margin-left: 0;"/>
	<hr style="width: 100px; margin-left: 0;"/>		15
	16	Total Credits 96	
<i>Second Quarter</i>			
256:221 Transportation Traffic Principles	3	*It is recommended that those persons who are particularly interested in a career as an Airline Hostess substitute the following courses for courses identified above by an asterisk.	
242:101 Elements of Distribution*	4	254:181 Office Nursing Techniques I	3
		254:182 Office Nursing Techniques II	3
		254:121 Office Problems	4
		555:211 Red Cross First Aid	2

### 275: CYTOTECHNOLOGY

A cytotechnologist specializes in screening microscope slides prepared by physicians or other medical personnel. Two years of study in this program includes courses in biology, chemistry, and medical technology, followed by six to twelve months (depending upon school) of training in an approved hospital school. The hospital school requires separate admission. These admissions are highly competitive and the University cannot guarantee placement in them.

<i>First Year</i>		<i>Second Year</i>	
	<i>Credits</i>		<i>Credits</i>
<i>First Quarter</i>			
202:118 English	4	202:122 Technical Report Writing	3
310:121 Principles of Biology	4	310:246 General Genetics	4
315:121 Inorganic Chemistry	3	310:247 Genetics Lab	1
202:131 Math Analysis I	3	254:181 Office Nursing Techniques I	3
110: Physical Education	1	Elective	5
	<hr style="width: 100px; margin-left: 0;"/>		<hr style="width: 100px; margin-left: 0;"/>
	15		16
<i>Second Quarter</i>			
202:120 English	3	110:108 Effective Speaking	4
310:122 Principles of Biology	4	202:242 American Urban Society	4
315:122 Inorganic Chemistry	3	310:191 Human Physiology	4
Electives	6	242:211 Basic Accounting I	3
	<hr style="width: 100px; margin-left: 0;"/>	Elective	2
	16		<hr style="width: 100px; margin-left: 0;"/>
			17
<i>Third Quarter</i>			
202:240 Human Relations	4	310:328 Histology	4
310:123 Principles of Biology	4	242:212 Basic Accounting II	3
315:123 Inorganic Chemistry	3	Electives	9
310:133 Microbiology	4		<hr style="width: 100px; margin-left: 0;"/>
110: Physical Education	1		16
	<hr style="width: 100px; margin-left: 0;"/>	Total Credits 96	
	16		

### 284: CHEMICAL TECHNOLOGY

This program prepares students for technological services in chemical manufacturing plants and in processing industries and for technical positions in chemical laboratories. The curriculum includes the fundamentals of chemistry, physics, and mathematics and emphasizes instrumentation methods for chemical analysis.

<i>First Year</i>		<i>Credits</i>	
	<i>Credits</i>		<i>Credits</i>
<i>First Quarter</i>			
202:118 English	4	292:121 Techn. Draw. I	3
202:131 Math. Anal. I	3	110: Phys. Education	1
284:101 Introd. Chem. I	4	Elective	2
			<hr style="width: 100px; margin-left: 0;"/>
			17

<i>Second Quarter</i>	<i>Credits</i>		<i>Credits</i>
202:132 Math. Anal. II	4	284:201 Quantitative Methods	4
284:102 Introd. Chem. II	4	284:103 Qualitative Methods	4
284:121 Organic Princ. I	4		<hr/>
292:151 Bas. Physics: Mech.	4		16
	<hr/>	<i>Second Quarter</i>	
	16	202:234 Math Anal. IV	4
<i>Third Quarter</i>		284:202 Instrum. Meth. I	4
202:120 English	3	284:211 Sci. Glass Blow. II	1
202:133 Math Analysis III	4	284:270 Polymer Chem. Meth.	4
292:153 Basic Physics; Heat, Sound & Light	3	Elective	3
284:122 Organic Principles II	4		<hr/>
110: Physical Education	1	<i>Third Quarter</i>	16
Elective	2	284:203 Instrum. Meth. II	4
	<hr/>	284:250 El. Physical Chem.	4
	17	284:255 Literat. of Chem.	1
		Elective	7
<i>Second Year</i>			<hr/>
<i>First Quarter</i>			16
202:247 Survey of Basic Economics	5		
292:152 Basic Physics: Electricity and Magnetism	3		
			<b>Total Credits 99</b>

## 286: ELECTRONIC TECHNOLOGY

(An ECPD accredited Engineering Technology curriculum)

This program prepares individuals for work as technicians in the development, manufacture, installation, and maintenance of electronic equipment and systems. Added to basic instruction in mathematics, science, and electrical/electronic fundamentals is study of computers, communications systems, and industrial applications of electronics.

	<i>First Year</i>		<i>Credits</i>
<i>First Quarter</i>	<i>Credits</i>	286:255 Shop Practices	1
202:131 Math Analysis I	3	Elective*	5
286:153 DC Circuits	6		<hr/>
202:118 English	4		18
202:240 Human Relations	4	<i>Second Quarter</i>	
	<hr/>	286:237 Digital Computers	4
	17	286:245 Analog Computers	4
<i>Second Quarter</i>		286:249 Industrial Electronics	4
292:151 Basic Physics; Mechanics	4	202:122 Technical Report Writing	3
202:132 Math Analysis II	4	Elective*	2
286:122 Circuit Theory	4		<hr/>
286:123 Electronics I	4	<i>Third Quarter</i>	17
110: Physical Education	1	286:251 Communications Systems	4
	<hr/>	202:247 Survey of Basic Economics	5
	17	286:250 Electronic Project	2
<i>Third Quarter</i>		286:253 Servomechanisms	3
202:120 English	3	286:226 Integrated Circuits	2
286:124 Electronics II	4		<hr/>
292:153 Basic Physics; Heat, Sound & Light	3		16
202:133 Math Analysis III	4	<b>Total Credits 102</b>	
286:128 Electronic Drafting	2		
110: Physical Education	1	<i>*Recommended General Electives</i>	
	<hr/>	202:241 Man and Technology	4
	17	202:242 Amer. Urban Society	4
<i>Second Year</i>		202:251 Work Relations	2
<i>First Quarter</i>		202:253 Intergroup Relations	2
286:225 Electronics III	4	202:254 The Black American	2
286:242 Machinery	4	110:108 Effective Speaking	4
202:234 Math Analysis	4	ROTC	

## 288: INDUSTRIAL TECHNOLOGY

This sequence of courses prepares students for entry level positions in the field of industrial management and engineering. In addition to basic technical subjects, study is concentrated on work measurement, safety procedures, plant layout, and quality control.

<i>First Year</i>			<i>Second Year</i>	
<i>First Quarter</i>	<i>Credits</i>		<i>First Quarter</i>	<i>Credits</i>
202:118 English	4		242:211 Basic Accounting I	3
202:131 Math Analysis I	3		292:247 Shop Methods and Practices	4
292:121 Technical Drawing I	3		288:231 Factory Planning and Materials Handling	4
242:104 Introduction to Business	4		242:102 Personnel Practices	4
110: Physical Education	1		Elective	2
	<hr/>			<hr/>
	15			17
 <i>Second Quarter</i>			 <i>Second Quarter</i>	
202:120 English	3		202:122 Technical Report Writing	3
202:132 Math Analysis II	4		288:232 Labor-Management Relations	4
288:141 Safety Procedures	3		242:212 Basic Accounting II	3
202:247 Survey of Basic Economics	5		Electives	7
110: Physical Education	1			<hr/>
	<hr/>			17
	16		 <i>Third Quarter</i>	
 <i>Third Quarter</i>			202:242 American Urban Society	4
110:108 Effective Speaking	4		288:242 Production and Quality Control	6
202:240 Human Relations	4		288:245 Plants and Equipment Maintenance	3
288:120 Work Measurement Procedures	5		Elective	3
254:125 Business Machines	2			<hr/>
	<hr/>			16
	15		Total Credits	96

## 290: INSTRUMENTATION TECHNOLOGY

This career area offers training with instruments and control devices used in automatic manufacturing and processing, power generation, space exploration, and communications systems. The program develops the principles and technical skills involved in the instrumental control of processes and operations in modern industry.

<i>First Year</i>			<i>Second Year</i>	
<i>First Quarter</i>	<i>Credits</i>		<i>First Quarter</i>	<i>Credits</i>
202:131 Math Analysis I	3		290:121 Fundamentals of Instrumentation	5
286:153 DC Circuits	6		202:242 American Urban Society	4
202:118 English	4		202:234 Math Analysis IV	4
202:240 Human Relations	4		Elective*	3
	<hr/>			<hr/>
	17			16
 <i>Second Quarter</i>			 <i>Second Quarter</i>	
292:151 Basic Physics; Mechanics	4		202:122 Technical Report Writing	3
202:132 Math Analysis II	4		290:230 Control Principles	5
286:122 Circuit Theory	4		290:240 Calibration and Standardization	2
286:123 Electronics I	4		290:232 Computer Principles	5
110: Physical Education	1		Elective*	2
	<hr/>			<hr/>
	17			17
 <i>Third Quarter</i>			 <i>Third Quarter</i>	
202:120 English	3		202:247 Survey of Basic Economics	5
202:133 Math Analysis III	4		290:231 Automatic Process Control	4
290:120 Instrumentation Drafting	2		290:241 Instrumentation Project	3
286:124 Electronics II	4		286:253 Servomechanisms	3
292:153 Basic Physics; Heat, Sound and Light	3		Elective*	2
110: Physical Education	1			<hr/>
	<hr/>			17
	17		Total Credits	101

<i>*Recommended General Electives</i>	<i>Credits</i>		<i>Credits</i>
		202:253 Intergroup Relations	2
		202:254 The Black American	2
202:241 Man and Technology	4	110:108 Effective Speaking	4
202:251 Work Relations	2	ROTC	

**292: MECHANICAL TECHNOLOGY**

(An E.C.P.D. accredited Engineering Technology curriculum)

This curriculum prepares individuals to work at the technician level in the design, development, manufacture, testing, and servicing of mechanical equipment. Included in the program is basic instruction in mathematics, science, mechanics, technical drawing, and machine design.

<i>First Year</i>		<i>Second Year</i>	
<i>First Quarter</i>	<i>Credits</i>	<i>First Quarter</i>	<i>Credits</i>
202:118 English	4	202:234 Math Analysis IV	4
202:131 Math Analysis I	3	292:152 Basic Physics; Electricity and Magnetism	3
202:240 Human Relations	4	298:241 Strength of Materials	5
292:121 Technical Drawing I	3	292:243 Kinematics	3
110: Physical Education	1	Elective	2
	<hr/> 15		<hr/> 17
<i>Second Quarter</i>		<i>Second Quarter</i>	
202:120 English	3	292:247 Shop Methods and Practices	4
202:132 Math Analysis II	4	292:242 Design Materials	4
292:151 Basic Physics; Mechanics	4	292:244 Mechanical Design I	4
292:122 Technical Drawing II	3	110:108 Effective Speaking	4
110: Physical Education	1	Elective	2
Elective	2		
	<hr/> 17		<hr/> 18
<i>Third Quarter</i>		<i>Third Quarter</i>	
292:153 Basic Physics; Heat, Sound, Light	3	292:249 Applied Thermal Energy	4
202:133 Math Analysis III	4	292:251 Elementary Fluid Mechanics	4
298:125 Statics	5	292:245 Mechanical Design II	5
292:123 Technical Drawing III	3	202:242 American Urban Society	4
202:122 Technical Report Writing	3		
	<hr/> 18		<hr/> 17
		<b>Total Credits</b>	<b>102</b>

**298: SURVEYING AND CONSTRUCTION TECHNOLOGY**

(An E.C.P.D. accredited Engineering Technology curriculum)

This program equips graduates for work in the construction industry or for work as a land surveyor. Courses provide study in construction administration, materials, drafting, and surveying.

<i>First Year</i>		<i>Second Year</i>	
<i>First Quarter</i>	<i>Credits</i>	<i>First Quarter</i>	<i>Credits</i>
202:118 English	4	298:122 Basic Surveying	4
202:131 Math Analysis I	3		
202:240 Human Relations	4		
292:121 Technical Drawing I	3		
110: Physical Education	1		
	<hr/> 15		
<i>Second Quarter</i>		<i>Second Quarter</i>	
202:120 English	3	202:234 Math Analysis IV	4
202:132 Math Analysis II	4	298:241 Strength of Materials	5
292:122 Technical Drawing II	3	298:237 Material Testing Lab I	3
292:151 Basic Physics, Mechanics	4	298:222 Construction Surveying	4
Elective (General)	4	110: Physical Education	1
	<hr/> 18		<hr/> 17
<i>Third Quarter</i>		<i>Third Quarter</i>	
292:152 or 153 Physics Elective	3	298:233 Construction Administration	4
202:133 Math Analysis III	4	298:238 Material Testing Lab II	3
298:125 Statics	5	*Tech. Elective	4
			<hr/> 17

<i>*Technical Electives (Second Quarter)</i>	<i>Credits</i>	<i>**Technical Electives (Third Quarter)</i>	<i>Credits</i>
298:224 Land Surveying	4	298:234 Elements of Structures	4
298:231 Building Construction	4	298:250 Structural Drafting	3
		or	
<i>Third Quarter</i>		298:225 Advanced Surveying	4
202:247 Survey of Basic Economics	5	335:380 Cartography	3
298:232 Construction	4	298:123 Surveying Field Practice	3
**Tech. Elective	7		
*Elective (General)	3		
	19		
Total Credits 102		—	Student will choose technical electives in his field of interest.

### DIPLOMA NURSING PROGRAM

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

Nursing students must meet the University entrance requirements and are regularly enrolled with college credit for the courses satisfactorily completed.

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

The programs planned for the three schools of

nursing differ slightly in regard to courses taken and their sequence. The following courses are offered:

	<i>Credits</i>
110:111 English	4
110: Physical Education	1
254:119 Business English	3
310:133 Microbiology	4
310:147, 148, 149 Anatomy and Physiology	3, 3 and 3
315:121, 122, 123 Inorganic Chemistry	3, 3 and 3
315:124 Chemistry	4
375:141 General Psychology	5
375:151 Developmental Psychology	5
385:100 Introduction to Sociology	5
740:133 Nutrition Fundamentals	3

# The General College

Thomas Sumner, Ph.D., *Dean*

## OBJECTIVES

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

To offer all students a basic program of General Studies and the prerequisite courses for advancement to the degree-granting colleges.

To counsel students with respect to their adjustment to the collegiate environment and to their academic, personal, and occupational objectives.

To direct students to the proper curricula so that they will enter the degree-granting colleges prepared to undertake advanced work.

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

## 110: DEPARTMENT OF GENERAL STUDIES

The Department of General Studies of the General College provides students with courses aimed at developing ability to understand and express ideas effectively, to comprehend the processes involved in accurate thinking and to learn the responsibilities of an educated member of society. Also, by taking courses in the General Studies department, students gain knowledge which helps them to develop intelligent behavior patterns and gain understanding of themselves and their own individual abilities.

The General Studies program is an outgrowth of the belief that a student's personal education is like a pyramid — that is, in order for him to develop his intellectual abilities to their cultural or professional height,

he must first establish a wide foundation of general knowledge to serve as the structural basis.

Serving as the foundation of each University student's educational pyramid is the General Studies curriculum including English Composition, Types of Literature, Effective Speaking, Numbers Communication, Natural Science, Institutions in the United States, Western Cultural Traditions, Eastern Civilizations, Physical Education and the Senior Seminar. This well-balanced program of studies has been thoughtfully evolved by experts in academic research, representing many leading American educational institutions including The University of Akron. The General Studies program as it is now presented is the fruit of a half century of planning, revising and developing.

Students, well-grounded in the General Studies, are academically prepared to continue into realms of higher education; this curriculum has proved the most advantageous starting point for a student, no matter his eventual scholastic goal. It is valuable in equal measure to the enrollee who is indecisive about his professional future *and* to the enrollee who arrives at the University convinced that he knows what he wants to become.

Students who complete the courses outlined in the General College curriculum, earning a total of approximately 45 credits (slightly more for Engineering) and achieving a quality point ratio of 2.0 (C) or better, are eligible for transfer to the Upper College of their choice.

Acceptance of a student in an upper college is the responsibility of the respective academic Dean, in consultation with the Dean of the General College and heads of departments concerned.

The required General Studies courses are:

	<i>Credits</i>
110:108 Effective Speaking	4
110:111-112 English Composition	8
110:115-117 Institutions in the United States*	9
110:120-182 Physical Education	minimum of 2
110:205 Types of Literature	4
110:211 Numbers Communication**	4

	<i>Credits</i>
110:221-224 Natural Science***	minimum of 9
110:317-319 Western Cultural Traditions	12
110:330-335 Eastern Civilizations****	minimum of 6
110:401 Senior Seminar	2
	—
Total	60

\*The 9 credit requirement in the social science area also may be met through one of the following options.

A. Completion of a minimum of two courses totaling at least 9 credits selected from *two* of the following four sets of course offerings:

1. 325:244, Introduction to Economic Analysis, 4 cr. (Students majoring in engineering are advised to take this as one of their selections.)

or

325:201, Principles of Economics, 4 cr. (Students majoring in business, economics, etc., are advised to take this as one of their selections. Students doing so should plan to take 325:202, 4 cr.)

or

325:100, Introduction to Economics, 5 cr.

2. 370:100, Government and Politics in U.S., 5 cr.

3. 385:100, Introduction to Sociology, 5 cr.

or

387:150, Cultural Anthropology, 5 cr.

4. 340:201, U.S. History of 1815, 4 cr.

or

340:202, United States, 1815-1898, 4 cr.

or

340:203, United States, 1898-Present, 4 cr.

B. For Community and Technical College majors only, completion of the following three courses (total of 13 credits):

202:240, Human Relations, 4 cr.

202:242, American Urban Society, 4 cr.

202:247, Survey of Basic Economics, 5 cr.

\*\*The mathematics requirement also may be met by taking 4 credits in the Department of Mathematics.

\*\*\*The requirement in the natural sciences area also may be met by taking at least 9 credits in the Departments of Biology, Chemistry, Geology or Physics.

\*\*\*\*Engineering students are only required to take 3 credits; all other students must take 6 credits.

### MILITARY SCIENCE AND AEROSPACE STUDIES

The University's Reserve Officers' Training Corps is one of the oldest in the country, dating from 1919 when a branch of the Army ROTC was established. In 1946 a unit of the Air Force was formed to give basic and advanced instruction in Aerospace Studies. Both Army and Air Force ROTC offer four and two year programs designed to educate male and female students in military and aerospace subjects. This education is designed to furnish the United States with Second Lieutenants in the Army and Air Force Reserve who understand the role of the Department of Defense in our society and who have skills to perpetuate the traditions of the citizen soldier. The main goal of the ROTC program is to provide to the Armed Forces a steady input of Reserve Officers whose civilian education and attitudes can contribute to the development of a military defense structure which reflects as well as defends our society.

Students enrolled in Reserve Officers' Training Corps can expect to have special opportunities to develop their own self-discipline and sense of responsibility. In addition, they may expect to gain a comprehensive understanding of the role of the Department of Defense in the national life. They will also be afforded to unusual opportunity to study and practice management and decision making.

All Army and Air Force programs are elective and are open to full time male and female undergraduate and graduate students. Entry requirements for females are similar to the male requirements. Qualifications for enrollment include:

\*The usual good character expected of students preparing for any profession requiring dedication.

\*United States Citizenship. Alien students who desire to enroll may be accommodated under special circumstances.

\*Age requirements are:

\*Minimum - 17 for enrollment in the Advanced Course.

\*Maximum - under 28 (Army) or 30 (Air Force) at the time of commissioning (waiverable). Scholarship students must be under 25 on June 30th of the calendar year of commissioning.

\*Medical and physical fitness requirements are those normally expected for professions requiring physical activity, stamina, and skill.

\*Students participating in ROTC must be enrolled in and attend a full-time regular course of instruction leading to a degree in a recognized academic field.

Both two-year and four-year ROTC programs are offered. Successful completion of an encampment is a prerequisite for admission into the two-year program. The four year course of instruction is divided into two parts: the basic course taken by Freshmen and Sophomores; advanced course taken by Juniors and Seniors. In some instances, by special arrangement with the Professor of Military Science or Professor of Aerospace Studies, basic course equivalent credit may be granted so that selected students may participate directly in Advanced Course education.

Credits earned during the basic and ad-

vanced courses are applicable toward the total credits required for the baccalaureate degree. Uniforms and textbooks are made available at no cost to the student; both must be returned at the completion of the school year or withdrawal from the program. Students accepted for enrollment in the advanced ROTC training program, in addition to receiving text materials and uniforms, also receive a monthly allowance of \$100, not to exceed 10 months each academic year and an additional pay of approximately \$300 per month during encampments.

Attendance at the six week Army ROTC Advanced Camp normally is between the Junior and Senior years and is a requirement for both the two-year and four-year programs. Summer Camp for Air Force ROTC cadets in the four-year program is of four weeks duration and cadets may attend between their Sophomore and Senior years. The camp for Army and Air Force ROTC cadets in the two-year program is of six weeks duration, and is completed prior to beginning the academic portion of the program.

A student who completes the Advanced ROTC program must also complete requirements for a degree prior to receiving a commission.

One through four year Scholarships are offered by the Army and two through four year Scholarships by the Air Force on a competitive basis to qualified male and female students. These scholarships provide full tuition, fees, text materials and \$100 per month. For full details of these programs see the appropriate Army or Air

Force ROTC representative. Army ROTC students who have scholarships, or qualify as Distinguished Military Graduates may apply for Regular Army commissions.

Active duty military obligations in the ROTC program are as follows:

#### 150: AIR FORCE

Basic Program (Freshman and Sophomore)	None
Advanced Program (Junior and Senior)	4 years
Advanced Program with Flight Training	6 years

#### 160: ARMY

Basic Program (Freshman and Sophomore)	None
Advanced Program (Junior and Senior)	2 years
Scholarship Program	4 years

Students may transfer between Army and Air Force ROTC programs with permission.

#### FLIGHT TRAINING:

Army and Air Force ROTC students selected for Pilot Training may, during their senior year, enroll in the Flight Instruction Program which offers, in addition to ground instruction, 36 1/2 hours of flight instruction at a local FAA approved flying school. All flight instruction, text books, equipment, flight clothing and transportation to and from the flying school is provided at no cost to the student. A private pilot's license can be obtained if the student completes FAA requirements.

# Community and Technical College

Robert C. Weyrick, M.S., *Assistant Dean*

## BACHELOR OF TECHNOLOGY

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

The Bachelor of Technology program is designed as a transfer program to permit qualified engineering technology students to continue their education to the baccalaureate degree. During his first and second years, the student follows an associate degree program in the corresponding engineering technology. The third and fourth years provide the additional study required for the baccalaureate degree. Emphasis is placed on advanced training in the student's field of specialization, broadened knowledge of related technical fields, extended general education, and basic management training.

The program is available with options in Electronic Technology and Mechanical Technology. It is intended that graduates will find employment in manufacturing, technical sales and service, application engineering, inspection and testing, and the more standardized aspects of engineering design.

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

1. Compliance with the general University requirements for a baccalaureate degree as listed in the University Bulletin.

2. Compliance with the requirements of the General Studies program as outlined in the University Bulletin.

3. Completion of the requirements for the Associate Degree in a related engineering technology at The University of Akron or other accredited institution.

4. Successful completion of a minimum of 202 credits including Associate Degree program, General Studies courses, and the following course requirements:

### ELECTRONIC TECHNOLOGY

<i>Course No.</i>	<i>Course Title</i>	<i>Credits</i>
202:336	Mathematics for Technical Application	4
284:101, 102	Introductory Chemistry I, II	8
286:351	Industrial Electrical Systems	4
286:352	Digital Systems	4
286:353	Instrumentation and Control	4
286:356	Circuit Analysis	3
286:410	Technology Project	1
292:310	Economics of Technology	5
292:401	Inspection Trips	1
440:345	Illumination	3
440:345	Illumination	3
445:206	Fortran Programming	3
650:348	Quantitative Business Analysis I	4
650:372	Management — Organization and Behavior	3
650:349	Quantitative Business Analysis II	3
	AND	
650:405	Quality Control	3
	OR	
650:363	Production Management	4
	AND	
650:301	Work System Design	3

### MECHANICAL TECHNOLOGY

<i>Course No.</i>	<i>Course Title</i>	<i>Credits</i>
202:336	Mathematics for Technical Application	4
284:101, 102	Introductory Chemistry I, II	8
286:310	Electromechanical Devices and Circuits	4
286:311	Electronic Devices and Circuits	4
286:353	Instrumentation and Control	4
286:410	Technology Project	1
292:310	Economics of Technology	5
292:346	Mechanical Design III	5
292:347	Production Machinery and Processes	5
292:401	Inspection Trips	1
445:206	Fortran Programming	3
650:348	Quantitative Business Analysis I	4
650:372	Management — Organization and Behavior	3
650:349	Quantitative Business Analysis II	3
	AND	
650:405	Quality Control	3
	OR	
650:363	Production Management	4
	AND	
650:301	Work System Design	3

The degree of Bachelor of Technology will be awarded to those students who complete the prescribed work.

AN UPPER COLLEGE:

## *The Buchtel College of Arts and Sciences*

Robert A. Oetjen, Ph.D., *Dean*  
Paul S. Wingard, Ph.D., *Associate Dean*

### OBJECTIVES

The purpose of the Buchtel College of Arts and Sciences is to further the objectives of The University of Akron by providing a quality program of undergraduate and graduate education in the humanities, natural sciences and social sciences and to pursue the following aims:

Maintain departments of instruction for the preparation of student majors in various academic fields.

Prepare students for useful and rewarding careers in the professions and industry, and for the graduate and professional education necessary for the attainment of professional competence.

Provide appropriate instruction for the General Studies program.

Provide a wide range of elective courses available to students who wish to enrich or diversify their academic programs.

Offer courses designed to meet the curricular needs of the upper colleges.

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

The Buchtel College of Arts and Sciences is one of six upper colleges at The University of Akron. Its name truthfully implies that its traditions date back farther than those of the other five undergraduate colleges, since the University itself is an outgrowth of Buchtel College, a liberal arts institution founded in 1870.

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

The college is composed of three administrative divisions. They are as follows:

### I. THE HUMANITIES DIVISION

It is concerned with the intellectual traditions that have formed man and with their application to the present and future growth of the human being by affording insights into contemporary life and by promoting the development of the individual as a creative, critical, and articulate person through the study of the classics, languages, literature, and philosophy.

### II. THE NATURAL SCIENCES DIVISION

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

### III. THE SOCIAL SCIENCES DIVISION

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

### REQUIREMENTS FOR ADMISSION

To be admitted to the Buchtel College of Arts and Sciences the student must have completed satisfactorily at least 45 credits of work, and have the approval of the Dean of the college.

### REQUIREMENTS FOR BACCALAUREATE DEGREES

1. At least 192 credits. Electives included in the 192 credits required for the degree may consist of any courses offered for credit in the University's degree programs, provided that the prerequisites as set forth in the bulletin are met and further provided that not more than three credits of physical education activities, 12 credits of applied music, six credits of music

organizations and nine credits in the Community and Technical College (semi-professional, technical, and vocational credits from other institutions) are included.

2. Completion of requirements in a major field of study (see below), and the recommendation of the head of the department in which the student has majored.

3. All candidates for a degree in the Buchtel College of Arts and Sciences, except those in the labor economics, natural sciences division major and medical technology curricula, must have demonstrated their ability to use two languages.

If the candidate is a native-born speaker of English, this ability will be shown by his completion of a second year of an approved foreign language on the university level.

If the student is not a native-born speaker of English, this ability will be shown by his completion of the General College sequence of English (110:111-112-205).

The general University requirements for a baccalaureate degree are set forth in Chapter 3. Degrees

The following baccalaureate degrees are granted in the divisions:

The Humanities: Bachelor of Arts

The Social Sciences: Bachelor of Arts; Bachelor of Science in Labor Economics.

The Natural Sciences: Bachelor of Arts, Bachelor of Science; Bachelor of Science in Medical Technology.

### THE MAJOR FIELD

To qualify for graduation a student must concentrate or major in the work of either a department or a division of the college. The major will consist of at least 36 credits in addition to the required General Studies and foreign language courses. Part or all of these credits may be taken in specifically required courses depending upon the major chosen. The longer and more professionally-oriented majors should be started during the first year when the student is still under the guidance of the Office or Student Services.

Ordinarily a student will select a department in which to major. The exact requirements for each such major will be found on the following pages in the section headed "Departments of Instruction." Some departments offer more than one type of major. No minor is required, but in some cases the major includes certain courses in other departments. As soon as the student is promoted to the College, the

head of his major department becomes his academic adviser.

Students who desire a broader education than the departmental major offers may elect a divisional major and qualify in the general area of the humanities or the natural sciences. Such students meet only the requirements of the chosen divisional major as described on the following pages in the section headed "Divisions of Instruction." As soon as the student contemplating a divisional major is promoted to the College, the chairman of his major division becomes his academic adviser.

### PREPARATION FOR HIGH SCHOOL TEACHING

Students interested in a teaching career on the high school level may qualify for secondary school certification by the State Department of Education while enrolled in the Buchtel College of Arts and Sciences. Generally the Arts and Sciences major subject will also constitute a teaching major. The education and psychology courses required for the secondary school teaching certificate may be taken as electives toward the Arts and Sciences degrees. Additional elective credits will generally enable the student to meet the requirement of a second teaching field, without exceeding the 192 credits necessary for graduation. Such a program is particularly recommended for students who, as part of their preparation for teaching, plan to go to graduate school and earn an advanced degree through specialization in their field of major interest.

The number of credits in a teaching field required for certification may be determined by reference to the section entitled *Teaching Fields* located in the College of Education section of this Bulletin.

1. In addition to meeting the requirements in a teaching field a student must also take the following courses in psychology and in the College of Education.

	<i>Credits</i>
375:141 General Psychology	5
510:156 Education in American Society	3
565:157 Human Development and Learning	4
530:200 Exploratory Experiences in Secondary Schools	1
530:310 Principles of Secondary Education	3
530:311 Instructional Techniques in Secondary Schools	4
510:350 Tests and Measurements	3
510:401 Problems in Education	4
515:402 Student Teaching	12
515:403 Student Teaching Seminar	2

Buchtel College students preparing for high school teaching must signify their intention to the College of Education near the end of the sophomore year.

## DIVISIONS OF INSTRUCTION

### 310: BIOLOGY

The Bachelor of Science, The Bachelor of Arts and the Bachelor of Science in Medical Technology degrees are offered.

*Requirements for the B.S. degree with a major in Biology and the B.S. in Medical Technology degree.*

The General Studies and the second year of a foreign language. Biology students must obtain 54 credits in biology to qualify for a Bachelor of Science degree. Additional courses in biology or other sciences are usually necessary to satisfy the admission requirements of graduate and professional schools for advanced work and professional studies.

All majors for a B.S. degree in biology take the following sequence of courses which will provide an understanding of the fundamentals of modern biology. During the first year, students intending to major in Biology should consult a member of the Biology Faculty.

*First year:* 310:121-3 Principles of Biology; 315:132, 133, 134 Principles of Chemistry, (or with permission 315:121, 122, 123 Inorganic Chemistry); 345:115-116 Elementary Functions I, II.

*Second Year:* 310:246 General Genetics; 310:271 General Ecology; 310:272 Organic Evolution; 315:263-268 Organic Chemistry; or, with permission, 315:201, 202, 203, Organic and Biochemistry.

*Third Year:* 310:301 Cell Biology

The student would then be expected to specialize during the third and fourth years in one of the areas listed below.

### AREAS OF SPECIALIZATION WITH RECOMMENDED COURSES

#### BOTANY

310:307 Microbiology; 310:313 Fall Flora or 310:314 Plant Taxonomy or 310:315 Spring Flora; 310:411, 412 Plant Physiology; 310:415 Plant Anatomy; 310:416 Mycology; 310:417 Phycology; 310:418 Plant Morphology; 310:419 Plant Morphology.

*Advisers:* H. E. Dollwet, D. Goldstrom, L. W. Macior, W. P. Stoutamire.

#### ECOLOGY

310:313 Fall Flora or 310:315 Spring Flora; 310:341 Invertebrate Zoology; 310:344 General Entomology; 310:411, 412 Plant Physiology; 310:416 Mycology or 310:417 Phycology; 310:418-419 Plant Morphology; 310:421 Environmental Conservation; 310:425 Population Ecology;

310:427 Limnology; 310:436 Comparative Physiology; 310:458 Vertebrate Zoology.

*Advisers:* J. H. Olive, F. S. Orcutt, W. A. Sheppe.

### HIGH SCHOOL TEACHING

*For State Certification see "Preparation for High School Teaching," on previous page.*

310:191 Introductory Human Physiology; 310:228 Techniques in Biology; 310:307 Microbiology; 310:313 Fall Flora or 310:315 Spring Flora; 310:341 Invertebrate Zoology; 310:416 Mycology or 310:417 Phycology; 310:418, 419 Plant Morphology; 310:458 Vertebrate Zoology.

*Advisers:* J. L. Frola, S. D. Hagen, J. H. Olive.

### MEDICAL TECHNOLOGY

A three year program (144 credits) at The University of Akron. (A foreign language is not required.)

Techniques in Biology; 310:307, 308, Microbiology; 310:444 Immunology; 310:343 Parasitology; 310:361-362 Human Anatomy and Physiology; 315:335, 336, 337 Analytical Chemistry for Laboratory Technicians.

The three year University Curriculum is followed by 12 months of Medical Technology instruction in an approved School of Medical Technology. The University is affiliated with the following Hospital Schools: Akron City Hospital, Akron General Medical Center, Barberton Citizens Hospital, Canton Aultman Hospital, Cleveland Metropolitan General Hospital, Mt. Sinai Hospital of Cleveland, St. Alexis Hospital (Cleveland), St. Thomas Hospital, The Children's Hospital of Akron. The student must apply to a Hospital School for a separate admission: The University cannot guarantee placement. Students may train at other approved schools after obtaining special permission from the Head, Department of Biology.

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

*Advisers:* R. F. Keller, R. Nokes, D. Nunn.

### MICROBIOLOGY

310:307, 308, 309 Microbiology; 310:416 Mycology; 310:417 Phycology; 310:440, 441 Bacterial Physiology; 310:443 Pathogenic Bacteriology; 310:444 Immunology; 310:446 Virology; 310:480 Radiation Biology; 315:401 Biochemistry.

*Advisers:* D. Nunn, E. Flaumenhaft, D. Goldstrom, N. Ledinko, L. Watson.

### PHYSIOLOGY AND PRE-PROFESSIONAL

Including pre-medical pre-dental, pre-veterinary medical students.

310:328 Histology; 310:453, 454, 455 Developmental Anatomy; 310:480 Radiation Biology; 310:491, 492 Human Physiology; 315:423, 424 Analytical Chemistry; 315:426, 427 Analytical Chemistry Laboratory; 345:231, 232, 233, 234, 235, Analytic Geometry - Calculus I, II, III, IV, V; 365:101, 102, 103, Physics.

*Advisers:* R. F. Keller, R. Nokes, R. Mostardi, J. Gwinn.

### ZOOLOGY

310:228 Techniques in Biology; 310:313 Fall Flora or 310:315 Spring Flora; 310:341 Invertebrate Zoology; 310:343 Parasitology or 310:344 General Entomology; 310:453, 454, 455 Developmental Anatomy; 310:458 Ver-

tebrate Zoology; 310:491, 492 Human Physiology.

*Advisers:* D. L. Jackson, W. A. Sheppe.

*Requirements for the B.A. degree with a major in Biology:*

The General Studies requirements and the second year of a foreign language. At least 26 credits in the humanities or social sciences, including at least two of the following 340:478, 340:479 History of Western Science & Technology, 360:464 Philosophy of Science. At least 36 credits in the biological sciences which must include 310:121-3 Principles of Biology, 310:246 General Genetics, 310:271 General Ecology, 310:272 Organic Evolution and 310:301 Cell Biology or, with permission, 310:207 Principles of Microbiology. At least one year of chemistry, including, preferably, some biological chemistry (315:129, 130, 131 General Chemistry is suggested).

### 315: CHEMISTRY

*Requirements for a B.S. degree with a major in Chemistry:*

The General Studies and the second year of German. The required chemistry courses are:

	<i>Credits</i>
315:132-133 Principles of Chemistry	8
315:134 Principles of Chemistry and Qualitative Analysis	5
315:263-264-265 Organic Chemistry, Lecture	9
315:266-267-268 Organic Chemistry Laboratory	6
315:313-314-315 Physical Chemistry, Lecture	9
315:316-317-318 Physical Chemistry, Laboratory	6
315:423-424-425 Analytical Chemistry, Lecture	9
315:426-427-428 Analytical Chemistry, Laboratory	6
315:463-464 Advanced Organic Chemistry	5
315:472-473 Advanced Inorganic Chemistry	5
	68

The mathematics requirement is:

Completion of 345:236. Differential Equations I. 4

The required physics courses are:

365:201-202-203. Elementary Classical Physics. 12

### 320: CLASSICS

(320: Classics, 321: Greek, 322: Latin)

*Requirements for a B.A. degree with a major in Classics, Greek or Latin:*

The General Studies and at least 36 credits in the department including:

	<i>Credits</i>
320:161, 162, 163 Comparative Literature	9
320:313, 314, 315 Classical Archaeology	9
	18
Classics Electives	18

Language courses must be above the 200 level in order to be included in this total. In the case of a Latin major, six (6) credits in this language (preferably in Latin Grammar and Idiom) must be taken during the senior year.

Certification requirements:

Students wishing to be certified for public school teaching with Latin as the principal teaching field must complete 39 credits in that language. In addition they must complete the required credits in a second academic teaching field. See Teaching Fields section under the College of Education.

### 325: ECONOMICS

*Requirements for a B.A. degree with a major in Economics:*

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

2. At least 44 credits in the department including:

	<i>Credits</i>
325:201-202 Principles of Economics	8
325:400 Macro-Economics	4
325:410 Micro-Economics	4

3. Mathematics 345:140-195, Modern University Mathematics, 12 credits.

4. Statistics: one of the following

650:348-349 Quantitative Business Analysis I, II	7
347:251-252 Introduction to Statistics, I, II	6
347:471-472 Applied Statistics I, II	6

Total 17

Economic Electives 28

*Requirements for a B.S. degree in Labor Economics:*

1. The General Studies.

2. At least 44 credits in the department including:

	<i>Credits</i>
325:201-202 Principles of Economics	8
325:330 Labor Problems	4
and two of the following:	
325:333 Labor Economics	4
325:431 Labor and Government	4
325:432 The Economics and Practice of Collective Bargaining	4

3. Statistics: One of the following:

650:348-349 Quantitative Business Analysis I, II	7
347:251-252 Introduction to Statistics I, II	6
347:471-472 Applied Statistics I, II	6

4. At least 12 credits in Upper College Sociology, History, Psychology, Geography or Political Science.

Total 25

Economics Electives 20

**330: ENGLISH**

*Requirement for a B.A. degree with a major in English:*

The General Studies and the second year of a foreign language. At least 48 credits in the Department including:

	<i>Credits</i>
330:240 Shakespeare	5
330:246 Appreciation of Poetry	4
330:265 English Literature	4
330:266 English Literature	4
330:267 English Literature	4

Total 21

At least four courses totaling at least fifteen credits on the 400 level (including two 400-level courses in English Literature and one 400-level course in American Literature — none of these three courses to be chosen from 330:450-451-452.)

**335: GEOGRAPHY**

*Requirements for a B.A. degree with a major in Geography:*

The general studies and the second year of a foreign language. At least 39 credits in Geography including:

	<i>Credits</i>
335:210 Physical Geography	3
335:220 Economic Geography	3-4
335:230 Rural & Urban Settlement	3
335:240 Maps and Map Reading	3
335:380 Cartography	3
335:481 Introduction to Geographic Research	3
335:483 Introduction to Spatial Analysis	3
335:484 Field Research Methods	3

Total 24

At least one course from the following:

335:350 Anglo-America	4
335:353 Northern Latin America	3
335:354 Southern Latin America	3
335:356 Europe	3
335:358 U.S.S.R.	3
335:360 East Asia	3
335:361 South and Southeast Asia	3
335:362 Middle East	3
335:363 Africa South of the Sahara	3

**337: GEOLOGY**

*Requirements for a B.S. degree with a major in Geology:*

The General Studies and the second year of a foreign language. At least 52 credits in Geology, including:

	<i>Credits</i>
337:101 Introductory Physical Geology	5
337:102 Introductory Historical Geology	5
337:210 Geomorphology	4
337:215 Structural Geology	5
337:216 Crystallography and Mineralogy	4
337:217 Crystallography and Mineralogy	4
337:260 Introductory Invertebrate Paleontology	5
337:313 Field Methods in Geology	3
337:413 Geology Field Camp	9
337:417 Optical Mineralogy	4
337:418 Petrography	4

Total Required in Geology 52

Non-Geology courses required for majors:

310:121,122,123 Principles of Biology	12
315:132,133 Principles of Chemistry	8
315:134 Principles of Chemistry and Qualitative Analysis	5
345:115,116 Elementary Functions	6
345:231 Analytic Geometry - Calculus I	4
365:101,102,103 Concepts of Physics I, II, and III	12
or	
365:201,202,203 Elementary Classical Physics	12

Total 47

Depending upon a student's major field of interest within Geology, additional work in a supporting science will be strongly recommended. During the first year, students intending to major in Geology should consult a member of the Geology Faculty.

**340: HISTORY**

*Requirements for a B.A. degree with a major in history:*

The General Studies and a second year of a foreign language (French, German, or Russian suggested). A minimum of 45 credits in History, although up to 9 credits in cognate fields may be substituted with the advisor's approval. These credits in history must include 340:499 Historical Methods and some distribution of courses in American and European history. A suitable pattern would be:

340:201-202-203, U.S. Survey	12 credits
340:207-208-209, Modern Europe	12 credits

plus 21 additional hours and may include 340:489 Colloquium in History, highly recommended for history majors.

**345: MATHEMATICS**

*Requirements for a B.S. degree with a major in mathematics:*

The General Studies and the second year of a foreign language (French, German, or Russian suggested). At least 60 credits in the department including:

	<i>Credits</i>
345:231-232-233-234-235 Analytic Geometry-Calculus 4 credits each	20
345:236 Differential Equations	4
345:311 Abstract Algebra	3
345:312-313 Linear Algebra I, II 3 credits each	6
345:413 Introduction to Topology	3
345:420 Advanced Calculus I	3
345:482-483 Introduction to Real Analysis II, III 3 credits each	6
A minimum of 15 additional credits of 400-level courses in the department	15
<b>Total</b>	<b>60</b>

The courses 110:211 Numbers Communications 345:140-195 Modern University Mathematics, 115, 116 Elementary Functions, 118 Pre-Calculus Mathematics, 206 Actuarial Mathematics, 406 Concepts in Algebra, 407 Concepts in Analysis, 410 Matrices and Linear Algebra do not meet major requirements.

*Requirements for a B.A. degree with a major in mathematics:*

The General Studies and the second year of a foreign language (French, German, or Russian suggested). At least 60 credits in the department including:

	<i>Credits</i>
345:231-232-233-234-235 Analytic Geometry-Calculus 4 credits each	20
345:236 Differential Equations	4
345:311 Abstract Algebra	3
345:312-313 Linear Algebra I, II 3 credits each	6
345:413 Introduction to Topology	3
345:420 Advanced Calculus I	3
345:482-483 Introduction to Real Analysis II, III 3 credits each	6
A minimum of 15 additional credits of 400-level courses in the department	15
<b>Total</b>	<b>60</b>

The courses 110:211 Numbers Communications, 345:140-195 Modern University Mathematics, 115, 116 Elementary Functions, 118 Pre-Calculus Mathematics, 206 Actuarial Mathematics, 406 Concepts in Algebra, 407 Concepts in Analysis, 410 Matrices and Linear Algebra do not meet major requirements.

26 credits of humanities or social sciences beyond general studies and the second year of a foreign language. The 26 credits are to be from more than one department.

### 347: STATISTICS

*Requirements for a B.S. degree with a major in statistics:*

The General Studies and the second year of a foreign language (French, German, or Russian suggested). At least 60 credits in the department including:

	<i>Credits</i>
345:231-232-233-234-235 Analytic Geometry-Calculus 4 credits each	20
345:236 Differential Equations	4
345:420 Advanced Calculus I	3
345:482-483 Introduction to Real Analysis II, III 3 credits each	6
347:451-452-453 Theoretical Statistics 3 credits each	9
347:471-472 Applied Statistics 3 credits each	6
347:473 Experimental Design	3
A minimum of 9 additional credits of 400-level courses in the department	9
<b>Total</b>	<b>60</b>

The courses 110:211 Numbers Communications 345:140-195 Modern University Mathematics, 115, 116 Elementary Functions, 118 Pre-Calculus Mathematics, 206 Actuarial Mathematics, 406 Concepts in Algebra, 407 Concepts in Analysis, 410 Matrices and Linear Algebra, and 347:200 Statistical Laboratory, 251, 252 Introduction to Statistics I, II do not meet major requirements.

*Requirements for a B.A. degree with a major in statistics:*

The General Studies and the second year of a foreign language (French, German or Russian suggested). At least 60 credits in the department including:

	<i>Credits</i>
345:231-232-233-234-235 Analytic Geometry-Calculus 4 credits each	20
345:236 Differential Equations	4
345:420 Advanced Calculus I	3
345:482-483 Introduction to Real Analysis II, III 3 credits each	6
347:451-452-453 Theoretical Statistics 3 credits each	9
347:471-472 Applied Statistics 3 credits each	6
347:473 Experimental Design	3
A minimum of 9 additional credits of 400-level courses in the department	9
<b>Total</b>	<b>60</b>

The courses 110:211 Numbers Communications 345:140-195 Modern University Mathematics, 115, 116 Elementary Functions, 118 Pre-Calculus Mathematics, 206 Actuarial Mathematics, 406 Concepts in Algebra, 407 Concepts in Analysis, 410 Matrices and Linear Algebra, and 347:200 Statistical Laboratory, 251, 252 Introduction to Statistics I, II do not meet major requirements.

26 credits of humanities and social sciences above the general studies and the second year of the foreign language. The 26 credits are to be from more than one department.

### 350: MODERN LANGUAGES

352: French, 353: German, 355: Italian, 357: Russian, 358: Spanish

*Requirements for a B.A. degree with a major in French, German or Russian:*

1. The General Studies.
2. Completion of 36 credits above the second year (200) level including at least 15 hours in 300 and 400 numbered language skill courses and at least 15 hours in literature and/or culture and/or Linguistics courses.

#### 3. Certification Requirements:

Students to be certified in foreign language teaching must complete at least six of the required credits in language skills during their senior year.

*Requirements for a B.A. degree with a major in Spanish:*

1. The General Studies.
2. Completion of 36 credits above the second year (203) level.

### 360: PHILOSOPHY

*Requirements for a B.A. degree with a major in Philosophy:*

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

Philosophy Courses: A minimum of 44 credits to include:

- 360:101 Introduction to Philosophy  
 360:120 Introduction to Ethics  
 360:170 Introduction to Logic  
 360:211 History of Ancient Philosophy  
 360:212 History of Medieval Philosophy  
 360:213 History of Modern Philosophy

Twelve hours must be earned in 300-400 level courses in philosophy.

\*Electives planned in a selective concentration of from 20-24 credits. A comprehensive examination in the history of Philosophy is required for departmental recommendation.

### 365: PHYSICS

Both the Bachelor of Science degree and the Bachelor of Arts degree are offered. The B.S. degree is intended for persons seeking the most detailed and quantitative preparation in physics available in

an undergraduate curriculum; students preparing for graduate study in physics or another physical science should usually satisfy all the requirements for the B.S. degree. The B.A. degree, by contrast, is provided primarily for persons desiring a useful background in physics, but whose professional objectives may not require graduate study in physics or a related physical science.

*Requirements for a B.S. degree with a major in Physics:*

1. The General Studies and the second year of a foreign language.
2. Physics courses: A minimum of 60 credits. Included should be:

	<i>Credits</i>
365:201-202-203 Elementary Classical Physics	12
365:405-406-407 Structure of Matter	9
365:410 Electronic Devices and Circuits	4
365:411-412-413 Intermediate Laboratory	6
365:430 Kinetic Theory and Thermodynamics	4
365:431-432-433 Mechanics	9
365:451-452-453 Advanced Laboratory	6

Total 50

Physics Electives 10

#### 3. Mathematics:

345:231-232-233-234-235 Analytic Geometry-Calculus	20
345:236 Differential Equations I	4

#### 4. Chemistry:

315:126-127-128 General Inorganic Chemistry for Engineers	12
(Alternatively, 315:132-133-134, Principles of Chemistry and Qualitative Analysis, 13 credits total, may be elected).	

#### 5. Computer Science:

445:160 Computer Science I	3
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*Requirements for a B.A. degree with a major in Physics:*

1. The General Studies and the second year of a foreign language.
2. Physics courses: A minimum of 36 credits. Included should be:

	<i>Credits</i>
365:201-202-203 Elementary Classical Physics	12
365:405-406-407 Structure of Matter	9
365:410 Electronic Devices and Circuits	4
365:411-412-413 Intermediate Laboratory	6

Total 31

Physics Electives 5

#### 3. Mathematics courses:

345:231-232-233-234-235 Analytic Geometry-Calculus	20
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**370: POLITICAL SCIENCE**

*Requirements for a B.A. with a major in Political Science:*

The General Studies and the second year of a foreign language. At least 45 credits in the Department, including:

	<i>Credits</i>
370:100 Government or Politics	5
OR	
370:150 Introduction to Political Science	5
370:200 Comparative Politics	5
370:303 Development of Political Thought	5
370:310 International Politics	5
370:461 Supreme Court and Constitutional Law	5
370:395 Proseminar in Political Science	4
Total 29	
Political Science Electives 16	

The electives must include at least one 400-level course in Political Science.

**375: PSYCHOLOGY**

*Requirements for a B.A. with a major in Psychology:*

The General Studies and the second year of a foreign language (French, German, or Russian suggested). At least 45 credits in the department including:

	<i>Credits</i>
375:141 General Psychology	5
375:145 Quantitative Methods in Psychology	4
375:147 Introduction to Experimental Psychology	5
Total 14	
Psychology Electives 31	

The following electives are recommended for majors who intend to enter graduate programs in Psychology:

375:315 Social Psychology	4
375:400 Abnormal Psychology	5
375:407 Psychological Tests and Measurements	4
375:412 Psychology of Learning	4

The new requirements for a baccalaureate degree in Psychology may be elected by current majors.

**385: SOCIOLOGY**

(385: Sociology, 386: Social Work, 387: Anthropology)

*Requirements for a B.A. degree with a major in Sociology:*

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

Minimum of 45 credits in the Department (Sociology, Social Work, Anthropology) including:

	<i>Credits</i>
385:100 Introduction to Sociology	5
385:304,305 Methods of Social Research	8
385:414 The History of Sociological Thought	4
385:415 Contemporary Sociological Theories	4
Total 21	

Additional courses in Sociology, Social Work, or Anthropology

Total 45

The credits beyond 21 are to be arranged in consultation with faculty advisor in relation to the selected area of emphasis within the department. These five areas of emphasis are: 1) Academic Sociology, 2) Deviance and Corrections, 3) Urban Environment, 4) Social Work, and 5) Anthropology. The Social Work Emphasis Program is a constituent member of the Council on Social Work Education fully recognized as a baccalaureate professional educational program in the field of social work. All 385 (Sociology), 386 (Social Work), and 387 (Anthropology) courses, except 386:270, are acceptable for any sociology major regardless of area of emphasis.

**HUMANITIES DIVISION MAJOR**

The Humanities Division consists of the Departments of Classics, English, Modern Languages, and Philosophy. The divisional major must include the following, in addition to the General Studies and the second year of a foreign language:

1. At least 72 credits in the division, at least 36 credits of which must be in courses on the Upper College level. The minimum of 72 credits must include at least nine credits in each of any five of the following: the Classics, English, French, German, Greek, Italian, Latin, Philosophy, Russian and Spanish.

2. At least nine credits in the Department of History.

**NATURAL SCIENCES DIVISION MAJOR**

The Natural Sciences Division consists of the Departments of Biology, Chemistry, Geology, Mathematics and Statistics, Physics and Polymer Science. The divisional major must include:

1. The General Studies.  
2. At least 35 credits from one of the departments of the Natural Sciences Division.  
3. At least 24 credits from each of two additional disciplines: Biology, Chemistry, Engineering, Geology, Mathematics and/or Statistics, Physics, or Polymer Science.

The courses 110:211 Numbers Communication and 345:140-190 Modern University Mathematics cannot count as part of the above 83 credits.

A foreign language is strongly recommended.

## AN UPPER COLLEGE

***The College of Engineering***

Coleman J. Major, Ph.D., *Dean*  
 Joseph A. Edminister, M.S.E., *Assistant to the Dean*  
 Donald R. Burrowbridge, M.S., *Director Cooperative Program*

**OBJECTIVES**

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

To offer sound basic instruction in the engineering disciplines.

To develop in students the ability to apply engineering principles to the economic and technological progress of society.

To promote in students a high sense of ethics and professional responsibility.

To foster in students an appreciation of the need to further the role of the engineering profession in society.

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

For the bachelor's degree the student has the option of taking the five-year cooperative plan or the four-year non-cooperative plan.

The degrees of Doctor of Philosophy in Engineering and Master of Science in Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering and Mechanical Engineering are awarded.

Although the College of Engineering emphasizes specific professional preparation, it nevertheless operates in accordance with the University policy of affording each student a grasp of the broad cultural phases of modern times.

A graduate is expected to apply his technical knowledge with the constant awareness that his goal is to serve humanity. In order that these engineers serve humanity best, the University strives to educate them in the areas of art as well as science.

**THE COOPERATIVE PLAN**

The optional cooperative plan provides for a coordinate sequence of alternate periods of classroom instruction and industrial employment during the cooperative phase of the five-year course.

The Cooperative plan provides simultaneously for the development of fundamental principles in the classroom and for their application in industrial practice. The Student has the opportunity to find the type of work and industrial organization in which he can best apply his individual ability. He gains an appreciation of the problems of labor and management by first-hand experience. He develops mature judgment by coping with the everyday problems of the industrial world. The employer of cooperative students has the opportunity to select and train students whose abilities and aptitudes can be adapted to the needs of his technical staff requirements.

While students are at work, they are required to obey all rules and regulations prescribed by the employer. In addition, they are subject to all current labor laws and conditions. The students are considered full-time students by the University while in industry assignments.

The University does not guarantee employment, but makes every effort to place students to the best financial advantage that is consistent with the acquisition of sound subprofessional experience.

**REQUIREMENTS FOR  
ADMISSION**

In addition to the general requirements for admission to the University, students applying for admission in Engineering must present the following secondary school credits:

Algebra 1 $\frac{1}{2}$  units  
 Plane Geometry 1 unit  
 Solid Geometry or  
 Trigonometry  $\frac{1}{2}$  unit  
 Chemistry or Physics 1 unit

It is strongly recommended that applicants in Engineering present additional credits in mathematics and physical science.

All beginning students register in the General College. Those admitted in Engineering will be eligible for transfer to the College of Engineering after satisfactory completion of 45 credits of work and the approval of the Dean.

## DEGREES

The College of Engineering offers curricula leading to the degrees of Bachelor of Science in Chemical, Civil, Electrical and Mechanical Engineering and Bachelor of Science in Engineering.

For the Master's and Doctor's degree programs in Engineering, see the Graduate School Section.

## REQUIREMENTS FOR GRADUATION

1. Compliance with University requirements, chapter 3, this BULLETIN.
2. All incoming freshmen shall complete the credit requirements listed in the appropriate schedule of required courses.
3. The recommendation of the student's department.

Any Junior or Senior Engineering student with a quality point ratio of 2.500 over-all and 2.750 Engineering or better may substitute not more than two approved Upper College courses in mathematics, science or engineering for an equal number of certain required engineering courses.

## 420: CHEMICAL ENGINEERING

The goal of Chemical Engineering education is the development of the intellectual capacity and abilities to apply the principles of transport phenomena, equilibria, and kinetics, involving chemical and physical transformations, to the creative resolution of technological problems for the benefit of mankind and his surroundings.

The Chemical Engineer like all other engineers is trained in mechanics, materials and their properties, economics, systems and their controls, etc. The chemical engineer differs from all other engineers because he alone is responsible for materials separations and the conversion of matter; separations such as air into its components of oxygen, nitrogen, argon, and conversions such as natural gasses into plastics, coal into liquid fuel.

Chemical Engineers find satisfying and rewarding careers in all walks of life, but mainly in the chemical process industries. Usually they become involved with inorganic and organic chemicals, rubber and plastics, detergents, petroleum products, metals, pharmaceuticals, dyestuffs and food products.

The Chemical Engineer will usually be employed in one or more of the following activities: research and development, plant design and construction, process control, plant operations, sales and management. In addition to the processing industries, Chemical Engineers are increasingly in demand in such areas of current interest as water and air pollution, biological engineering and energy engineering.

### CHEMICAL ENGINEERING CURRICULUM

<i>General Studies</i>	<i>Credits</i>	<i>Natural Science Courses</i>	
110:111,112 English Composition	8	315:132,133 Principles of Chemistry	8
110:108 Effective Speaking	4	315:134 Principles of Chemistry & Quantitative Analysis	5
110:205 Types of Literature	4	315:263,264,265 Organic Chemistry	9
110: Social Science Requirement*	9	315:266 Organic Chemistry Laboratory	2
110:317,318,319 Western Cultural Traditions	12	315:314,315 Physical Chemistry	6
110:3 Eastern Civilizations	3	345:231,232,233,234,235 Analytic Geometry & Calculus	20
110:401 Senior Seminar	2	345:236 Differential Equations	4
110: Physical Education	2	365:201,202,203 Elementary Classical Physics	12
	Total 44		Total 66

<i>Engineering Courses</i>	<i>Credits</i>		
410:120 Engineering Design: Chemical Engineering	2	445:206 Fortran Programming for Scientists and Engineers	3
420:200 Material Balances	3	460:125 Engineering Graphics I	3
420:201 Energy Balances	4		Total 62
420:210 Chemical Process Industries	3	Free Electives including ROTC	14
420:305 Materials Science	3	Plan of Study Elective**	17
420:321 Introduction to Transport Properties	4		31
420:322 Interphase Transport	3		Total 204
420:323 Multicomponent Transport	3		
420:325 Chemical Engineering Thermodynamics	3		
420:351 Fluid Flow Systems	3		
420:352 Thermal Transfer Processes	3		
420:353 Mass Transfer Processes	3		
420:426 Phase and Reaction Equilibria	3		
420:430 Reaction Kinetics	4		
420:441 Plant Design	3		
420:442 Plant Design Laboratory	2		
430:301 Engineering Mechanics I	4		
440:331 Circuit Fundamentals	3		

\*\*Plan of Study Electives: The student is encouraged to aid in the design of his curriculum. This is accomplished by consultation at the time of promotion to the College of Engineering with his major adviser who helps him define a package of at least 17 course credits which then become a part of his *required* courses. These course credits are called Plan of Study Electives and the program requires the approval of the Department Head. Many plans are possible and students will be encouraged to tailor their educational goals by this means. It should be emphasized that the student may wish to intensify his concentration in a program by judicious choice of the 17 credits of electives, but these need not be determined at the time of promotion to the College of Engineering.

\*Engineering students are required to take 325:244 Introduction to Economic Analysis, 4 credits, as part of their Social Science requirement. The remaining 5 credits may be satisfied by courses listed under the option shown in the General College section of this Bulletin.

### 430: CIVIL ENGINEERING

Civil Engineering is a profession responsible for the conception, analysis, design and construction of facilities necessary to maintain our modern way of life.

The civil engineer is responsible for the design, construction and maintenance of things constructed to facilitate the life of people. The design and construction of residential and commercial buildings, bridges, highways, tunnels, airports and harbors, dams, flood control and navigation structures, water supply and sewerage systems, water pollution control, land reclamation and development are the civil engineers responsibility.

The civil engineering curriculum at The University of Akron is designed to expose the student in his

pre-junior year and first part of his junior year to a well-balanced core of courses in the following areas: (1) structural engineering and engineering mechanics; (2) environmental engineering; (3) hydraulic engineering; (4) foundation engineering including soil mechanics and engineering geology; and (5) transportation engineering including highway planning and design. In the terminal portion of the junior year and during the senior year, the curriculum is planned for specialization.

Civil Engineering graduates of The University of Akron are employed by many firms and public and private institutions throughout the United States and the rest of the world; many are engaged in private practice.

### CIVIL ENGINEERING CURRICULUM

<i>General Studies</i>	<i>Credits</i>	<i>Natural Science Courses</i>	
110:111,112 English Composition	8	365:101,102,103 Concepts of Physics	12
110:108 Effective Speaking	4	315:111,112 Introduction to Chemistry for Engineers	6
110:205 Types of Literature	4	337:101 Physical Geology	5
110: Physical Education	2	345:231,232,233,234,235 Analytic Geometry & Calculus	20
110: Social Science Requirement*	9	345:236 Differential Equations	4
110:317,318,319 Western Cultural Traditions	12	Math, Science or Computer Elective	3
110:3 Eastern Civilizations	3		Total 50
110:401 Senior Seminar	2		
	Total 44 or 45		

\*Engineering students are required to take 325:244, Introduction to Economic Analysis, 4 credits, as part of their Social Science requirement. The remaining 5 credits may be satisfied by courses listed under the option shown in the General College section of this Bulletin.

<i>Electives</i>	<i>Credits</i>		
Free Electives	9	430:231,232 Surveying I and II	6
Engineering or Natural Science Electives	12	430:306,307 Theory of Structures I and II	6
		430:401 Steel Design	3
		430:403 Reinforced Concrete Design	3
		430:321,322 Environmental Engineering I and II	7
		430:311 Soil Mechanics	4
		430:312 Foundations	4
		430:350 Urban Planning	3
		430:351 Transportation Engineering	3
		430:352 Highway Design	4
		430:341 Water Resources	4
		430:342 Hydraulic Engineering	3
		430:482 Hydraulics Laboratory	1
		430:491 C. E. Systems Design	3
			86
<i>Engineering Courses</i>			
410:130 Engineering Design: Civil Engineering	2		
460:125 Engineering Graphics I	3		
445:206 Fortran Programming for Scientists and Engineers	3		
460:310 Fluid Mechanics	3		
460:322 Dynamics	4		
460:305 Thermal Science	3		
420:305 Material Science	3		
430:201 Statics	4		
430:202 Strength of Materials I	3		
430:203 Strength of Materials II	3		
430:380 Engineering Materials Laboratory	1		
			86
			Total 201

#### 440: ELECTRICAL ENGINEERING

The many branches of electrical engineering include: production and distribution of electrical energy; research, development, manufacture, and operation of electrical and electronic products; and systems for instrumentation, automation, tracking, and telemetry.

The growth of electronic research and manufacturing has been accelerated by the space age. There is hardly a segment of the American economy which has not been influenced by electronics. The high speed digital computer has found its way into virtually all aspects of modern life.

The wide use of electrical means for measurement, control, and computation has resulted in the need for electrical engineers in all types of industries. Students wishing employment upon graduation will find many varied opportunities.

Students wishing to continue their education in Graduate School or in Law or Medical School will find specialized programs of preparation are available within the framework of the Electrical Engineering Department.

#### ELECTRICAL ENGINEERING CURRICULUM

<i>General Studies</i>	<i>Credits</i>		
110:111,112 English Composition	8	110:108 Effective Speaking	4
		110:205 Types of Literature	4
		110: Social Science Requirement*	9
		110:317,318,319 Western Cultural Traditions	12
		110:3 Eastern Civilizations	3
		110:401 Senior Seminar	2
		110: Physical Education	2
		325:244 Introduction to Economic Analysis	4
			44
			Total 44
		<i>Natural Science Courses</i>	
		315:132,133 Principles of Chemistry	8
		345:231,232,233,234,235 Analytic Geometry & Calculus	20
		345:236 Differential Equations	4
		365:201,202,203 Elementary Classical Physics	12
		365:301 Modern Physics	4
			48
			Total 48
		<i>Engineering Core Courses</i>	
		410:140 Engineering Design: Electrical Engineering	2
		420:305 Materials Science	3
		430:304,305 Mechanics	8
		445:206 Fortran Programming for Scientists and Engineers	3
		460:125 Graphics I	3
		460:305 Thermodynamics	3
			22
			Total 22

\*Engineering students are required to take 325:244 Introduction to Economic Analysis, 4 credits, as part of their Social Science requirement. The remaining 5 credits may be satisfied by courses listed under the option shown in the General College section of this Bulletin.

<i>Electrical Engineering Courses</i>	<i>Credits</i>		<i>Credits</i>
440:233,234,335,336 Circuits	13	Electrical Engineering Electives	28
440:340,341 Measurements	6	Approved Electives	6
440:351,352 Fields	5	Free Electives	9
440:353,354 Machines	8		
440:359 Transmission Lines	4		
440:365,366 Electronics	8		Total 43
440:371 Controls I	3		
	<hr/>		<hr/>
Total 47		Total 204	

#### 450: BACHELOR OF SCIENCE IN ENGINEERING

This degree program was established to introduce wide flexibility into the College of Engineering. Within the 100 credit hours of the Option portion of the program, the student can study Business Administration, Industrial Management, Environmental, Pre-Medical, or any other field he may choose along with his Engineering studies. The program of study may be very narrow as in the case of a student wishing to specialize in structural design, foundations and soil mechanics. For another student interested in patent law, the program may be broad, touching on Chemical, Mechanical and Electrical Engineering subjects. Each student's program is designed to meet his announced goals.

Entrance to this program is restricted. The stu-

dent requests admission by letter to the Dean of Engineering, outlining in some detail his particular objective and how the BSE program may enable him to prepare for this career goal. The Mathematics, Physics and Chemistry requirements are identical to those of the four departments in the College of Engineering.

	<i>Credits</i>
General Studies and Science Core	88
Program Options - Engineering	60
Program Options - may be any college	40
Free Electives	16
	<hr/>
Total 204	

#### 460: MECHANICAL ENGINEERING

Mechanical Engineering is concerned with the design and analysis of physical systems. A high level of professional competence in this field can only be achieved through an extensive study of mathematics, mechanics, fluid flow and the thermal sciences. Among the many subtopics included in these major headings are stress analysis, vibrations, compressible and incompressible fluid flow, thermodynamics, energy conversion, environmental control, heat transfer, and automatic controls. The typical mechanical engineering design problem may involve any one or possibly all of these areas in the design of a complex system.

Mechanical Engineers are employed in a variety of jobs by a large number of companies. The jobs include management, design, analysis, safety, production, and plant engineering. The types of companies include automotive, petroleum, power, aerospace, tire, consulting, publishing, insurance, and manufacturers in general.

The Curriculum is designed to emphasize fundamentals which will place the graduate in a strong position to pursue further education through either formal or informal channels.

	<i>Credits</i>
110:317,318,319 Western Cultural Traditions	12
110:3 Eastern Civilizations	3
110:401 Senior Seminar	2
110: Physical Education	2
325:244 Introduction to Economic Analysis	4
	<hr/>
Total 44	

\*Engineering students are required to take 325:244 Introduction to Economic Analysis, 4 credits, as part of their Social Science requirement. The remaining 5 credits may be satisfied by courses listed under the option shown in the General College section of this Bulletin.

All students, as part of the required Mechanical Engineering electives, must take at least two laboratory courses, to be selected by the student and his Adviser, from 460:390, 391, 392, 393, 394, 395, 398, 399, 490, 491, 494.

##### *Natural Science Courses*

315:111,112 Introductory Chemistry for Engineers	6
345:231,232,233,234,235 Analytic Geometry & Calculus	20
345:236 Differential Equations	4
345: Mathematics or Statistics	3
365:101,102,103 Concepts of Physics	12
	<hr/>
Total 45	

#### MECHANICAL ENGINEERING CURRICULUM

<i>General Studies</i>	<i>Credits</i>
110:111,112 English Composition	8
110:108 Effective Speaking	4
110:205 Types of Literature	4
110: Social Science Requirement*	9

##### *Engineering Courses*

410:106 Engineering Design: Mechanical Engineering	2
430:201 Statics	4
430:202 Strength of Materials	3
430:380 Engineering Materials Laboratory	1
440:331 Circuit Fundamentals	3

440:368 Electronic Fundamentals	3	460:360,361 Engineering Analysis	6
440:381 Electrical Machinery Fundamentals	3	460:380 Mechanical Properties of Materials	3
445:206 Fortran Programming for Scientists and Engineers	3	460:431 Vibrations	3
460:125,126 Graphics	5	460:440,441 Automatic Controls	6
460:300,301,302 Thermodynamics	9	460:460,461 Mechanical Design	8
460:310 Fluid Mechanics	3		—
460:311 Compressible Flow	3	Free Electives	Total 89
460:315 Heat Transfer	4	Technical Electives	10
460:320 Kinematics of Machinery	4		16
460:322 Dynamics	4		—
460:330 Dynamics of Machinery	3		26
460:336,337 Analysis of Mechanical Components	6		Total 204

## AN UPPER COLLEGE:

***The College of Education***

H. Kenneth Barker, Ph.D., *Dean*  
 Caesar Carrino, Ph.D., *Assistant Dean*

**OBJECTIVES**

The purpose of the College of Education is to further the objectives of The University of Akron by providing quality undergraduate and graduate programs for students of Education and by helping them attain the following:

A knowledge of a major field and related fields of inquiry *and* the ability to use this knowledge in explaining the realities of life today.

A knowledge of instructional materials and new technology *and* skill in recognizing and utilizing instructional tools most suitable for specific purposes.

A knowledge of the social issues relevant to education and living in a pluralistic society *and* the competence to translate implications of changes in society into instructive action as teacher-citizens as well teacher-scholars.

An understanding of the learner and the learning processes *and* the ability to translate these into appropriate teaching behaviors in acting and reacting with students. An appreciation of the values and feelings essential for working with young people and with colleagues *and* the ability to develop emphatic relationships in a wide variety of professional and social roles in the school and community.

Skill in the acquisition of inquiry techniques appropriate to generalizing knowledge and choices *and* practice in using them to inquire into educational problems in rational, defensible ways.

To accomplish these objectives, this Upper College offers a variety of programs for the preparation of elementary and secondary teachers, counselors, school administrators and other educational personnel. The baccalaureate degrees, Bachelor of Arts and Bachelor of Science in Education and Bachelor of Science in Technical Education are offered. Graduate degrees include the Master of Arts and Master

of Science in Education, the Master of Science in Technical Education and the Ph.D. and Ed.D. degrees.

Programs leading to each degree include a balanced offering of a foundation in general education; an intensive study in depth of the teaching and/or administration area; and those professional courses and other learning experiences which attempt to combine theory and practice.

In addition to the regular degree programs, special courses and related services such as institutes and workshops are regularly offered with the planning assistance of public school personnel.

Throughout its history, the College of Education has maintained a close relationship with the Akron Public Schools. Perkins Normal School, which was founded by the Akron Board of Education, became the Teachers College of the University in 1921, expanding into the College of Education in 1935. Today, the public school administration of Akron and surrounding school districts cooperate in advisory capacities to the College of Education. Their schools are used widely for observation and for the assignment of student teachers. Approximately one-half of the teachers in the Akron Public Schools are former students of the University.

**REQUIREMENTS FOR ADMISSION**

To be admitted to the College of Education, the student must be able to meet the following criteria:

1. Completion of at least 45 credits with at least a 2.0 quality point average.

2. Demonstration of those qualities of character and personality deemed essential for a professional person in education. This determination is made by instructors conducting the education courses in the general college; by the staff in the Office of Student Services; and if necessary, by measuring performance by means of standardized evaluation instruments.

3. Demonstrated evidence of the ability to attain a 2.5 quality point average in his choice of major fields.

All students preparing for certification may be evaluated by the College of Education Undergraduate Committee, subject to review by the Dean. Such evaluation will occur whenever there is reason to believe the student does not measure up to criteria for professional development established by the faculty of the College. This committee can recommend to the Dean of the College of Education any one of the following actions;

1. That the student's admission to or retention in the program for certification be confirmed with no other action suggested.

2. That the student's admission to or retention in the program for certification be confirmed but that he be apprised that he has certain weaknesses which must be corrected before he will be approved for student teaching.

3. That the student's final admission to or retention in the program for certification be denied because of certain weaknesses which the committee believes are not correctible.

#### STUDENT ADVISERS

Students should confer with the following persons, depending upon the fields in which they expect to teach. Students should also feel free to consult with the Dean or Associate Dean of the College of Education.

Art	Mr. Bayless
Business Education	Mrs. Reddick, Mrs. King
Elementary	Mr. Arms, Mrs. Atwood, Mrs. Badger, Mr. Barr, Miss Bruno, Mr. Christman, Mr. Esporite, Mrs. Farling, Mr. Ferguson, Mr. Hoch, Miss Leyden, Mr. McKnight, Mr. Meconi, Miss Noble, Mrs. Seifert, Mrs. Spencer, Mr. Steinen, Mrs. Stoodt, Mr. Williams
Secondary	Mr. Biondo, Miss Cook, Mr. Hembree, Mr. Hirschbuhl, Mrs. King, Mrs. Lindbeck, Mr. Ocasek, Mr. Ruebel, Mr. Yoder
Home Economics	Mrs. Sullivan
Music	Mr. MacDonald, Mr. Nolin
Physical Education	Mr. Maluke, Mr. Evans
Special Education	Mr. Arn, Mr. Kovacevich, Mr. Myers

Speech and Theatre Arts	Mr. Dunlap
Speech and Hearing Therapy	Miss Hittle
Technical Education	Mr. Sugarman, Mr. Frye
Graduate	Mr. Adolph, Mr. Doverspike, Mr. Ferguson, Mr. Hayes, Mr. Rich, Mr. Sugarman, Mr. Wood

#### REQUIREMENTS FOR BACHELOR'S DEGREE

Students prepare to teach any one of the following areas or fields: Nursery School, Kindergarten-Primary, Elementary; the conventional academic fields found in junior and senior high schools; and the special fields of Art, Business, Home Economics, Music, Physical Education, Slow Learners, and Speech and Hearing Therapy; and post-secondary Technical Education. A minimum of 192 credits with a grade point ratio of 2.0 must be completed to qualify for the Bachelor's degree.

The specific subjects required for degrees in certain fields are set forth in subsequent pages. In all cases, the requirements include courses in the general studies, subject matter areas, and professional sequences.

The B.A. in Education degree is granted to those whose major is in one of the academic fields or in Speech and Hearing Therapy. The B.S. in Education is granted to those whose major is in the other special fields or in elementary education. The B.S. in Technical Education is awarded to those who complete the requirements of that program.

A physical examination is required each year of all students who are preparing for certification as teachers.

#### STUDENT TEACHING

Student teaching is done in the public schools under the direction of supervising teachers and a representative of the College of Education faculty. Each student must teach all day, every day for a full quarter. When arranging his University schedule for this quarter, the student may not register for any other course.

In order to qualify for student teaching a student must maintain a 2.5 average in his teaching field. Satisfactory work also must be done in other teaching fields and in professional education to warrant recommendation for a teaching certificate.\*

\*Music majors, before assignment for student teaching, are required to pass the General Musicianship Examination described in the Music section of the College of Fine and Applied Arts. To avoid possible delay in graduation, it is necessary for the student to take the examination six months prior to the anticipated assignment for student teaching.

**RECOMMENDATIONS FOR  
CERTIFICATION**

Every teacher in Ohio public schools is required to have a certificate covering the fields in which he is teaching. This certificate is issued by the State Department of Education upon recommendation of the Dean of the College of Education. The student must make out an application form which may be obtained in the office of the Dean. This form should be filled out about one month before the student plans to complete all of his requirements for teaching.

Students are expected to receive their recommendation for certification from the institution granting the degree. Students who expect to receive degrees from other institutions but who wish to qualify for certification at The University of Akron will be expected to meet all of the certification requirements of The University of Akron.

**STUDENTS ENROLLED IN  
OTHER COLLEGES  
AT THE UNIVERSITY OF AKRON**

Some students who receive degrees from other colleges in the University may also wish to qualify for teaching. They will be recommended for certification after completing their major and minor requirements and the pre-professional and professional courses included in the RECOMMENDED SEQUENCE FOR SECONDARY EDUCATION listed later in this chapter. Such students must be closely advised during the last two years.

Any student in the University who is not enrolled in the College of Education and who wishes to teach should register with the Dean of the College of Education by completing the form "Admission to Teacher Education" at the time of promotion to Upper College or two years prior to the time he expects to be eligible to teach.

**ELEMENTARY EDUCATION**

The Elementary program is for those preparing to teach in grades one to eight inclusive. The requirements for a major in Elementary Education are as follows:

	<i>Credits</i>
A. <i>General Studies Courses</i>	60
(Consult pages 70-71 for specific course requirements and alternatives.)	
B. <i>Pre-Professional Education Courses:</i>	
710:191 Design	3
375:141 General Psychology	5
335:100 Introduction to Geography	4
335:350 Anglo-America	3
One of the following four courses:	
370:100 Government and Politics in the United States	5

340:201 United States History to 1815	4
340:202 United States, 1815-1898	4
340:203 United States, 1898-Present	4
	19-20

C. *Professional Education Courses:*

1. <i>Basic: (14 credits)</i>	
510:156 Education in American Society	3
565:157 Human Development and Learning	4
510:350 Tests and Measurements	3
510:401 Problems in Education	4
2. <i>Elementary Education: (55 credits)</i>	
520:333 Science for the Elementary Grades	5
520:336 Teaching of Elementary School Mathematics	5
520:335 The Teaching of Reading	5
520:339 Principles of Diagnostic Teaching of Reading	5
520:337 Teaching the Language Arts	7
520:338 The Teaching of Social Studies	5
520:365 Comprehensive Musicianship for Elementary Classroom Teachers I	3
520:366 Comprehensive Musicianship for Elementary Classroom Teachers II	3
520:141 Handicrafts in Elementary School	3
520:321 Art for the Grades	3
520:286 Children's Literature	5
555:334 Games and Rhythms for Elementary Grades	3
555:103 Personal Health	3
3. <i>Laboratory Experience: (17 credits)</i>	
515:100 Student Participation	1
515:200 Student Participation	1
515:300 Student Participation	1
515:402 Student Teaching	12
515:403 Seminar in Student Teaching	2
	86

D. *Area of Specialization:*

18-30

An area of specialization must be selected by the student with approval of his advisor. The student is urged to select an area of specialization which he believes will contribute to his success as a teacher. The number of hours required (18-30 credits) is above and beyond the number of hours required in any other part of the program (A, B, or C above).

E. *Electives:*

9

Total Credits Required: 192-205

**KINDERGARTEN-PRIMARY**

The Kindergarten-Primary program is for students preparing to teach in the kindergarten through the third grade. Any elementary certificate will be validated for kindergarten teaching provided the applicant submits evidence of completion of the following seven courses:

	<i>Credits</i>
520:330 Early Elementary Education	3
520:331 Early Elementary Education	3
520:332 Early Elementary Education	3

555:211 Red Cross First Aid	2
561:461 Principles of Teaching Exceptional Children	4
740:265 Child Development	5
780:360 Creative Dramatics	4
	24

By taking the following courses, students in the Kindergarten-Primary program may also receive University recommendations as Director or Teacher in Nursey Schools:

520:310 Introduction to Early Childhood Education	3
520:311 Curriculum for Preschool Learning Centers	3
515:360 Nursery School Laboratory	4

#### OTHER AREAS OF SPECIALIZATION

Elementary majors may choose other areas of specialization from an approved list developed by the department. Included are: mathematics specialist, reading specialist, inner city specialist,

music, geography, specialist in learning disorders, special education minor, science specialist, physical education minor, visual arts, world of work specialist, and others.

Students are urged to consult department advisors for details and requirements.

#### CERTIFICATION FOR TEACHING FOREIGN LANGUAGE IN THE ELEMENTARY SCHOOL

Persons desiring certification to teach modern foreign language on the elementary level must meet the regular requirements for certification on the secondary level, plus these Ohio State requirements:

A. Child Psychology or Human Growth and Development.

B. Purposes and Practices of Elementary Education, or equivalent.

C. Methods of Teaching the Modern Foreign Language.

#### PROGRAM FOR CERTIFICATION OF NON-PROFESSIONAL DEGREE HOLDERS FOR ELEMENTARY SCHOOL

To qualify for a Provisional Elementary Certificate, the holder of a baccalaureate degree in fields other than Education should complete a program of course work equivalent to that required for a major in Elementary Education.

<i>Requirements</i>		<i>Credits</i>
I. <i>Pre-Professional Education and General Studies:</i>		
A student may be required to take courses from the Pre-Professional Education and General Studies sections if previous transcripts reveal an insufficient background in those areas or in courses listed under the heading Elementary Education.		
II. <i>Professional Education</i>		
A. <i>Basic</i>	<i>Credits</i>	
510:156 Education in American Society	3	
565:157 Human Development and Learning	4	
510:350 Tests and Measurements	3	
510:401 Problems in Education	4	
B. <i>Elementary Education</i>		
520:333 Science for the Elementary Grades	5	
520:336* Teaching of Elementary School Mathematics	5	
520:335 The Teaching of Reading	5	
520:339 Principles of Diagnostic Teaching of Reading	5	
520:337 Teaching the Language Arts		7
520:338 The Teaching of Social Studies		5
520:365 Comprehensive Musicianship for Elementary Classroom Teachers I		3
520:366 Comprehensive Musicianship for Elementary Classroom Teachers II		3
520:141 Handicrafts in Elementary School		3
520:321 Art for the Grades		3
520:286 Children's Literature		5
555:334 Games and Rhythms for Elementary Grades		3
555:103 Personal Health		3
C. <i>Laboratory Experience:</i>		
515:100 Student Participation		1

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\*If a time period for four (4) years has lapsed since taking this course, or its equivalent, a basic mathematics or mathematics education course must be completed.

*Credits*

*Credits*

515:200 Student Participation	1
515:300 Student Participation	1
515:402 Student Teaching	12
515:403 Seminar in Student Teaching	2

370:100 Government and Politics in the U.S.	5
OR 4 credit hours from the following:	
340:201 United States History to 1815	4
340:202 United States, 1815-1898	4
340:203 United States, 1898-Present	4
(If no previous geography credits are recorded)	
335:100 World Cultural Geography	4

III. If certification for teaching in Kindergarten is desired, the following courses must be scheduled prior to 520:335.

520:330 Early Elementary Education I	3
520:331 Early Elementary Education II	3
520:332 Early Elementary Education III	3
555:211 Red Cross First Aid	2
561:461 Principles of Teaching Exceptional Children	4
740:265 Child Development	5
780:360 Creative Dramatics	4

If the student desires certification for teaching Kindergarten, the following nine credit hours must be scheduled:

520:330 Early Elementary Education I	3
520:331 Early Elementary Education II	3
520:332 Early Elementary Education III	3
555:211 Red Cross First Aid	2
561:461 Principles of Teaching Exceptional Children	4
740:265 Child Development	5
780:360 Creative Dramatics	4

**RETRAINING FROM SECONDARY TO ELEMENTARY CERTIFICATE**

The holder of a Provisional, Professional, or Permanent High School or Special Certificate may obtain a Provisional Elementary Certificate valid for elementary teaching (grades 1-8) upon submitting evidence of the satisfactory completion of the following credits:

*Credits*

520:451 Elementary Education	4
520:335 The Teaching of Reading	5
520:336 Teaching of Elementary School Mathematics	5
555:157 Human Development and Learning (or equivalent)	4

Such a certificate shall be designated as a RE-TRAINING certificate and shall be made standard upon evidence of the completion of the following course work in elementary education:

520:286 Children's Literature	5
520:365 Comprehensive Musicianship for Elementary Classroom Teachers I	3
520:366 Comprehensive Musicianship for Elementary Classroom Teachers II	3
520:141 Handicrafts in Elementary Schools	3
520:321 Art for the Grades	3
555:334 Games and Rhythms for Elementary Grades	3
520:333 Science for the Elementary Grades	5
520:337 Teaching the Language Arts	7
520:338 The Teaching of Social Studies	5
520:339 Principles of Diagnostic Teaching of Reading	5
515:100 Student Participation	1
555:103 Personal Health	3

If additional hours are needed in the Social Sciences, a choice should be made from the following:

Student teaching is required in this program if evidence of teaching experience under the original certificate is lacking or it is deemed advisable by the Dean of the College of Education, the Director of Student Teaching, and the Head of the Department of Elementary Education. A 2.5 grade point average in professional course work is required to enroll in student teaching.

Completion of the above credits does not necessarily constitute qualification for the B.S. degree in Elementary Education at The University of Akron. To qualify for the degree, certain additional requirements in The University of Akron's program which exceed state requirements must be met.

**CERTIFICATION FOR TEACHING MUSIC IN THE ELEMENTARY SCHOOL**

Any student who completes a regular four-year program qualifying him for a Four-Year Provisional Elementary Certificate may have that certificate validated for teaching music in the elementary school by completing the following courses.\*

*Credits*

750:107 Class Voice I	2
OR	
752:124 Private Voice	2
750:151-153 Music Theory I, II, III	9
750:154-156 Music Literature I, II, III	6
750:160 Sight Singing and Ear Training I	2
750:260-261 Keyboard Harmony I, II	4
750:254 String Instrument Techniques I	2
OR	
750:354 Woodwind Instruments Techniques	2
OR	
750:355 Brass-Percussion Instrument Techniques	3
751: Music Organizations	3

*Credits*

520:323 Music Teaching in the Elementary Schools	3
520:324 Field Experience in Elementary School Music	3
515:402 Student Teaching (in music)	3
Total	37-38

\*Such certificates may also be validated in the following fields: visual arts, educational media, languages and physical education. Consult the Department of Elementary Education for details.

**DUAL CERTIFICATION PROGRAM  
ELEMENTARY AND SECONDARY**

This curriculum prepares teachers for both elementary and secondary schools. Students completing this curriculum will receive the four-year provisional certificate to teach in the secondary school and a certificate which will qualify them to teach in grades 1 through 8 of the elementary school.

Students in this program must meet the requirements for Elementary Education (with minor modifications in the areas of Art and Music Education); must complete 530:310, Principles of Secondary Education (3 credits), and 530:311, Instructional Techniques in Secondary Schools (4 credits); and must meet the requirements in the field or fields of teaching at the secondary level in which certification is requested. For advisement in this area, contact the Head of the Department of Elementary Education.

*Credits*

530:316 Methods of Teaching Art	3
530:325 General Music in the Secondary School (2 credits)	2
AND	5
530:326 Field Experience in Instrumental Music (3 credits)	3
530:351 Home Economics Education	4
557:193-194 Theory and Practice of Physical Education	6
561:461 Principles of Teaching Exceptional Children	4
770:470 Speech Therapy for Classroom Teachers	4
555:333 Methods and Materials in Teaching Health Education	5

\*These courses requirements will apply to all students preparing to teach in the Secondary Schools who are promoted or admitted to an upper college effective September 1972.

\*\*The course, 530:311; Instructional Techniques in Secondary Education, will be required of students in the following fields: math, English, speech, business education, foreign languages, history, social studies and science. The student will enroll in that section of the course which is designed for his field. The following courses will fulfill special methods requirements in other fields:

**SECONDARY EDUCATION**

The secondary program is for students preparing to teach in junior and senior high schools. A list of the specific requirements for the various teaching fields will be provided for the student by his College of Education adviser or by the Head of the Department of Secondary Education.

The general requirements for a major in Secondary Education are as follows:

*Credits*

1. <i>General Studies Courses:</i>	60
(Consult pages 70-71 for specific course requirements and alternatives.)	
2. <i>General Professional and Pre-Professional Courses:*</i>	
375:141 General Psychology	5
510:156 Education in American Society	3
565:157 Human Development and Learning	4
510:350 Tests and Measurements	3
510:401 Problems in Education	4
515:402 Student Teaching	12
515:403 Student Teaching Seminar	2
	33
3. <i>Secondary Education Courses:*</i>	
530:200 Exploratory Experiences in Secondary Schools	1
530:310 Principles of Secondary Education	3
530:311 Instructional Techniques in Secondary Schools**	4
	8
4. <i>Courses in Teaching Field(s) and Electives:</i>	91
Total Required for Degree:	192

**TEACHING FIELDS**

Each student preparing for secondary school teaching must have at least two academic teaching fields. One field shall be at least nine credits more than the minimum required by the State Department of Education, except where the state requirement in the teaching field is 45 credits or more. However, if a student chooses one of the special teaching fields or one of the comprehensive teaching fields, as listed below, he will not be required to prepare in a second field.

For selection of required courses for a teaching field and the recommended sequence for his secondary education program, a student should consult the Head of the Department of Secondary Education who will appoint an advisor.

STATEMENT OF MINIMUM NUMBER OF  
CREDITS REQUIRED FOR APPROVAL IN  
VARIOUS TEACHING FIELDS  
AS SPECIFIED BY THE UNIVERSITY  
OF AKRON

COMPREHENSIVE SUBJECTS

<i>Field:</i>	<i>Hours</i>
Business Education (With Shorthand)	68
Business Education (Without Shorthand)	68
Communications	90
Family Life Education	90
Science	90
Social Studies	90

SPECIFIC SUBJECTS

<i>Field:</i>	<i>First Teaching Field: Hours</i>	<i>Second Teaching Field: Hours</i>
Biology	79	48
Bookkeeping Basic Business		33
Chemistry	81	40
Earth Science	71	62
Economics		33
English	50	45
General Science	55	39
Geography		30
Health Education		32
History	46	45
Home Economics	79	46
Foreign Languages	45	45
Latin and Greek	30	30
Mathematics	40	30
Physical Education (Men & Women)		45
Physics	81	68
Political Science		36
Sales Communication	68	33
Social Psychology		30
Sociology		30
Speech/Theatre Arts	52	45
Stenography and Typing		34
Data Processing	68	

SPECIAL FIELDS

Music — As Determined by Department  
Art — As Determined by Department  
Physical Education (Men & Women) — Special K-12 - 69 credits; Grades 7-12 - 45 credits.

SPECIAL EDUCATION

COMPREHENSIVE SPECIAL  
EDUCATION MAJOR

This program provides for an in-depth preparation in the areas of mental retardation and learning disabilities and simultaneously incorporates vital courses from the areas of Secondary Education, Elementary Education, Counselling and Educational Foundations. The program's component parts

include the General Studies, General Professional Education, Special Education Studies (the major field) including full time student teaching, and related competency studies. Completion of this program enables one to be certified in Special Education at both Elementary and Secondary levels. See Special Education staff members for specific course requirements in all the component parts.

COMBINATION SPECIAL EDUCATION —  
ELEMENTARY EDUCATION PROGRAM

The addition of the following special education courses to the standard elementary education program in lieu of elective hours, coupled with a student teaching modification, comprise this program of study. Completion of this program leads to a teaching certificate valid for teaching in the regular and special classrooms.

<i>Prerequisite:</i>	<i>Credits</i>
565:157 Human Development and Learning	4
<i>Required:</i>	
561:460 Development Characteristics of Slow-Learning Children	5
561:461 Principles of Teaching Exceptional Children	4
561:462 Methods and Materials for Teaching Slow-Learners	3
561:464 Reading and Language Arts for the Slow Learner	3
561:465 Social Studies for the Slow-Learner	3
561:466 Number Concepts for the Slow-Learner	3
561:468 Occupational Orientation and Job Training for Exceptional Children <i>Student Teaching Modification</i>	3

SPECIAL EDUCATION AS A  
SECONDARY TEACHING FIELD

The following special education courses may comprise the second teaching field at the secondary level. Completion of these courses in addition to the professional education courses required of secondary teachers and a modification of the student teaching requirement comprise this program of study. The first teaching field can be any of the several recognized subject matter areas of preparation.

<i>Prerequisite:</i>	<i>Credits</i>
565:157 Human Development and Learning	4
<i>Required:</i>	
561:460 Development Characteristics of Slow Learning Children	5
561:461 Principles of Teaching Exceptional Children	4
561:462 Methods and Materials for Teaching Slow-Learner	3
520:335 Teaching of Reading	5
561:464 Reading and Language Arts for the Slow-Learner	3

	<i>Credits</i>
561:465 Social Studies for the Slow-Learner	3
561:466 Number Concepts for the Slow-Learner	3
561:468 Occupational Orientation and Job Training for Exceptional Children	3
<i>Student Teaching Modification</i>	

### **SPEECH AND HEARING THERAPY**

Recommended program for students interested in certification in Speech and Hearing Therapy may be obtained from the College of Education or from the Department of Speech Pathology and Audiology.

### **TECHNICAL EDUCATION**

The undergraduate program in Technical Education is designed to prepare instructors for technical institutes, community colleges and university branches. The baccalaureate program is intended to

produce instructors primarily for teaching subjects within a technical specialty and is not intended to produce post high school mathematics, physics, chemistry, English or instructors for other general education offerings. Graduates of this program would be awarded the degree of Bachelor of Science in Technical Education.

The program is divided into the following three major classifications:

1. Engineering and Industrial Technology
2. Business and Office Technologies
3. Sales and Merchandising Technologies.

Students may elect other areas so long as the courses are available and their advisors approve.

The Technical Education program includes work in four areas: General Studies; the technical specialty; Professional Education; and occupational experience. Specific course requirements may be secured from the Department of Secondary Education or from the advisors in Technical Education.

AN UPPER COLLEGE:

## *The College of Business Administration*

James W. Dunlap, Ph.D., *Dean*

The College of Business Administration is a professional College of the University that is dedicated to teaching, business research and public service. The College, a member of the American Association of Collegiate Schools of Business, the national accrediting agency for colleges of business administration, offers undergraduate and graduate degree programs during the day and evening.

### OBJECTIVES

The purpose of the College of Business Administration is to further the objectives of The University of Akron by providing a quality program of collegiate education in business to prepare students for professional careers in commerce, industry and government. Specific objectives of the College in terms of student achievement include the following:

Competence in the basic functional areas of business enterprise;

Analytical ability and balanced judgment in the solution of business problems;

Understanding of human behavior and the impact of social, political and economic forces in the decision-making process;

Facility in the use of management tools of accounting, quantitative techniques and communications;

Development of a business code of ethics; and,

Desire to continue the pursuit of knowledge and the achievement of excellence in the area of administration.

Additional objectives of the College of Business Administration are: to act as a service division by offering courses to students in other colleges; to serve the business community of the state and region by sponsoring conferences,

short courses and management development programs; to foster and encourage research in business; to offer graduate instruction and opportunities for research to students at the master's level; to prepare students for entering law school; and to prepare students for advanced research and study in business and economics.

The College of Business Administration, organized on a departmental basis, offers programs of study in accounting, finance, management, marketing and international business. Three baccalaureate degrees are offered; the Bachelor of Science in Accounting, the Bachelor of Science in Business Administration and the Bachelor of Science in Industrial Management.

The College of Business Administration offers, through the Graduate School, advanced professional business study leading to the degree of Master of Business Administration with concentrations in Accounting, Finance, Management, Marketing, and International Business. In addition, the Master of Science in Accounting and the Master of Science in Management are offered.

At The University of Akron there has been a long and eventful history of education relating to the field of commerce and industry. Beginning in 1919 courses were offered in the Department of Commerce. Eventually the department became the nucleus of the College of Business Administration, which was established in 1953.

Since its inception, the College curriculum has been designed with equal emphasis on broad basic principles as well as immediate practices. Classroom knowledge is consistently made more significant by field trips and inspection tours to witness business operations.

Similarly, the College maintains a sound balance between education in the arts, humanities and sciences and professional business courses. Half of the courses of study at the undergraduate level are in the areas of liberal arts, and sciences; the remaining courses are divided between general business subjects and the student's indicated area of specialization.

**REQUIREMENTS FOR ADMISSION**

The College will accept students who have completed sufficient course work to indicate possession of the necessary ability and desire to earn a Business Administration degree. The number of credits to have been completed will vary from student to student, but will be at least 45 credits at the time of acceptance.

\*Enrollment in upper college business courses is limited to students who have:

1. Applied for promotion or transfer  
2. Successfully completed at least 90 credits

3. Earned at least a 2.0 inclusive grade average and at least a 2.0 grade average in Business Administration and Economics courses.

4. Successfully completed the following courses or equivalents:\*\*

*Second year*

<i>First Quarter</i>	<i>Credits</i>
110:221-224 Natural Science	3
325:201 Principles of Economics	4
620:221 Principles of Accounting	4
110:205 Types of Literature	4
	<hr/> 15
<i>Second Quarter</i>	
325:202 Principles of Economics	4
620:222 Principles of Accounting	4
110:221-224 Natural Science	3
Electives	5-6
	<hr/> 16-17
<i>Third Quarter</i>	
110:221-224 Natural Science	3
620:270 Managerial Accounting or*	
620:290 Cost Accounting	4
Electives**	9-10
	<hr/> 16-17

**SCHEDULE OF REQUIRED COURSES**

<i>First Year</i>	<i>Credits</i>
<i>First Quarter</i>	
110:111 English Composition	4
110:115 Institutions in the U.S.***	3
110: Physical Education	1
Electives or Mathematics****	8
	<hr/> 16
<i>Second Quarter</i>	
110:112 English Composition	4
110:116 Institutions in the U.S.***	3
375:141 General Psychology/or	
385:100 Introduction to Sociology	5
110: Physical Education	1
Electives or Mathematics****	4
	<hr/> 17
<i>Third Quarter</i>	
110:117 Institutions in the U.S.***	3
110:108 Effective Speaking	4
375: Psychology (second course)/or	
385: Sociology	4
Electives or Mathematics****	4
	<hr/> 15

\*Exception to any or all of these may be granted by the Dean.

\*\*Equivalence is to be determined by the Dean of the General College for all courses identified as part of the General Studies program and by the Dean of the college of Business Administration in consultation with the department heads, for all other courses.

\*\*\*See page 71 for alternative courses for 110:115-116-117.

\*\*\*\*Required mathematics courses are 345:140-145-150-160-165-170-180-185-195, Modern University Mathematics.

**TRANSFER OF COURSES AND  
ADVANCED STANDING**

In order for courses taken outside of the General College or the College of Business Administration to be accepted as part of an approved program of study in lieu of College and departmental requirements, the courses to be transferred must be of an equivalent level. The College of Business Administration will consider the following in granting credit: the content, complexity and grading standards of courses taken elsewhere; and the suitability of courses taken elsewhere for the program of study chosen here. Subject matter reserved for junior and senior level courses in this College will not be transferable through courses taken in any two-year institution. All work transferred may be subject to examination to validate credits.

**REQUIREMENTS FOR GRADUATION**

1. A minimum of 192 credits, including the work in the General College. Not more than two credits of physical education activities may be included.

2. Other requirements, including the residence requirement, listed in this Bulletin.

3. At least 2.0 quality point average in (a) all major departmental courses, (b) all business and economics courses, and (c) all courses undertaken here and elsewhere.

4. Recommendation of the student's department head.

## CORE PROGRAM

All students enrolled in the College of Business Administration must successfully complete the following business core program:

Number	Course Title	Credits
620:221-222	Principles of Accounting	8
620:270	Managerial Accounting/or	4
620:290	Cost Accounting	4
660:300	Marketing Principles	4
640:320	The Legal Environment of Business (For undergraduate non-accounting majors)/or	5
640:321	Business Law (For undergraduate accounting majors)***	5
640:371	Business Finance	5
650:348-349	Quantitative Business Analysis I, II	7
650:372	Management - Organization and Behavior	3
650:473	Business Policy	5
325:	Economics (upper division)	4

## DEPARTMENTS OF INSTRUCTION

## 620: ACCOUNTING

The functions of accounting are essential to the decision-making process in commerce, industry and government. Because of the important role it plays in economic affairs, accounting has attained the professional status of law and medicine.

Three major fields of employment for accountants are public, private and governmental accounting. Regardless of the areas of concentration, standards, ethics and the mastery of accounting concepts and procedures are essential to all three. Accounting graduates who choose public accounting may become seniors, managers, principals or partners in public accounting firms. A student who chooses an accounting career in private industry may hold the position of accountant, cost accountant, senior accountant, budget director, internal auditor, treasurer or controller. Federal, state and local governments provide a wide variety of job opportunities at the professional level for well-educated accountants. There are exceptional opportunities for professional advancement regardless of the type of institution graduates may choose.

The accounting curriculum is designed to prepare the student for professional service, including sitting for the uniform certified public accounting examination and to prepare the student to undertake advanced study leading to the Master's degree. In recognition of the fact that both public and private accounting rest on the same foundation, the following courses, in addition to those listed on the previous page, are required of all undergraduate accounting majors:

Number	Course Title	Credits
620:317-318	Intermediate Accounting	10
620:355	Introduction to Electronic Data Processing	5
620:430	Taxation	5
620:440	Accounting	5
620:460	Controllershship Problems	5
640:322	Business Law	4

The upper-division Economics course elected by Accounting majors should be 325:380 Money and Banking; a different course may be elected with permission.

In addition to the accounting courses required in the above program, students preparing for a career in public accounting are advised to take 620:420 (Advanced Accounting). Majors preparing for careers in industrial accounting should take elective courses in Management.

Because of the increasing demand for accountants with a knowledge of computer theory and practice, majors are advised to elect 620:454 (Accounting Systems). Courses in mathematics beyond finite mathematics are also strongly recommended.

The degree of Bachelor of Science in Accounting will be awarded to those students who complete the prescribed work.

## 640: FINANCE

The Department of Finance offers demanding courses which try to develop a student's ability to gather, organize, analyze and utilize financial data. This requires that the student be familiar with the institutional setting in which firms operate and, within this framework, they must understand the present state of financial theory, its uses and limitations. When a student majors in Finance, the goal is not a specific entry job but rather a state of readiness to provide flexible response to new areas of opportunities in the financial area.

Career opportunities exist in three major fields. The Financial Management of Non-Financial Institutions Area offers employment in profit as well as non-profit firms where the emphasis is on the uses and sources of financial funds. The area of Management of Financial Institutions offers opportunities to those who choose careers in commercial banking and other credit-granting institutions. Those interested in Investments Management find opportunities with brokerage firms and specialized departments in many financial as well as non-financial organizations. In most cases it is not possible to select direct entry at a level one desires into some of these areas, but on-the-job training is required in allied fields. It is for this reason our suggested preparation is broad in scope.

In addition to 325:380 Money and Banking, the student majoring in Finance must take the following courses:

<i>Number</i>	<i>Course Title</i>	<i>Credits</i>
640:338	Financial Intermediaries	5
640:343	Investments	5
640:479	Problems in Finance	5

In order to round out the Finance major's training, it is recommended that he take the following two courses to complete his major requirement:

640:436	Commercial Bank Management	5
640:447	Security Analysis	5

Electives should be considered especially by those students who aim for careers in Financial Management from the following four courses:

640:314	Credits and Collections	3
640:318	Principles of Insurance	4
640:450	Business and Society and the substitution of	5
640:321-322	Business Law	9
	for	
640:320	The Legal Environment of Business	5

The degree of Bachelor of Science in Business Administration will be awarded to students who complete the prescribed work.

#### 650: MANAGEMENT

The University of Akron was one of the first institutions of higher learning to establish an Industrial Management curriculum. Important factors in the decision to establish such a program were the location of the University in a major industrial area and the recognition of an emerging educational need.

The emphasis on education for management is the result of several factors. First, managers are becoming increasingly aware that a professional approach to management requires understanding of quantitative methods and the behavioral sciences. Second, the management task is becoming much more complex in terms of the number of activities, volume of work, and the broader impact of managerial decisions. Third, the practice of management in any setting requires a measure of specific preparation and qualification.

Events of the past several years have brought about a rapid and sweeping change in the business and industry of our society. The major in industrial management recognizes the unique directional problems of the firm involved in manufacturing producers goods.

The graduate with an Industrial Management degree finds many employment opportunities with industrial firms; in staff, supervisory, and other management positions. He possesses, in addition, the required basic understanding for effectively

managing facilities, equipment and personnel in a variety of activities such as transportation, warehousing, research or institutional management. Also, the graduate has the fundamental preparation to undertake advanced study leading to a master's degree.

Departmental philosophy decrees that the student entering the field of management will have a solid basic liberal background within the framework of the Management curriculum.

The Management major must complete all of the following courses:

	<i>Credits</i>
650:301 Work System Design (Statistics 348 prerequisite)	3
650:303 Motion and Time Study (301 and 348 prerequisite)	3
650:350 Personnel Management (two behavioral science courses prerequisite)	3
650:363 Production Management (recommend this course be preceded by 348)	4
650:456 Management Problems (An individual analysis and problem-solving project, which should be preceded by all but one of the departmental requirements. Work normally extends over two quarters).	4

Total 17

In addition to the above, the Management major selects either the Production concentration or the Personnel concentration. The Production concentration consists of courses 364, Business Operational Planning, 3 credits, (301 & 349 prerequisites); 404, Production Planning and Control, 3 credits (349 prerequisite); & 405, Quality Control, 3 credits, (349 prerequisite). The Personnel concentration consists of courses 351, Personnel Functions, 3 credits (350 prerequisite); 352, Management Training and Development, 3 credits (350 prerequisite); & 469, Personnel Relations, 3 credits, (350 prerequisite). Additional electives in the department include Industrial Plants & Advanced Statistics, (349 prerequisite).

The degree of Bachelor of Science in Industrial Management will be awarded to those students who complete the prescribed work.

#### INDUSTRIAL ACCOUNTING EMPHASIS

The Industrial Accounting emphasis jointly administered by the Accounting Department and the Management Department is designed to benefit the student who may wish to pursue a career in the field of accounting, but who does not wish to become a C.P.A. The courses selected are those which will furnish the student with a background in the operational management of production activities as well as in the accounting and budgeting procedures

utilized in the control of these activities. The curriculum leads to the degree, Bachelor of Science in Industrial Management.

The student selecting the Industrial Accounting emphasis must successfully complete the following courses:

<i>Number</i>	<i>Course Title</i>	<i>Credits</i>
620:290	Cost Accounting	4
620:355	Introduction to Electronic Data Processing	5
620:460	Controllership Problems	5
650:301	Work System Design	3
650:303	Motion and Time Study	3
650:350	Personnel Management	3
650:363	Production Management	4
650:405	Quality Control	3

Recommended electives for the student selecting the Industrial Accounting emphasis include:

<i>Number</i>	<i>Course Title</i>	<i>Credits</i>
620:430	Taxation	5
620:440	Auditing	5
620:454	Accounting Systems	5
650:364	Business Operational Planning	3
650:447	Advanced Statistics	3
650:456	Management Problems	5

#### 660: MARKETING

The chief marketing executive in the firm is responsible for sustaining customer acceptance of his firm's products and services, and for finding new opportunities for his firm through the developments of new and improved products and services; effective advertising and other communications programs; efficient physical distribution of the firm's products and services so that they are accessible to present and prospective users; and pricing of the firm's offerings. He is also responsible for organizing the

various functions involved in the marketing effort. He attempts to allocate the resources of his firm for maximum impact in the markets which he feels are most profitable in order to provide the firm with a high and continuing flow of money income.

The Marketing curriculum is designed to provide the student with a clear understanding of the nature and uses of marketing techniques and their varying combinations in a total marketing plan. The student is also given a sound basis for further scholarly research in such areas as consumer and buyer behavior, operational and symbolic aspects of products and services, the communications techniques and theory, and organizational behavior as these relate to the objectives of the firm. Thus, the student becomes aware of current practices in the marketing discipline as well as the latest theoretical developments.

In addition to 660:300 (Marketing Principles), he must complete a minimum of 24 credits in his major, including 660:478 (Sales Administration); 660:480 (Marketing Cases and Problems); and 660:490 (Marketing Research), plus 12 hours of other marketing courses at the 300-400 level.

Recommended electives for the student majoring in Marketing may be selected from the following courses:

<i>Number</i>	<i>Course Title</i>	<i>Credits</i>
325:380	Money and Banking	4
325:400	Macro-Economics	4
335:220	Economic Geography	3
335:324	Geography of World Manufacturing	3
375:315	Social Psychology	4
385:320	Population	4
385:336	Social Change	4

The degree of Bachelor of Science in Business Administration will be awarded to those students who complete the prescribed work.

## AN UPPER COLLEGE:

***The College of Fine and Applied Arts***Ray H. Sandefur, Ph.D., *Dean***OBJECTIVES**

The purpose of the College of Fine and Applied Arts is to further the objectives of The University of Akron by providing a quality program of undergraduate and graduate education in the artistic, technological, clinical and studio experience in speech, the dramatic arts, music, the visual arts and the family life arts, and

To maintain curricula for the preparation of student majors in these areas.

To prepare such students for graduate study and career opportunities on the level of professional competence.

To provide instruction designed to meet specific curricular needs of all the Colleges of the University.

To serve the elective interests of students seeking diversity and enrichment in their academic programs,

To encourage the development of technical knowledge and professional skills which underlie the communicative functions of human expression, and

To nurture and expand, through this congregation of the arts, not only a knowledge of man's creative and cultural heritage but also a perceptual and aesthetic awareness of direct sensory experience through creation and performance.

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

**REQUIREMENTS FOR ADMISSION**

To be admitted to the College of Fine and Applied Arts the student must have completed satisfactorily at least 45 credits of work with at least a 2.0 ratio; have completed the required General Studies courses; have completed the departmental prerequisites and have the approval of the Dean. Students transferring to the University's Art Department from another in-

stitution must submit a portfolio of their work for approval prior to admission.

**REQUIREMENTS FOR BACCALAUREATE DEGREES**

1. Electives included in the 192 credits of total work required for the degree may consist of any courses offered for credit in the University's four-year degree programs, provided that the prerequisites as set forth in this Bulletin are met, and further provided that not more than two credits of physical education activities, twelve of applied music, or six of music organizations are included. (Credit limitations on applied music and music organizations do not apply to the Bachelor of Music degree.) While credits from another institution or college may be accepted, their application toward graduation will depend upon the nature of the student's intended program of study.

2. The recommendation of the Head of the student's major department.

3. All candidates for a Bachelor of Arts degree in the College of Fine and Applied Arts must have demonstrated their ability to use two languages.

If the candidate is a native-born speaker of English, this ability will be shown by his completion of a second year of an approved foreign language on the university level.

If the student is not a native-born speaker of English, this ability will be shown by his completion of the General Studies sequence in English (110:111-112 and 205).

4. Other requirements as set forth in the section on "Requirements for Graduation" in Chapter 3 and on the following pages.

**DEGREES**

The following baccalaureate degrees are granted in the College: Bachelor of Arts, Bachelor of Music, and the Bachelor of Fine Arts degree in Art.

**THE MAJOR FIELD**

To qualify for graduation, a student must

concentrate or earn a major in the work of a department of the college. The major will consist of from 36 to 96 credits in addition to the required General Studies and, in the case of the Bachelor of Arts degree, foreign language courses. Part or all of these credits may be taken in specifically required courses depending upon the major chosen. The longer and more professionally-oriented majors should be started during the first or second year when the student is still under the guidance of the Office of Student Services. The shorter majors need not be declared before the end of the second year when the student is ready for transfer to the College of Fine and Applied Arts.

A student will select a department in which to earn a major. The exact requirements for each such major will be found on the following pages in the section headed "Departments of Instruction." Some departments offer more than one type of major. No minor is required, but in some cases the major includes certain courses in other departments. When a student has selected his major, he should consult with the head of that department. As soon as the student is transferred to the College, the head of his major department becomes his adviser.

### PREPARATION FOR HIGH SCHOOL TEACHING

Students interested in a teaching career on the high school level, and those interested in teaching art or music from kindergarten through high school, may qualify for certification by the State Department of Education while enrolled in the College of Fine and Applied Arts. Those wishing to prepare for such a career should register with the Dean of the College of Education at least two years prior to the time he expects to be eligible to teach. Generally the Fine and Applied Arts major subject will also constitute a teaching major. The education and psychology courses required for the secondary school teaching certificate may be taken as electives toward the Fine and Applied Arts degree. Additional elective credits will generally enable the student to qualify in a second teaching field, which is required under certain circumstances, without exceeding the 192 credits necessary for graduation from the College of Fine and Applied Arts. Such a program is particularly recommended for students who, as part of their preparation for teaching, plan to go to graduate school and earn an advanced degree through specialization in their field of major interest.

## DEPARTMENT OF INSTRUCTION

### 710: ART

*Requirements for a Bachelor of Arts degree with emphasis in either Studio Art or History of Art are:*

- General Studies requirements.
- Completion of a second year of an approved foreign language.
- Thirty-six elective credits which may be used in art or other disciplines.
- Completion of requirements in either Studio Art Emphasis or History of Art Emphasis.

**Studio Art Emphasis:** A minimum of 60 credits in Studio Art coursework including one course in each of six different areas of emphasis; i.e., Printmaking, Sculpture, etc. A minimum of 15 credits in the History of Art.

**History of Art Emphasis:** A minimum of 55 credits in the History of Art or approved equivalents. (201 is recommended.) A minimum of one History of Art Seminar, one Special Problems in History of Art course, and one Special Topics in History of Art course. A minimum of 20 credits in Studio Art coursework to include at least four different areas of emphasis; i.e., Painting, Photography, etc.

*Requirements for a Bachelor of Fine Arts degree are:*

- General Studies requirements.
- Thirty-seven elective credits which may be used in art or other disciplines.
- Portfolio review for admission to B.F.A. program candidacy before completion of 48 hours in Art.
- Minimum of 40 hours in at least one area of major emphasis (except in Graphic Design emphasis).
- Minimum of 40 elective credits in Art Studio (except in Graphic Design emphasis).
- Minimum of 15 credits of History of Art.
- Senior Exhibition.

#### **Emphasis in Printmaking:**

Prerequisite: 701:131 Drawing I 5 cr.

#### Emphasis Courses Required:

A minimum of two of the four Introductory Printmaking courses.	
710:213 Introduction to Printmaking-Lithography	3 or 5 cr.
710:214 Introduction to Printmaking-Serigraphy	3 or 5 cr.
710:215 Introduction to Printmaking-Relief	3 or 5 cr.
710:216 Introduction to Printmaking-Intaglio	3 or 5 cr.

A minimum of two printmaking processes through the Intermediate level.	
710:317 Intermediate Printmaking	3 or 5 cr.
710:418 Advanced Printmaking	3 or 5 cr.

Other Required Courses:  
710:144 Two-Dimensional Design 5 cr.

710:275 Introduction to Photography	5 cr.	Emphasis Courses Required:	
710:434 Comprehensive Drawing	3 or 5 cr.	710:275 Introduction to Photography	5 cr.
<b>Emphasis in Sculpture:</b>		710:375 Intermediate Photography	3 or 5 cr.
Prerequisite: 710:122 Sculpture I	5 cr.	710:475 Advanced Photography	3 or 5 cr.
Emphasis Courses Required:		Choice of one required:	
710:222 Sculpture II	5 cr.	710:213 Introduction to Printmaking-	
710:322 Sculpture III	5 cr.	Lithography	3 or 5 cr.
710:422 Sculpture IV	5 cr.	710:214 Introduction to Printmaking-	
<b>Emphasis in Drawing:</b>		Serigraphy	3 or 5 cr.
Prerequisite: 710:131 Drawing I	5 cr.	Additional Required Courses:	
Emphasis Courses Required:		710:317 Intermediate Printmaking	3 or 5 cr.
710:231 Drawing II	3 or 5 cr.	710:300 Art Since 1945	5 cr.
710:232 Instrument Drawing	5 cr.	<b>Emphasis in Graphic Design:</b>	
710:233 Life Drawing	3 cr.	76 to 80 credits in required studio courses.	
710:333 Advanced Life Drawing	3 cr.	Prerequisites:	
710:434 Comprehensive Drawing	3 or 5 cr.	710:131 Drawing I	5 cr.
Other Required Courses:		710:232 Instrument Drawing	5 cr.
710:201 Survey of History of Art	5 cr.	710:275 Introduction to Photography	5 cr.
<b>Emphasis in Painting:</b>		710:375 Intermediate Photography	3 or 5 cr.
Prerequisite: 710:131 Drawing I	5 cr.	Choice of one required:	
Emphasis Courses Required:		710:231 Drawing II	3 or 5 cr.
710:144 Two-Dimensional Design	5 cr.	710:144 Two-Dimensional Design	5 cr.
710:245 Introduction to Polymer		710:233 Life Drawing	3 cr.
Acrylic Painting	3 or 5 cr.	710:245 Introduction to Polymer	
710:246 Introduction to Water Color		Acrylic Painting	3 or 5 cr.
Painting	3 or 5 cr.	710:246 Introduction to Water Color	
710:247 Introduction to Oil Painting	3 or 5 cr.	Painting	3 or 5 cr.
710:348 Intermediate Painting	3 or 5 cr.	710:247 Introduction to Oil Painting	3 or 5 cr.
710:449 Advanced Painting	3 or 5 cr.	Emphasis Courses Required:	
Other Required Courses:		710:283 Drawing Techniques	5 cr.
710:201 Survey of History of Art	5 cr.	710:284 Introduction to Graphic Design	5 cr.
<b>Emphasis in Ceramics:</b>		710:286 Commercial Design Theory	5 cr.
Prerequisite, a choice of one:		710:288 Letter Form and Typography	5 cr.
710:122 Sculpture I	5 cr.	710:387 Advertising Design I	5 cr.
710:131 Drawing I	5 cr.	710:388 Advertising Design II	5 cr.
710:144 Two-Dimensional Design	5 cr.	710:389 Advertising Design III	5 cr.
Emphasis Courses Required:		710:480 Advanced Graphic Design	5 cr.
710:254 Introduction to Ceramics	3 or 5 cr.	710:488 Portfolio Design	5 cr.
710:354 Intermediate Ceramics	3 or 5 cr.	A choice of 10 credits from the following:	
710:454 Advanced Ceramics	3 or 5 cr.	710:475 Advanced Photography	5 cr.
710:455 Clay-Fibre-Metal Seminar	3 cr.	(taken twice to total 10 credits).	
<b>Emphasis in Metalsmithing:</b>		or: 710:484 Illustration	5 cr.
Prerequisite, a choice of one:		and 710:486 Packaging Design	5 cr.
710:122 Sculpture I	5 cr.		
710:131 Drawing I	5 cr.		
710:144 Two-Dimensional Design	5 cr.		
Emphasis Courses Required:			
710:266 Introduction to Metalsmithing	3 or 5 cr.		
710:268 Enameling on Metal	3 or 5 cr.		
710:366 Intermediate Metalsmithing	3 or 5 cr.		
710:466 Advanced Metalsmithing	3 or 5 cr.		
<b>Emphasis in Photography:</b>			
Prerequisite, a choice of one:			
710:122 Sculpture I	5 cr.		
710:144 Two-Dimensional Design	5 cr.		

### HONORS PROGRAM

As a participant in the honors program, the student must complete a minimum of eighteen credits of honors work, to be divided in such a way that not more than twelve credits are received in either course work (710:499) or research project 710:405, 409, 490. Thus, the maximum number of credits possible would be 24.

The student must complete some written or studio project, and earn an average grade of B or better in all honors work attempted.

## 740: HOME ECONOMICS

*Requirements for Bachelor of Arts with a major in Home Economics:*

The General Studies, the second year of foreign language and 740:147, 201, 265, 301, 362. Additional course requirements for each major area of emphasis:

**Foods and Nutrition: Dietetics**

**(Emphasis meets requirements for A.D.A.)**

Food Service Management: 228:136, 236, 243  
 Data Processing 244:100  
 Biology 310:191 and 207, 246  
 Chemistry 315:129, 130, 131  
 Economics 325:100  
 Psychology 375:141  
 Sociology 385:100  
 Accounting 620:221  
 Management 650:350  
 Home Economics 740:204, 245, 246, 316, 340, 412, 415, 416, 420, 422, 450, 470

**Food and Nutrition: Business and Communications**

Chemistry 315:129, 130, 131  
 Journalism 331:203  
 Social Science 385:100  
 Economics 660:300, 340  
 Marketing 660:300, 340  
 Home Economics 740:204, 245, 246, 316, 340, 412, 415, 416, 420, 422, 450, 470  
 Speech 780:281, 283, 288

**Clothing and Textiles: Business Option**

Chemistry 315:129, 130, 131 or Natural Science 110:121, 122, 124  
 Economics 325:100  
 Psychology 375:141  
 Sociology 385:100  
 Accounting 620:221, 222  
 Marketing 660:300, 340, 250  
 Home Economics 740:121, 123, 133, 141, 158, 159, 304, 305, 306, 311, 317, 419, or 449, 422, or 340, 439, 450, 458, 470

**Clothing and Textiles: Communication Option**

Substitute following courses for Accounting and Marketing:  
 Sales and Merchandising 252:103, 104, 202, 210  
 Journalism 331:203  
 Speech 780:175, 281, 282, 283, 288

**Family Life and Child Development**

**(Emphasis meets requirements toward Family Life Education Certification with appropriate courses in education)**

Black American 202:254  
 Chemistry 315:129, 130, 131

Government and Politics 370:100

Psychology 375:141, 151

Social Science 385:100

Social Welfare 386:276

Home Economics 740:133, 141, 159, 204, 218, 255, 342, or 422, 401, 470

Workshops or Seminars: Drug Education, Family Life and Sex Education

**Home Economics Education:**

Requirements for majors in Home Economics Education leading to a B.S. Degree in Education may be obtained through the College of Education. The following options are available:

Home Economics Non-Vocational Education

Home Economics - Vocational Consumer-Home-making

Home Economics - Vocational Job Training

Child Care Services

Food Services

Community and Home Services

Certification requirements and curriculum outlines for all options are available in the College of Education and in the Department of Home Economics.

## 750: MUSIC

A written and aural/oral examination in the fundamentals of music and an audition in a performance areas is administered prior to entrance to the University to those students who intend to follow a musical degree program. Students must contact the office of the Department of Music to arrange for the examination.

*Requirements for a major leading to the Bachelor of Arts degree:*

The General Studies and the second year of a foreign language. At least 45 credits in the department including courses 750:151, 152, 153, 154, 155, 156, 251, 252, 253, 351, 352, 353, participation in a music organization (751 courses) for six quarters. A study of piano until passage of jury examination in functional piano. (See Keyboard requirements for General Musicianship Examination). Participation in Student Recital (750:157) for six quarters. No more than six credits in music organizations (751 courses) and no more than twelve credits in piano and/or other applied music (752 courses) may be included in the minimum 192 credits required for the degree. It is recommended that students attend the weekly Student Recital, participate in music organizations and continue their private study of applied music beyond these minimum requirements. Recommended but not required: 360:250 Philosophy of Art. Further courses in music may be taken as electives, subject to above credit limits.

The Bachelor of Arts music major is intended as

a cultural course or as preparation for graduate study but not as professional preparation for a musical or teaching career.

*Requirements for a major leading to the Bachelor of Music degree:*

#### **Performance Option:**

The General Studies. 48 credits in a primary area of applied music and 6 credits in a secondary area in applied music (752 courses), minimum of 12 credits earned over 12 quarters in music organizations (751 courses), participation for 12 quarters in Student Recital (750:157 and 357), 63 credits in 750:151, 152, 153, 154, 155, 156, 160, 161, 162, 251, 252, 253, 260, 261, 262, 351, 352, 353, 361, 451, 452, 453, 454, 455, 9 credits in elective courses, passage of the General Membership examination, and presentation of a senior recital. A junior recital is recommended but not required. Passage to the "500" level in his primary performance area is required prior to graduation.

#### **Theory-Composition Option:**

The general Studies. 24 credits in a primary area and 6 credits in a secondary area of applied instrumental or vocal music, 12 credits in private lessons in composition (752 courses), minimum of 12 credits earned over 12 quarters in music organizations (751 courses), participation for 12 quarters in Student Recital (750:157 and 357), 66 credits in 750:151, 152, 153, 154, 155, 156, 160, 161, 162, 251, 252, 253, 260, 261, 262, 351, 352, 353, 361, 371, 451, 452, 453, 454, 455, 9 credits in elective courses, passage of the General Musicianship examination, and presentation of a senior recital (of original compositions). Students choosing this option must also demonstrate to a jury prior to promotion to upper college a keyboard proficiency equivalent to the "300" level of study. Prior to graduation the student must pass by jury examination to the "300" level in his primary instrumental or vocal medium.

By extending either the B.A. or B.M. programs to five years, the student may, with careful planning, take the courses necessary to qualify for teaching certification. Both the B.A. and B.M. degrees may be earned in a combination five-year program.

*Degree requirements for a music major leading to B.S. in Music Education (administered through the College of Education) include the following musical requirements:*

24 credits in a declared primary area of applied music (752 courses), 12 credits in musical organizations (751 courses), participation in Student Recital (750:157 and 357) for 12 quarters, 59 credits in 750:151, 152, 153, 154, 155, 156, 160, 161, 162, 251, 252, 253, 254, 255, 260, 261, 262, 351, 352, 353, 354, 455, 361, 454. In addition, Voice and Piano majors

must take 750:360, 520:324, and 6 hours of departmental electives (listed below); instrumental majors (not string nor piano) must take 750:455, 530:326, and 6 hours of departmental electives; string majors must take 750:256, 455, 530:326, and 3 hours of departmental electives. All music education majors must take 520:323 and 530:325, and they must successfully pass the General Membership examination before assignment to Student Teaching. A half recital is required during the 12 months prior to graduation.

Departmental electives for music education majors include: 750:256, 305, 306, 362, 460, 461, 462, 463, and 464.

#### **GENERAL MUSICIANSHIP EXAMINATION**

The General Musicianship Examination will be scheduled at the end of any quarter by request of the student and will require satisfactory performance in the following areas:

1. Voice
  - a. Sight-singing monophonic and polyphonic music with and without words
  - b. Singing all intervals within the range of an octave
  - c. Singing major and minor, chromatic and whole-tone scales, triads and seventh chords in root positions and in inversions
  - d. Singing simple melodies with syllables
2. Keyboard
  - a. Sight-reading of easy accompaniments
  - b. Harmonization at sight of easy melodies in familiar keys
  - c. Playing familiar melodies and accompaniments to school songs by ear
  - d. Transpositions of simple songs and accompaniments
  - e. Scales, arpeggios, simple chord progressions, and modulations in major and minor keys
3. Conducting
  - a. Command of all standard conducting patterns
  - b. Understanding of technique used with changing meters
  - c. Proper technique for conducting fermatas, attacks, releases, and differing dynamic levels
4. Rhythm
  - a. Performing varied rhythms in simple, compound and combined meters
  - b. Performing varied rhythms in mixed meters
5. Theory, ear-training, and dictation
  - a. Knowledge of all traditional key signatures, major and minor scales, and key relationships
  - b. Understanding of standard musical terms

c. Ability to distinguish all intervals within an octave, the four primary triads, and diatonic seventh chords in minor keys, aurally and visually

d. Ability to take simple melodic and harmonic dictation in familiar keys.

#### CORE CURRICULUM IN MUSIC

The first two years of the Bachelor of Music and the Bachelor of Science in Education (Music Education) programs are essentially the same. Thus, a student who is acceptable to both programs has time to prepare for both degrees or to make an unhurried choice between them.

A suggested quarter-by-quarter schedule of courses can be obtained for the following degree programs and their options from the Department of Music:

- Bachelor of Arts (Music Major)
- Bachelor of Music
  - Performance Option
  - Theory-Composition Option
- Bachelor of Science in Education (Music Major)
  - Vocal Option
  - Instrumental Option
- Master of Music
  - (Performance of Music Education Options)

#### MINIMUM STANDARDS OF ACHIEVEMENT

*For the B.S. in Ed. (Music major) degree:*

1. Primary performance area.\*\*
  - a. At least 12 quarters of private study.
  - b. Completion of the 200 level as determined by jury exam.
  - c. Performance in Student Recital (or sectional) each quarter.
  - d. Performance of at least a half-recital in senior year.
  - e. Private study is required during every quarter the student is enrolled as a music major.
  - f. Participation in a major musical organization on the student's primary instrument.

2. Piano Proficiency (Students for whom piano is the primary performance area will meet requirements under "1" above, and "d" and "e" below).

- a. At least three quarters of class or private study.
- b. Completion of the 100 level is determined at jury exams.

c. Study of "Class or Private Piano" as necessary, until entrance examination for "Keyboard Harmony" can be passed.

3. Voice Proficiency (Students for whom voice is the primary performing area will meet requirements under "1", above).

Non-voice majors may achieve minimum voice proficiency, roughly parallel to the "200" level, in one of the following ways:

- a. Three quarters of Class Voice (I, II, III).
- b. Less than three quarters of Class Voice if minimum voice proficiency is verified in writing by the instructor.
- c. Through regular jury examination to verify that the "200" level has been reached following: precollegiate vocal experience and/or training; or private instruction at collegiate level.

*For the B.M. (Performance major) degree:*

1. Primary performance area.\*\*
  - a. At least 12 quarters of private study at four credits per quarter.
  - b. Completion of the 400 level as determined at jury exams.
  - c. Performance in Student Recital (or sectional) each quarter.
  - d. Performance of a senior recital (junior recital optional).
  - e. Private study required every quarter a student is enrolled as a music major.
  - f. Participation in a major musical organization on the student's primary instrument.
2. Secondary performance area.\*\*
  - a. At least three quarters of private study.
  - b. Completion of the 100 level as determined at jury exams.
3. Piano Proficiency (Students majoring in piano meet requirements under "1" above, and "d" and "e" below).
  - a. At least three quarters of class or private study.
  - b. Completion of the 100 level as determined at jury exams.
  - c. Study of "Class or Private Piano" as necessary, until the entrance examination for "Keyboard Harmony" can be passed.
  - d. Completion of the courses in "Keyboard Harmony."
  - e. Passing the keyboard portion of the General Musicianship Examination.

4. Voice Proficiency (Students for whom voice is the primary performing area will meet requirements under "1", above).

Non-voice majors may achieve minimum voice proficiency, roughly parallel to the "200" level, in one of the following ways:

- a. Three quarters of Class Voice (I, II, III).

\*\*NOTE: Entering students declare their primary performing medium at the time of audition for entrance; it may be changed later (to another instrument, for example), but the minimum standards as given must then be met in the new instrument. At the time of the entrance audition, it will be determined whether entering students are qualified to enter "Keyboard Harmony" and/or "Sight Singing and Ear Training," whether they are prepared to commence private study of piano and/or voice, or should enter "Class Piano" and/or "Class Voice."

b. Less than three quarters of Class Voice if minimum voice proficiency is verified in writing by the instructor.

c. Through regular jury examination to verify that the "200" level has been reached following: precollegiate vocal experience and/or training; or private instruction at collegiate level.

**770: SPEECH PATHOLOGY AND AUDIOLOGY**

*Requirements of all majors:*

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

*Required Departmental courses in the undergraduate, pre-professional program in Communicative Disorders:*

770:135, 136, 137, 270, 276, 278, 353, 355, 457, 471, 472, 473, 474, 475, 476.

As soon as a student has decided to major in any area of Communicative Disorders (Speech Pathology, Language Disorders, or Audiology), he should consult with his adviser to identify requirements related to his goals.

There are required courses in the departments of psychology and biology.

If the student is planning to become a public school speech therapist, with a degree from the College of Fine and Applied Arts, he should consult with his adviser about the required courses.

**780: DEPARTMENT OF SPEECH AND THEATRE ARTS**

*Areas of Concentration:*

**1. General Speech**

This program is designed for the student who may teach speech and theatre arts on the secondary level. The student fulfills his credits from a selection of courses spread over the areas listed below. The "General Speech" area is also for the student who wants general speech training without concentrating in a specific area.

**2. Theatre Arts**

**3. Communication and Mass Media**

**4. Rhetoric and Public Address**

**5. Ballet**

**CORE PROGRAM**

The following "Core" courses are required of all students who will major or minor in Speech and Theatre Arts in the College of Fine and Applied Arts:

	<i>Credits</i>
780:190 Public Speaking/or	3
780:252 Ethical Persuasion	3
780:175 Oral Interpretation I	4
780:261 Introduction to the Theatre	4
780:281 Introduction to Radio/TV	4
780:434 Speech Seminar	4

Total Credits 19

**General Speech**

In addition to the "Core Program" the student must complete a *minimum* of ten (10) credits from each of the three major areas: Theatre Arts, Rhetoric and Public Address, Communication and Mass Media. The remainder of the General Speech program will be carefully chosen from the remainder of the Speech/Theatre Arts curriculum with the consent of the student's adviser.

**Theatre Arts**

<i>First Year</i>		
<i>First Quarter</i>		<i>Credits</i>
110:111 English Composition		4
110:115 Institutions in the U.S.		3
110:108 Effective Speaking		4
375:141 General Psychology/or Foreign Language		5 4
		16
		(or) 15
<i>Second Quarter</i>		
110:112 English Composition		4
110:116 Institutions in the U.S.		3
780:129 Stage Movement		2
770:135 Introduction to Phonetics		4
Foreign Language		4
		17
<i>Third Quarter</i>		
110:205 Types of Literature		4
110:117 Institutions in the U.S.		3
110: *Physical Education		1
770:137 Voice and Articulation		3
Foreign Language		4
		15

\*Suggested courses to choose from: Physical Education: Gymnastics, Folk Dance, Modern Dance, Body Mechanics, or Conditioning.

*Second Year*

<i>First Quarter</i>		<i>Credits</i>
110:221-224 *Science Requirement		3
780:190 Public Speaking/or		3
780:252 Ethical Persuasion		3
780:175 Oral Interpretation I		4
780:261 Introduction to Theatre		4
Foreign Language		3
		17
<i>Second Quarter</i>		
110:221-224 *Science Requirement		3
110:211 Numbers Communication		4
780:265 Basic Stagecraft		4
780:265 Acting		4
Foreign Language		3
		18
<i>Third Quarter</i>		
110:221-224 *Science Requirement		3
710:121 Design		3
780:281 Introduction to Radio/TV		4
Foreign Language or General Psychology		3 or 5
		13 or 15

Lower College Total: (Max.) 98 credits

\*See alternates under General Studies.

*Third and Fourth Years*

1. Theatre Course: 40 credits from the following:

	<i>Credits</i>
780:262 Stage/TV Makeup	3
361 Play Directing	4
362 Advanced Stagecraft	4
364 Introduction to Stage Design	3
367-9 History of Theatre	12
460 Dramatic Criticism	4
461 The Black in American Theatre	3
463 Advanced Acting	4
464 Lighting	3
467 Contemporary Theatre Styles	4
468 Children's Theatre Workshop	4

2. Speech: 8 credits.

780:275 Oral Interpretation II	4
434 Speech Seminar	4

3. General College: 20 credits.

110: Eastern Civilizations	6
317-9 Western Cultural Traditions	12
401 Senior Seminar	2

4. Electives: 26 credits from the following:

330:240 Shakespeare	5
355 Continental Drama	5
363 Pre-Elizabethan Drama	3
364 Jacobean and Caroline Drama	3
365 Restoration and 18th C. Drama	3
442 Modern English and Irish Drama	4
432 Twentieth C. American Drama	4
360:101 Introduction to Philosophy	4
250 Philosophy of Art	4
375:403 Personality	3
400 Abnormal Psychology	5
710:180-2 History of Art Survey	9
740:317 Historic Costume	4
750:301 Music Appreciation: Early Baroque (to 1750)	2
302 Music Appreciation: Classical and Romantic (late 18th & 19th C)	2
303 Music Appreciation: Music of our Times (20th C.)	2
780:288 Communication Media: Film	4

Upper College Total: 94  
Four Year Total: 192

*Third Quarter*

	<i>Credits</i>
110:205 Types of Literature	4
110:117 Institutions in the U.S.	3
110: Physical Education	1
780:281 Introduction to Radio/TV	4
780: *Speech Elective	+3
	15

\*Speech Electives for the First Year 780:190 Public Speaking (3) and 780:252 Ethical Persuasion (3).

*Second Year*

	<i>Credits</i>
<i>First Quarter</i>	
110:221-224 *Science Requirement	3
780:175 Oral Interpretation I	4
780:261 Introduction to the Theatre	4
780:282-288 **Communication Media Foreign Language	4
	19

*Second Quarter*

110:221-224 *Science Requirement	3
110:211 Numbers Communication	4
780:245 Argumentation and Debate	3
780:282-288 **Communication Media Foreign Language	4
	18

*Third Quarter*

110:221-224 *Science Requirement	3
780:262 Stage/TV Makeup	3
780:282-288 **Communication Media Foreign Language	4
780:392 Contemporary Speeches Foreign Language	4
	17

\*See alternates under General Studies.

\*\*Take 282 Communication Media: Radio, or 283 Communication: TV before you take 288 Communication Media: Film.

Lower College Total: 100 credits maximum

**Communication and Mass Media**

*First Year*

	<i>Credits</i>
<i>First Quarter</i>	
110:111 English Composition	4
110:115 Institutions in the U.S.	3
110:108 Effective Speaking	4
375:141 General Psychology	5
	16

*Second Quarter*

110:112 English Composition	4
110:116 Institutions in the U.S.	3
110: Physical Education	1
770:135 Introduction to Phonetics	4
780: *Speech Elective	3
	15

*Third and Fourth Year*

Speech Courses: 25 credits from the following or other courses approved by the department:

780:275 Oral Interpretation II	4
384 Speech-Communication Research I	4
454 Group Processes	4
481 Persuasion and Propaganda and Propaganda Analysis	3
490 Introduction to Analysis of Public Discourse	4
434 Speech Seminar	4

2. The second year of a foreign language should be taken in the third year:

3. Theatre Arts: 8 credits

780:265 Basic Stagecraft	4
467 Contemporary Theatre Styles	4

	<i>Credits</i>
<b>4. General College: 20 credits.</b>	
110: Eastern Civilizations	6
317-9 Western Cultural Traditions	12
401 Senior Seminar	2
<b>5. Electives: 30 credits, from the following:</b>	
330:460 Theory of Rhetoric	3
780:203 Radio/TV News Writing	3
360:101 Introduction to Philosophy	4
360:170 Introduction to Logic	4
370:100 Government & Politics in U.S.	5
370:110 Civil Liberties in America	3
370:120 Current Policy Issues	3
370:340 American Political Parties	5
370:440 Public Opinion and Political Behavior	3
375:145 Quantitative Methods in Psychology	4
375:160 Industrial Psychology	4
375:315 Social Psychology	4
385:100 Introduction to Sociology	5
385:336 Social Change	4
385:427 Racial & Cultural Intergroup Relations	4
385:431 Social Interaction	4
650:263 Production Organization	3
650:350 Personnel Management	3
650:352 Management Training and Development	3
770:136 Bases of Speech	4
770:278 Psychology of Speech	4
Upper College Total: 92 credits	
Four Year Total: 192 credits	

**Rhetoric and Public Address**

<i>First Year</i>	
<i>First Quarter</i>	
110:111 English Composition	<i>Credits</i> 4
110:115 Institutions in the U.S.	3
110:108 Effective Speaking	1
110: Physical Education	1
Foreign Language (or) Cognate Elective	4
	16
<i>Second Quarter</i>	
110:112 English Composition	4
110:116 Institutions in the U.S.	3
780:252 Ethical Persuasion	3
780:131 Public Speaking	3
Foreign Language (or) Cognate Elective	4
	17
<i>Third Quarter</i>	
110:205 Types of Literature	4
110:117 Institutions in the U.S.	3
110: Physical Education	1
780:175 Oral Interpretation I	4
Foreign Language (or) Cognate Elective	4
	16
<i>Second Year</i>	
<i>First Quarter</i>	
110:221-224 *Science Requirement	<i>Credits</i> 3
780:245 Argumentation and Debate	3

	<i>Credits</i>
780:261 Introduction to the Theatre	4
Foreign Language (or) Cognate Elective	3
780: Speech Elective	3
	16
<i>Second Quarter</i>	
110:221-224 *Science Requirement	3
110:211 Numbers Communication	4
780:281 Introduction to Radio/TV	4
Foreign Language (or) Cognate Elective	3
780: Speech Elective	3
	17
<i>Third Quarter</i>	
110:221-224 *Science Requirement	3
780:344 Public Discussion	4
Foreign Language (or) Cognate Elective	3
780:392 Contemporary Speeches	3
Cognate Elective	4
	17
Lower College Total: 99 credits	

*Third and Fourth Years***1. Speech Courses: 30 credits from the following:**

<i>First Quarter</i>	<i>Credits</i>
780:190 or 132 (whichever course not taken in Core)	3
141 Intercollegiate Debate	1
	(repeat to 4)
145 Oral Argument	2
275 Oral Interpretation II	3
384 Speech Communication Research I	3
454 Group Processes & Conference Leadership	4
481 Persuasion & Propaganda Analysis	3
490 Introduction to Analysis of Public Discourse	4
434 Speech Seminar (Required in Core)	4

**2. General College: 20 credits.**

<i>Second Quarter</i>	<i>Credits</i>
110: Eastern Civilization	6
317-9 Western Cultural Traditions	12
401 Senior Seminar	2

\*See alternates under General Studies.

**3. Speech and Cognate Electives: 43 credits.****a. Speech and Theatre Arts**

780:265 Basic Stagecraft	4
282 Communications Media: Radio	4
283 Communications Media: Television	4
288 Communications Media: Film	4
467 Contemporart Theatre Styles	4

**b. Cognate Areas:**

325:201-202 Principles of Economics	(per qtr.) 4
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	<i>Credits</i>
330 Labor Problems	4
432 The Economics & Practices of Collective Bargaining	4
330:460 Theory of Rhetoric	3
340:203 U.S. History, 1898 — present	4
220 History of the Black People in U.S.	4
334 Social & Cultural History of U.S.	3
426 Civil War	3
360:101 Introduction to Philosophy	4
170 Introduction to Logic	4
211 History of Ancient Philosophy	4
223 Value Theory	4
370:100 Government & Politics in U.S.	5
110 Civil Liberties in America	3
120 Current Policy Issues	3
440 Public Opinion and Political Behavior	3
375:141 General Psychology	5
145 Quantitative Methods in Psychology	4
160 Industrial Psychology	4
315 Social Psychology	4
385:100 Introduction to Sociology	5
336 Social Change	4
427 Racial & Cultural Intergroup Relations	4
431 Social Interaction	4
387:461 Language and Culture	3
650:263 Production Organization	3
350 Personnel Management	3
352 Management Training & Development	3
372 Management - Organization and Behavior	3
770:135 Introduction to Phonetics	4
136 Bases of Speech	4
137 Voice and Articulation	3
278 Psychology of Speech	4
Upper College Total:	93 credits
Four Year Total:	192 credits

**Certification to Teach Speech and Theatre Arts — Secondary Education.**

**a. Courses Required of Majors and Minors**

	<i>Credits</i>
780:190 Public Speaking	3
252 Ethical Persuasion	3
175 Oral Interpretation I	4
770:135 Introduction to Phonetics	4
136 Bases of Speech	4
780:261 Introduction to Theatre	4
245 Argumentation and Debate	3
281 Introduction to Radio & TV	4
780: Electives (to be selected from courses below)	7
	<hr/> 36

**b. Required of Majors**

780:434 Speech Seminar	3
468 Children's Theatre Workshop	3
or	
361 Play Directing	4
	<hr/> 7

**c. Recommended for Majors (Elect a minimum of eight credits):**

770:137 Voice and Articulation	3
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	<i>Credits</i>
780:145 Oral Argument	3
265 Basic Stagecraft	4
770:270 Introduction to Speech Disorders	4
780:344 Public Discussion	3
	<hr/> 16
Grand Total	59

**d. Required Education Courses:**

510:156 Education in American Society	3
565:157 Human Development and Learning	4
530:200 Exploratory Experiences in Secondary Schools	1
530:310 Principles of Secondary Education	3
530:311 Instructional Techniques in Secondary Schools	4
510:350 Tests and Measurements	3
510:401 Problems in Education	4
515:402 Student Teaching	12
515:403 Student Teaching Seminar	2

**e. Other Required Courses:**

375:141 General Psychology	5
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**Ballet at The University of Akron**

The College of Fine and Applied Arts, through its Department of Speech and Theatre Arts, offers academic work toward the four year B.A. degree with emphasis on Ballet.

In addition to courses in the major area of Ballet, the student must complete the required curriculum of General Studies courses plus two years of a foreign language.

*Admission to The University of Akron Ballet program is by audition only.*

The following is the four year schedule for a performance major in Ballet:

		<i>Credits</i>
<i>First Year</i>		
<i>First Quarter</i>		
110: Physical Education		1
110:111 English Composition		4
110:115 Institutions in the United States		3
780:122 Ballet Technique I		3
780:123 Ballet Laboratory		1
780:125 Exploring Sound for Choreography		2
Elective		1
		<hr/> 15
<i>Second Quarter</i>		
110: Physical Education		1
110:112 English Composition		4
110:116 Institutions in the United States		3
780:122 Ballet Technique I		3
780:123 Ballet Laboratory		1
780:125 Exploring Sound for Choreography		2
Electives		2
		<hr/> 16
<i>Third Quarter</i>		
110:108 Effective Speaking		4
110:117 Institutions in the United States		3

	<i>Credits</i>		<i>Credits</i>
780:122 Ballet Technique I	3	780:324 Ballet Repertory	2
780:123 Ballet Laboratory	1	780:325 Exploring Sound for Choreography	2
780:125 Exploring Sound for Choreography	2	Language Requirement	4
780:261 Introduction to Theatre	4		<hr style="width: 100%;"/>
	<hr style="width: 100%;"/>		15
	17		
<i>Second Year</i>		<i>Fourth Year</i>	
<i>First Quarter</i>		<i>First Quarter</i>	
110:221-224 *Science Requirement	3	110:330-335 Eastern Civilization Requirement	3
110:211 Numbers Communication	4	Elective	3
780:222 Ballet Technique II	3	750:301 Music Appreciation, Early and Baroque	2
780:225 Exploring Sound for Choreography	2	780:422 Ballet Technique IV	3
780:226 Dance Composition	2	780:426 Techniques of Teaching Ballet	3
Elective	4	Language Requirement	3
	<hr style="width: 100%;"/>		<hr style="width: 100%;"/>
	18		17
<i>Second Quarter</i>		<i>Second Quarter</i>	
110:205 Types of Literature	4	110:330-335 Eastern Civilization Requirement	3
110:221-224 *Science Requirement	3	Elective	3
780:222 Ballet Technique II	3	750:302 Music Appreciation, Classical and Romantic	2
780:225 Exploring Sound for Choreography	2	780:422 Ballet Technique IV	3
780:226 Dance Composition	2	780:423 History of the Dance	2
Elective	4	Language Requirement	3
	<hr style="width: 100%;"/>		<hr style="width: 100%;"/>
	18		16
<i>Third Quarter</i>		<i>Third Quarter</i>	
110:221-224 *Science Requirement	3	110:401 Senior Seminar	2
780:222 Ballet Technique II	3	Elective	3
780:225 Exploring Sound for Choreography	2	750:303 Music Appreciation, Music of Our Times	2
780:226 Dance Composition	2	780:422 Ballet Technique IV	3
Elective	4	780:424 Modern Dance Seminar	3
	<hr style="width: 100%;"/>	Language Requirement	3
	14		<hr style="width: 100%;"/>
			16
<i>Third Year</i>		<i>Suggested Electives:</i>	
<i>First Quarter</i>		780:262 Stage and Television Makeup	3
110:317 Western Cultural Traditions	4	780:266 Acting	4
780:322 Ballet Technique III	3	780:439 Speech and Theatre Arts Practicum	1-18
780:324 Ballet Repertory	2	780:464 Stage Lighting	3
780:325 Exploring Sound for Choreography	2		
Language Requirement (French preferred)	4		
	<hr style="width: 100%;"/>	<i>Ballet Faculty:</i>	
	15	Mr. Heinz Poll, Director and Choreographer	
<i>Second Quarter</i>		Miss Valerie Grieg	
110:318 Western Cultural Traditions	4	Mrs. Juli Nunlist	
780:322 Ballet Technique III	3	<i>Address all inquiries to:</i>	
780:324 Ballet Repertory	2	Dr. James F. Dunlap, Head	
780:325 Exploring Sound for Choreography	2	Department of Speech & Theatre Arts	
Language Requirement	4	The University of Akron	
	<hr style="width: 100%;"/>	Akron, Ohio 44304	
	15		
<i>Third Quarter</i>			
110:319 Western Cultural Traditions	4		
780:322 Ballet Technique III	3		

\*See alternates under General Studies.

AN UPPER COLLEGE:

## *The College of Nursing*

Estelle B. Naes, Ph.D., *Dean*

### OBJECTIVES

The purpose of the College of Nursing is to further the objectives of The University of Akron by providing a quality program of collegiate education in nursing. The specific objectives of the program are to develop a person who is able to

command the segments of a variety of fields and types of knowledge basic to a rational approach to the whole ambit of human life and living,

acquire the functional knowledge and skills necessary to assess, to plan, to give, and to evaluate professional nursing care in a variety of situations including the hospital, the home, and the community,

assume the responsibilities of a nurse practitioner in beginning positions in nursing,

integrate fields of knowledge which may serve as a core for further growth and graduate study in a specialized area of nursing.

The College recommends each student for the bachelor's degree in accordance with his level of accomplishment.

The first four-year basic collegiate program leading to a Bachelor of Science Degree with a major in Nursing was established in 1966. In 1967, the Department of Nursing was elevated to a College of Nursing.

The Program in nursing is approved by the State of Ohio Board of Nursing Education and Nurse Registration. The College of Nursing is accredited by the National League for Nursing.

Graduates of the College of Nursing are prepared to enter all essential areas of professional nursing, including community health nursing. Graduates are eligible for state examination for licensing as Registered Nurses.

The curriculum is designed to include a balance of general and professional education so coordinated that the contributory general studies courses are prerequisite to or concurrent

with the professional nursing courses. The courses in nursing follow a logical sequence, each utilizing all previous learning, synthesizing and focusing this learning through applications in clinical nursing practice. The curriculum is complete with experiences that prepare graduates for competencies in professional nursing. The program of studies provides a foundation for continuous personal development and for graduate study in nursing.

### REQUIREMENTS FOR ADMISSION AND CONTINUATION IN THE PROGRAM

Applicants are expected to meet the general University admissions requirements.

Transfer students may receive credit for quality work earned in approved colleges. Registered nurses who received their preparation in hospital or associate degree programs may qualify for placement in the nursing concentration by examination. Examinations may be taken after the completion of the course requirements of the freshman year. Enrollment of transfer students is contingent upon University facilities.

In order to be accepted for enrollment in the sophomore course 820:273 *General Nursing* in the fall quarter of the sophomore year, students in the track of nursing must receive written approval from the Dean of the College of Nursing; complete a minimum of forty-eight (48) credits with a cumulative 2.0 (C) quality point ratio; and maintain a 2.0 (C) quality point ratio or higher in the courses prerequisite to 820:273 *General Nursing*.

All students are required to have a complete physical examination before the fall enrollment in the sophomore, junior and senior years. The physical examination includes prescribed laboratory tests, x-rays and immunization for smallpox, diphtheria, typhoid, tetanus, polio and measles.

Students who complete the courses prescribed by the General College and the

College of Nursing and who are enrolled in the third quarter of the sophomore year with a quality point ratio of 2.0 (C) or above are eligible to transfer to the College of Nursing.

Acceptance of the student in the College of Nursing is the responsibility of the Dean, in consultation with the Dean of the General College and heads of the departments concerned.

Students are responsible for their transportation to and from the institutions and agencies used for educational experiences. A valid driver's license and the use of an automobile are mandatory during the senior nursing courses.

### REQUIREMENTS FOR GRADUATION

1. File an application with the Registrar in the final academic year. (Refer to current *Schedule of Classes Bulletin* for date).

2. Complete a minimum of 195 credits toward the degree and earn a minimum of 2.0 quality point ratio for all collegiate work attempted, including work taken at accredited institutions other than The University of Akron. For all work attempted in the major field at The University of Akron and in other accredited institutions, a minimum of 2.0 quality point ratio is required.

3. Other institutional requirements including residence requirements are listed elsewhere in this *Bulletin*.

### PROGRAM OF STUDIES

<i>Freshman Year</i>		
<i>First Quarter</i>		<i>Credits</i>
110:111 English Composition	4	
345:140-155 Modern University Mathematics	4	
110:115 Institution in U.S.	3	
315:129 General Chemistry	4	
110: Physical Education	1	
	<hr/>	16
<i>Second Quarter</i>		
110:112 English Composition	4	
375:141 General Psychology	5	
110:116 Institutions in U.S.	3	
315:130 General Chemistry	4	
110: Physical Education	1	
	<hr/>	17
<i>Third Quarter</i>		
385:100 Introduction to Sociology	5	
110:117 Institutions in U.S.	3	
315:131 General Chemistry	4	

	<i>Credits</i>
110:108 Effective Speaking	4
	<hr/>
	16
Total Credits for Freshman Year 49	

<i>Sophomore Year</i>		
<i>First Quarter</i>		<i>Credits</i>
375:151 Developmental Psychology	5	
310:361 Human Anatomy and Physiology	4	
310:207 Principles of Microbiology	4	
820:273 General Nursing	4	
	<hr/>	17

<i>Second Quarter</i>		
110:205 Types of Literature	4	
820:274 General Nursing	6	
310:362 Human Anatomy and Physiology	4	
	<hr/>	14

<i>Third Quarter</i>		
360:170 Introduction to Logic	4	
820:275 General Nursing	6	
310:448 Human Genetics	3	
Elective (Social Science)	4	
	<hr/>	17
Total Credits for Sophomore Year 48		

<i>Junior Year</i>		
<i>First Quarter</i>		<i>Credits</i>
110:317 Western Cultural Traditions	4	
820:321 Adult Nursing	7	
820:331 Maternal-Child Nursing	7	
	<hr/>	18
<i>Second Quarter</i>		
110:318 Western Cultural Traditions	4	
820:322 Adult Nursing	7	
820:332 Maternal-Child Nursing	7	
	<hr/>	18
<i>Third Quarter</i>		
110:319 Western Cultural Traditions	4	
820:323 Adult Nursing	7	
820:333 Maternal-Child Nursing	7	
	<hr/>	18
Total Credits for Junior Year 54		

<i>Senior Year</i>		
<i>First Quarter</i>		<i>Credits</i>
110: Eastern Civilizations	3	
820:341 Community Nursing (Psychiatric Aspects)	10	
Elective	3	
	<hr/>	16

<i>Second Quarter</i>		<i>Credits</i>
110:	Eastern Civilizations	3
820:451	Community Nursing (Health and Welfare Teams)	10
	Elective	2
		<hr/>
		15

<i>Third Quarter</i>		
110:401	Senior Seminar	2
820:461	Issues in Nursing	3
820:471	Seminar in Nursing	8
		<hr/>
		13

Total Credits for Senior Year 44  
Total Credits 195

### AGENCIES

The agencies cooperating in providing the laboratory experiences for students in the courses in nursing are:

Akron City Hospital  
Akron General Medical Center  
Fallsview Mental Health Center  
The Children's Hospital of Akron  
The City of Akron, Department of Public Health  
Visiting Nurse Service of Summit County  
Barberton Citizens Hospital

# ***Interdisciplinary Programs of Study***

(Non-Degree)

In order to add to the dimensions of the traditional disciplines, the University has established five interdisciplinary and interdepartmental programs of study. In addition to his major the student may elect to pursue one of these programs which will add a dimension of depth through concentrated work focusing on Afro-American Studies, Environmental Studies, Peace Studies, Latin American Studies, or Soviet Area Studies.

Although these programs do not lead to the award of a degree, successful completion is recognized by awarding a certificate at graduation and/or the inclusion of a statement of completion on the student's Academic Record.

Further information may be obtained from the following:

Dr. Lascelles F. Anderson, Director of Afro-American Studies

Dr. Glenn A. Atwood, Associate Professor of Chemical Engineering, (regarding Environmental Studies)

Dr. Warren Kuehl, Director of the Center for Peace Studies

Dr. Donald Metzger, Program Coordinator of Latin American Studies

Dr. Theodore Mackiw, Program Coordinator of Soviet Area Studies

## **CERTIFICATE PROGRAM IN AFRO-AMERICAN STUDIES**

### **CERTIFICATE REQUIREMENTS**

To satisfy the requirements for the Certificate in Afro-American Studies a regularly enrolled student at The University of Akron must complete at least 16 quarter credits and at least four courses successfully (2.0 grade point average or better) from the list of courses published as acceptable and from other courses identified by the Director of Afro-American Studies as appropriate to the subject, among which four courses must be 340:220 *History of the Black People of the United States* and 1010:401 *General Seminar in Afro-American Studies* in which a research paper in Afro-American Studies will be written. The Certificate in Afro-American Studies will be awarded at the time a student earns a baccalaureate degree.

### **RESEARCH PAPER**

The research paper will be written under the

direction of a faculty member most suitable to the area of concern of the student's research interest, and shall be one quarter in duration, and shall be approved by that faculty member. The Director of Afro-American Studies in consultation with the faculty member will approve the topic for the research paper.

### **CONSULTATION WITH THE DIRECTOR**

Students undertaking the Afro-American Studies Certificate Program must have prior consultation with the Director of Afro-American Studies.

### **ACCEPTABLE COURSES**

The following is a list of courses acceptable for the Certificate in Afro-American Studies:

	<i>Credits</i>
110:335 Eastern Civilizations: Africa	3
202:254 The Black American	2
325:486 Ghetto Economic Development	4
330:338 Black American Literature	4
340:220 History of the Black People of the United States	4
370:327 African Politics	4
385:427/527 Racial and Cultural Intergroup Relations	4
386:270 Poverty in the Inner City	4
386:276 Introduction to Social Welfare	5
780:461 The Black in American Theatre	3
1010:401 General Seminar in Afro-American Studies	4

### **STUDENT'S MAJOR**

The student will major in one of the traditional disciplines, but the area concentration is meant to add a further dimension of depth through concentrated work focusing on the Afro-American experience.

## **CERTIFICATE PROGRAM IN ENVIRONMENTAL STUDIES**

### **ENTRANCE REQUIREMENTS**

To qualify for the Certificate Program, a student must be in good academic standing with his major department and submit to the director a written request for admission to the program. The request will outline the student's reasons and goals for enrolling in the program.

**COURSE REQUIREMENTS**

The undergraduate student will take a minimum of six courses from a list approved by the Committee on Environmental Studies. Two of these courses will be 1030:201 and 1030:401.

The student will be required to select courses from areas other than his major since the purpose of the program is to broaden his background. It is expected that he will select courses from at least two disciplines.

The student's plan of study for this certificate will be developed in consultation with his Environmental Studies Adviser and if the adviser is other than the Environmental Studies Director, will be approved by the Director.

An interdisciplinary research paper or project is required of all students in the program. The paper or project will be undertaken in conjunction with the Environmental Seminar.

**Courses for the Environmental Studies Certificate**

	<i>Credits</i>
310:271 General Ecology	4
310:421 Environmental Conservation	4
310:425 Population Ecology	4
310:427 Limnology	4
310:428 Applied Aquatic Ecology	4
335:415 Geography of Water Resources	3
335:314 Climatology	3
335:418 Geography of Vegetation and Soils	3
335:336 Urban Land Use Analysis	3
335:435 Geography of Recreational Resources	3
337:434 Ground Water Hydrology	4
337:200 Geology and the Environment	3
337:465 Urban Geology	4
375:450 Environmental Psychology	4
385:320 Population	4
385:321 Population Trends and Demographic Analysis	4
385:435 Sociology of Urbanization	4
420:463 Air Pollution Control	3
420:464 Water Pollution Control	3
430:321 Environmental Engineering I	3
430:322 Environmental Engineering II	3
430:425 Environmental Engineering Lab	3
430:426 Environmental Engineering Design	3
580:439 Workshop in Physical Science	1-4
1030:201 Man and the Environment	3
1030:401 Seminar in Environmental Studies	3

**CERTIFICATE PROGRAM IN PEACE STUDIES**

**CERTIFICATE REQUIREMENTS**

To satisfy the requirements for a Certificate in Peace Studies, a regularly enrolled undergraduate student at The University of Akron must complete at least 22 credits from the list of courses approved as acceptable. These must be distributed so that work will be included from three separate departments.

The courses 340:340 *Peace, War and Mankind* and 1060:301 *Value Concepts on Peace and War* are required for everyone in the program. Where specialized training is relevant to a particular student's interest, alternatives to those on the list of acceptable courses may be approved by the Director.

**RESEARCH PAPER OR PROJECT**

A paper or project is to be completed. This will be done in conjunction with one of the 300 or 400 level courses chosen and in consultation with the instructor involved.

**CONSULTATION WITH THE DIRECTOR**

Students undertaking the Peace Studies Certificate Program must have prior consultation with the Director of the Center for Peace Studies.

**ACCEPTABLE COURSES**

The following courses are acceptable for the Certificate in Peace Studies:

	<i>Credits</i>
325:460/560 Economic Development and Planning for Underdeveloped Countries	4
325:450 Comparative Economic Systems	4
325:461 Principles of International Economics	4
340:340 Peace, War and Mankind	3
340:340 Peace, War and Mankind	3
340:407/507 Diplomatic History of the United States 1776-1919	4
340:408/508 Diplomatic History of the United States 1914-Present	4
340:412/512 History of International Organization	3
340:412/512 History of International Organization	3
340:494/594 U. S. Latin American Relations	5
370:220 American Foreign Policy	4
370:310 International Politics	5
370:312 International Organizations	3
370:410/510 International Law	3
370:415/515 Comparative Foreign Policy	3
387:150 Cultural Anthropology	5
660:330 International Marketing	4
1060:301 Value Concepts on Peace and War	4

**STUDENTS' MAJOR**

The student will major in one of the traditional disciplines, but the area concentration is meant to add a further dimension of depth through concentrated work focusing on Peace Studies.

**LATIN AMERICAN STUDIES PROGRAM**

Students in the Latin American Studies Program will major in their respective disciplines (economics, geography, history, political science, sociology and Spanish).

In addition to the requirements of their major, they will take 18 credits in three separate disciplines with a concentration in the area of Latin American Studies.

**POLITICAL SCIENCE**

370:325 Latin American Politics

*Credits*

4

**HISTORY**

340:490/590 Colonial Latin American

3

340:491/591 Latin America, Nineteenth Century

3

340:492/592 Republics of Latin America,  
Twentieth Century

4

340:494/594 U.S.—Latin American Relations

5

340:496/596 History of Mexico

5

**GEOGRAPHY**

335:353 Northern Latin America

3

335:354 Southern Latin America

3

**SOCIOLOGY (Anthropology)**

387:256 New World Prehistory

4

387:257 Indians of South America

4

**ECONOMICS**325:460/560 Economic Development and Planning  
for Underdeveloped Countries

4

They will also study three years of Spanish or the equivalent.

At the completion of the program there will be recorded on the student's permanent record a statement that he has a concentration in the area of Latin American Studies.

**SOVIET AREA STUDIES PROGRAM**

Students in the Soviet Area Studies Program will major in their respective disciplines (economics, geography, history, philosophy, political science and Russian).

In addition to the requirements of their major, they will take 17 credits in three or more separate disciplines with a concentration in the area of Soviet Studies.

**ECONOMICS**

325:450 Comparative Economic Systems

*Credits*

4

**GEOGRAPHY**

335:358 USSR.

3

**HISTORY**

340:458/558 Russian to 1725

3

340:459/559 Russia in the Eighteenth and  
Nineteenth Centuries

3

340:460/560 Russia in the Twentieth Century

3

**POLITICAL SCIENCE**

370:200 Comparative Politics

5

370:322 Soviet and East European Politics

5

They will also study 3 years of Russian or the equivalent.

At the completion of the program there will be recorded on the student's permanent record a statement that he has a concentration in the area of Soviet Studies.



## *Advanced Study*

### THE GRADUATE SCHOOL AND THE SCHOOL OF LAW

Qualified students who have completed their baccalaureate programs with sufficiently high standings may continue their studies through the University's Graduate School in programs leading to the Master's degree as well as to the Doctor's degree. Undergraduate students who qualify may enroll in certain graduate level classes and apply the credits earned to the total required for the baccalaureate degree. To receive Graduate credit for the courses, however, students must be admitted to the Graduate School.



## ***The Graduate School***

Edwin L. Lively, Ph.D.,  
*Dean of Graduate Studies and Research*  
 Joseph M. Walton, Ph.D.,  
*Assistant Dean of Graduate Studies*

### **OBJECTIVES**

The purpose of the Graduate School is to further the objectives of The University of Akron by providing a quality program of graduate education and to pursue the following aims:

To offer advanced courses in various fields of knowledge beyond the baccalaureate level.

To offer students opportunities to develop and apply research techniques and to use the resources appropriate to their graduate programs.

To contribute to the advancement of knowledge for the benefit of mankind through the efforts of its faculty and students.

The Graduate Faculty recommends students who have been nominated by the student's college faculty for the appropriate master's or doctor's degree.

### **HISTORY OF THE GRADUATE SCHOOL**

Graduate study at The University of Akron began a few years after Buchtel College opened its doors, and the first earned Master's Degree was conferred in 1882. The College of Education awarded its first Master's Degree in 1924, and the Colleges of Engineering and Business Administration in 1959. The first earned Doctor's Degrees were also conferred in 1959. Professor Charles Bulger was appointed first Dean of Graduate Work in 1933, and he continued in that capacity until 1950. Professor Ernest H. Cherrington, Jr., served as Director of Graduate Studies from 1955 to 1960 and as Dean of the Graduate Division from its establishment in 1960 to 1967. Dr. Arthur K. Brintnall was appointed Dean of Graduate Studies and Research in 1967, being succeeded in 1968 by Dr. Edwin L. Lively.

The Graduate School offers programs of advanced study leading to the degrees of Doctor of Philosophy in Chemistry, History, Polymer Science, Psychology, (Experimental or Industrial), Education (Elementary, Secondary, and Guidance and Counseling), and Engineering. The Doctor of Education degree is offered in Educational Administration. The Doctor of Philosophy program in Sociology has been approved for planning purposes by the Ohio Board of Regents, and it is expected to admit students in September, 1973. This is a joint program with Kent State University.

The Graduate School also offers programs of study leading to the Master's Degree with majors in the following areas: Accounting, Biology, Business Administration, (Accounting, Finance, International Business, Management and Marketing), Chemical Engineering, Chemistry, Civil Engineering, Earth Science, Economics, Education, (Elementary, Secondary, Elementary or Secondary School Principal, School Supervisor, Local Superintendent, Guidance, Counseling, Special Education, Visiting Teachers, Reading Specialist, Teaching Culturally Disadvantaged, and Employment Counseling), Electrical Engineering, Engineering, English, French, Geography, History, Management, Mathematics, Mechanical Engineering, Music, Philosophy, Physics, Political Science, Polymer Science, Psychology, Sociology, Spanish, Speech and Theatre Arts and Speech Pathology and Audiology, Statistics, Technical Education and Urban Studies. In addition, the College of Education provides sixth year programs offering a year of study beyond the Master's degree in School Supervision, Guidance, and School Psychologist.

Several other departments offer a limited amount of work which may be taken on the graduate level. Such courses may supplement the major program of study and may constitute the minor subject for students who do not devote their entire attention to one field.

The administrative functions of the Graduate School include establishment of suitable entrance requirements, admission of

qualified students, maintenance of high-quality instruction, and provision of minimum requirements for advanced degrees.

### GRADUATE FACULTY

The Graduate Faculty is comprised of those members of the faculty who hold full-time appointments at the rank of assistant professor or above and teach graduate courses, supervise theses and dissertations, and are generally responsible for the graduate programs in the University. They are appointed by the Dean of Graduate Studies and Research after recommendation by the Department, College Dean, and Graduate Council. Guidelines for recommendation and appointment include:

- a. Quality and experience in upper-level and graduate-level teaching.
- b. Possession of terminal degree in field.
- c. Scholarly publication record.
- d. Activity in research.
- e. Activity in profession or discipline.

The purpose of the Graduate Faculty is to encourage and contribute to the advancement of knowledge through instruction and research of highest quality, and to foster a spirit of inquiry and a high value on scholarship throughout the University.

### THE GRADUATE COUNCIL

Academic programs and policies of the University's Graduate School are recommended by the Graduate Council which is elected by the Graduate Faculty. Membership in the Council presently includes two members from the College of Engineering, two members from the College of Business Administration, two members from the College of Education, four members from the Buchtel College of Arts and Sciences, and two members from the College of Fine and Applied Arts. Members serve three-year terms and may not succeed themselves. The Dean of Graduate Studies and Research serves as Chairman of both the Graduate Faculty and the Graduate Council.

The functions of the Council include examination of proposed graduate programs and course offerings, recommendation of policy for all phases of graduate education, recommendation of persons for membership in the Graduate Faculty and advising and counseling the Dean in administrative matters.

### THE NATURE OF GRADUATE EDUCATION

The purpose of the Graduate School is to further the objectives of The University of Akron by providing a quality program of graduate education and to pursue the following aims:

To offer advanced courses in various fields of knowledge beyond the baccalaureate level.

To offer students opportunities to develop and apply research techniques and to use the resources appropriate to their graduate programs.

To contribute to the advancement of knowledge for the benefit of mankind through the efforts of its faculty and students.

The Graduate School provides properly qualified students with the graduate education which they may require for the full development of their scholarly and professional capacities, subject to the criteria that all such programs are determined to be feasible.

Graduate education involves the extension of knowledge. However, it is by no means a mere continuation of undergraduate study. At its best, graduate education is characterized by able and enthusiastic advanced students who join faculty leaders to form a community of scholars dedicated to the common pursuit of truth. Critical analysis, independence of thought, originality of method, intensity of purpose, freedom from bias, thoroughness of inquiry, keenness of perception, and vital creativity combine to produce in the successful student both the professional competence and the breadth of understanding essential to leadership in all areas of human endeavor.

### GRADUATE SCHOOL REGULATIONS

A student assumes full responsibility for knowing the regulations and pertinent procedures of the Graduate School as set forth in this *Bulletin*. Normally, the degree requirements in effect at the time a student is admitted to a program will apply through graduation. Additional information pertaining to his own program can be obtained from the appropriate department head.

## ADMISSION

Applications for Admission to the Graduate School must be filed in the office of the Dean not less than six weeks before registration. Each application must be accompanied by an application fee of \$20.00 (unless previously paid). This fee is not refundable under any circumstances. Payment must be made by check or money order payable to The University of Akron.

An official transcript from *each* college or university attended must also be received by the Graduate School before the application will be processed. This applies to the complete academic record, both undergraduate and graduate. Transcripts should be sent from the institutions attended directly to the Graduate School. The applicant is responsible for seeing that the above conditions are met by the deadlines for filing of application. No follow-up procedures are undertaken by the Graduate School.

All records, including academic records from other institutions, become part of the official file and cannot be returned for any purpose. A student should obtain an additional copy of his official credentials to keep for advisory purposes and other personal requirements.

An offer of admission will normally be made to an applicant who meets all admission requirements. However, it must be recognized that staff, facilities, and other resources are limited so the number than can be accepted will vary with departments and from term to term. With the exception of foreign students, an accepted applicant may begin his graduate work in the fall, winter, spring, or summer. The offer of admission is void, however, if the applicant does not register for courses within two years from the time of admission. An individual whose offer of admission has lapsed must submit a new application and transcript(s) to be reconsidered for admission.

Students are admitted only for the purpose or objective stated on the application for admission. A new request for admission must be filed when the original objective has been attained or when the student wishes to change his objective. The admitted status terminates when the time limits have been exceeded or other conditions for continued admitted status have not been met.

Every person who desires to enroll in or audit any graduate course or receive any graduate credit must be admitted or approved by the Graduate School. The admitted status of

all students is continued at the discretion of the major professor, the department of program director, and the Graduate School. No student will be admitted without the approval of and acceptance into a department of the University. This does not necessarily imply admission to or candidacy for any graduate degree program of that department. Admission for graduate study in any program can only be granted by the Dean of Graduate Studies and Research and his staff.

## CLASSIFICATION

Students are identified by the Graduate School as being in one of the following categories. Any change must be arranged through the Graduate School.

*Full Admission* may be given to any applicant who desires to work for a graduate degree and has a baccalaureate degree from an accredited college or university with an overall grade-point average of 2.75 or better or 3.0 for the last two years (96 quarter credits or equivalent) or; holds an advanced degree from an accredited college or university in or appropriate to the intended field, or; holds a baccalaureate or master's degree from a foreign college or university with First Class standing or its equivalent, plus satisfactory evidence of competence in English, or; has Special Admission and has completed at least 18 credits at The University of Akron at the graduate level with a grade-point average of 3.00 or better in intended major field, or; has been Deferred and has completed a specified program in the intended major at the post-baccalaureate level with a 3.00 or better grade-point average.

*Special Admission* may be given to persons who do not qualify for full admission under the criteria above but for whom there is reason to believe they can successfully complete a graduate program. Department Heads may recommend persons for special admission by attaching a statement to their recommendation elaborating their reasons. Persons admitted as Special Students must reapply for change in status and must be judged in accordance with the requirements for the new status.

*Special Non-Degree Admission* may be given to persons seeking to take particular courses but not working toward a degree. Each request for this category shall be judged on an individual basis. If a person accumulates 15 credits while in this category, he must be re-evaluated and recommended by the admitting department for each additional course or

program. Persons admitted as Special Non-degree Students must reapply for any other status and be judged in accordance with the requirements for that status.

*Special Workshop* is for persons permitted to take workshops for graduate credit *without being admitted to Graduate School*. Such permission is granted by the Workshop Director upon receipt of a signed statement of possession of a baccalaureate degree by the applicant, and terminates upon completion of Workshop. Students admitted as Special Workshop must apply through regular channels for any other category. Workshop courses may be applied to degree work at a later date, if applicant is given full admittance to the Graduate School.

*Transient Status* may be given to persons who are regularly enrolled graduate students in Good Standing in a degree program at another accredited university and have written permission to enroll at The University of Akron. Such permission is valid only for the courses and quarter specified, with a maximum of 15 credits allowable, and is subject to the approval of the Instructor, Department Head, and Graduate School. Transient students are subject to same rules and regulations as regularly enrolled students of The University of Akron.

*Undergraduate*. This status is for an undergraduate student who may be granted permission to take one or more graduate level courses if all the following conditions are met:

1. Senior standing.
2. Overall grade-point average of 2.75 or better through preceding quarter. (If a student does not have a 3.0 or better in his major field, special justification will be required).
3. Written approval is given by the Instructor of the course and the student's adviser.

These courses may later be applied to a degree program if not used to satisfy baccalaureate degree requirements.

*Post-Doctoral*. This status is divided into three categories:

1. Fellows are those persons holding an earned doctorate who are engaged in advanced research. They shall be considered guests of the University and provided space and use of facilities within the limits of practical needs of the undergraduates and graduate programs. Tuition and fees shall be collected if allowed under sponsoring contract for any courses the Fellow may choose to take.

2. Specials are those persons holding an earned Doctor's Degree who desire an additional graduate degree. They may be admitted to any program upon submission of matriculation and application forms, ap-

plication fee (if new student) and an official transcript from the institution awarding their doctorate. This student will be treated as a regular student, subject to registration, fees, and degree requirements for his program.

3. Guests are those persons holding an earned doctorate who desire to attend courses and seminars relevant to their work or interests without registering or receiving grades. A written application should be submitted to the Dean of Graduate Studies for each course taken, and he shall obtain approval of the Instructor, Department Head and College Dean. They shall then be welcome to any course or seminar provided space is available. Normally space and facilities for research cannot be provided for Post-doctoral Guests but special requests will be considered. They should be submitted, in writing, to the Dean of Graduate Studies who will review them with the appropriate Dean and Department Head.

## STANDARDS

### FOREIGN STUDENTS

*Entrance*: Foreign students are normally admitted only in the fall and all credentials must be received by the Graduate School by June 1. Inasmuch as The University of Akron, as a state institution, has an obligation to the residents of Ohio, only the best qualified foreign applicants can be admitted. No foreign student seeking admission should plan to leave his country until he has received notice of admission from the Graduate School.

*English Proficiency*: Entering graduate students from countries other than the United States and those in which English is the major language in daily life are required to demonstrate high-level competence in the use of the English language, including reading, writing, speaking, and listening. This competence can best be established by achieving a score of at least 550 on the TOEFL (The Test of English as a Foreign Language) and submitting it by June 1 for September admission. Because TOEFL is given only four times a year in various parts of the world, the applicant should make arrangements to take the test as soon as he contemplates study at The University of Akron. (TOEFL is administered by Educational Testing Service, Box 899, Princeton, New Jersey 08540, U.S.A.). If TOEFL is not available, the applicant should contact the Foreign Student Adviser, The University of Akron, for other arrangements. Personal letters

certifying English competence are not acceptable as substitutes for test scores.

Foreign students coming to The University of Akron in good standing from an accredited American college or university may have this requirement waived upon written request.

### NON-ACCREDITED AMERICAN SCHOOL GRADUATES

Students holding a baccalaureate degree from a non-accredited American college or university, if otherwise qualified, are normally required to complete at least 15 credits of post-baccalaureate work at a 3.0 level before they can be admitted to the Graduate School. The accreditation status of the school at the time of the student's graduation shall apply. Students should consult with the Department Head in their major field to develop a post-baccalaureate program.

### GRADES

A student admitted to graduate study under any status at The University of Akron is expected to maintain a minimum of a 3.0 average (4.0=A) at all times. A grade-point average of 3.0 or better is required for graduation. Any student whose average falls below 3.0 is no longer in good standing in the Graduate School and considered on probation. In computing cumulative averages, "D" grades are treated as "F" grades. The Dean of Graduate Studies and Research, with the approval of the Department Head, may dismiss any student who fails to make satisfactory progress toward his declared goals or who accumulates nine hours of "C" or below. The accumulation of six hours of "F" will result in mandatory dismissal. Students dismissed from the Graduate School for academic reasons may not be readmitted for one calendar year, and then only if evidence to support reasons for expecting improved performance is submitted and found acceptable.

The grade of I (Incomplete) may be given when work required in a course cannot be completed within the quarter and there is a good reason for such failure. An Incomplete must be completed during the next quarter a student is enrolled or it is converted to an F grade.

The grade of IP (In Progress) is given in Research and Thesis courses where the work is on a continuing basis. At the time work is completed, a single grade is given for all courses taken as IP.

### TRANSFER STUDENTS

A graduate student matriculated in the Graduate School of another college or university who wishes to transfer to The University of Akron to continue his graduate education must be in good standing at the other school.

### COURSE LOAD

A full load of course work at the graduate level is normally 9-15 credits including Audit. Students who are employed in addition to their graduate courses work should reduce their academic load proportional to the extent and obligations of such employment.

### REGISTRATION

The responsibility for being properly registered lies with the student. For each registration, the student should consult with his adviser in preparing his program of courses and/or research. A schedule of courses, hours, class location, and registration procedures is obtainable from the Registrar.

### ENTRANCE AND QUALIFYING EXAMINATIONS

The use of examinations to determine admissibility to enter a graduate program or eligibility to continue in one is the prerogative of the departments offering graduate programs. The department has the right to select the examination and minimum acceptable performance. Information and procedure may be obtained from the head of the appropriate department.

### GRADUATE FEES

(All fees are subject to change without notice.)

Application Fee	
This fee is not refundable under any circumstances	\$20.00
Tuition Fees	
Resident student per credit	23.00
Non-resident student per credit	29.00
(Auditors pay same fees)	
Other Fees	
General Service	
9 or more credits per quarter	15.00
8 1/2 or fewer credits per quarter	5.00
Late Registration Fee	20.00

Parking Permit Fee	
9 or more credits per quarter	20.00
8 $\frac{1}{2}$ or fewer credits per quarter	10.00
One Summer Session	10.00
Workshop participants	8.00
Graduation Fees	
Each Degree	12.00
In Absentia (additional)	2.00
Thesis and Binding	
(Payable at time of application for Degree.) Binding per volume	7.00
Microfilming (Ph.D. only)	
(Payable at time of application for Degree.)	25.00
Change of Schedule Fee	4.00
Additional Transcripts (one free copy)	2.00
Health and Accident Insurance	25.00

### REFUNDS

Regulations regarding refunds are the same as for undergraduate students.

### COMMENCEMENT

Students earning graduate degrees are expected to participate in the Commencement exercises. Degree candidates who have legitimate reasons for graduating "In Absentia" should make a written request to the Dean of Graduate Studies and Research within the established dates and pay the designated fee.

### FINANCIAL ASSISTANCE

The University annually awards a number of Graduate Assistantships to qualified students. These assistantships provide a stipend of \$2,500 to \$4,000, plus remission of tuition and fees, and are available in all departments with graduate degree programs. Graduate Assistants render service to the University through teaching, research, and other duties and are expected to carry a reduced academic load. For information and/or applications, contact the head of the department.

A number of Fellowships sponsored by industry and government agencies are available in some departments. Stipends range up to \$4,500. For information, contact the head of the department.

Information about Student Loans can be obtained from the Student Financial Aids Office.

## Master's Degree Requirements

The following Master's degrees are conferred by The University of Akron: Master of Arts, Master of Science, Master of Science in

Engineering, Master of Science in Chemical Engineering, Master of Science in Civil Engineering, Master of Science in Electrical Engineering, Master of Science in Mechanical Engineering, Master of Arts in Education, Master of Science in Education, Master of Science in Technical Education, Master of Business Administration, Master of Science in Accounting, Master of Science in Management, Master of Music and Master of Arts in Speech.

### ADMISSION

A student may meet the degree requirements of the Graduate School and the department through either full or part-time study. After a student is admitted to graduate study, he should confer with the head of his major department concerning the appointment of an adviser. A student who is academically qualified in general but deficient in course preparation may be required to make up the deficiencies at the post-baccalaureate level. This may be recommended prior to beginning graduate work, or in some cases, can be done simultaneously.

### GRADE-POINT AVERAGE

A minimum grade-point average of 3.00 is required for graduation of all Master's degree candidates. (See Section on Standards.)

### RESIDENCE REQUIREMENTS

There are no formal residence requirements.

### TIME LIMIT

All requirements must be completed within *five* years after beginning graduate level course work at The University of Akron or elsewhere. Extension *up to one year* may be granted in unusual circumstances by the Dean of Graduate Studies and Research upon written request by the student and recommendation by the adviser and Department Head.

### CREDITS

A minimum of 45 credits of graduate credit is required in all master's degree programs. This includes thesis credit. Some departments require more (See Section on Department Requirements). A minimum of  $66\frac{2}{3}$  percent of the total graduate credits required in any master's program must be completed at The University of Akron.

It should be noted that the requirements listed by department elsewhere in this section refer to the minimum necessary for a degree. It is entirely within the prerogatives of the department to assign additional credits of coursework or other requirements in the interest of graduating fully qualified students.

No graduate credit may be received for courses taken by examination or for 500-numbered courses previously taken as an undergraduate. No graduate credit may be received for courses taken in extension unless approved in advance by the Department Head and Dean of Graduate Studies and Research.

### TRANSFER

Up to 33 $\frac{1}{3}$  percent of the total graduate credits required may be transferred from an accredited college or university. All transfer credit must be at the "A" or "B" level in graduate courses. They must be relevant to the student's program and fall within the five-year time limit. Students already admitted to The University of Akron must receive prior approval to take courses elsewhere for transfer into their program.

Students seeking to transfer credits must have full admission and be in good standing at The University of Akron and the school in which the credits were achieved. Transfer credit shall not be recorded until a student has completed 18 credits at The University of Akron with a grade-point average of 3.0 or better.

### OPTIONAL DEPARTMENT REQUIREMENTS

Each department may determine its requirements with regard to Entrance Examinations, Qualifying Examinations, Foreign Language, Required Courses, and Thesis. Details are available from the head of the major department.

### ADVANCEMENT TO CANDIDACY

A student should apply for Advancement to Candidacy after he has completed one-half of the credits required for the degree in his program but no later than the middle of the quarter preceding the one in which he expects to graduate. Advancement to Candidacy forms are available in the Graduate School Office or from the department head. Advancement to Candidacy will not be granted a student not in good standing.

## GRADUATION

To be cleared for graduation, a candidate must have completed course work with a minimum average of 3.0; have been Advanced to Candidacy; filed an Application for Graduation with the Registrar; paid all applicable fees; and met any other department and university requirements applicable.

If a thesis is required, two copies, properly prepared, are due in the Graduate School Office two weeks prior to commencement. These copies are final and must be signed by the adviser, faculty reader, department head, and college dean. Mimeographed information is contained in "Instructions For Writing a Master's Thesis" available in the Graduate School Office.

## Doctor's Degree Requirements

The following doctor's degrees are conferred by The University of Akron: Doctor of Philosophy in Chemistry, History, Polymer Science, Psychology, Sociology, Elementary Education, Secondary Education, Guidance and Counseling, Engineering, and Doctor of Education in School Administration.

A master's degree is not a prerequisite for the doctorate, however, the first year of study after the baccalaureate will be substantially the same for both the master's and doctoral student. No specific number or sequence of courses completed constitutes a doctoral program or assures attainment of the degree. It consists of such a combination of courses, seminars, and individual study and research as meets the minimum requirements of the Graduate School and those of the committee for each individual student.

### ADMISSION

A doctoral student may meet the degree requirements of the Graduate School and his department by full-time or a combination of full-and part-time study.

Normally a student is not officially considered as a doctoral student until (a) he has completed a master's program or its equivalent, and (b) has been approved for further graduate study. Departments offering doctor's degree programs review each candidate intensively before recommending admission.

### GRADE-POINT AVERAGE

A minimum grade-point average of 3.0 is required for graduation of candidates for all doctoral degrees.

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## RESIDENCE REQUIREMENTS

The minimum residency in all programs is that the doctoral candidates devote at least three consecutive quarters to full-time study. No student holding a full-time job is considered as fulfilling this requirement. Departments vary on expectations beyond the minimum, e.g., credits or courses to be completed, proper time to fulfill residency requirement, and acceptability of part-time employment.

## TIME LIMIT

All doctoral requirements must be completed within ten years of starting course work at The University of Akron or elsewhere. This refers to graduate work after receipt of a master's degree or the completion of 45 credits. Extensions of up to one year may be granted by the Dean of Graduate Studies and Research under unusual circumstances.

## CREDITS

A doctorate is conferred in recognition of high attainment and productive scholarship in some special field of learning as evidenced by (1) the satisfactory completion of a prescribed period of study and research, (2) the preparation of a dissertation based on independent research, and (3) the successful passing of examinations covering the special field of study and the general field of which this subject is a part. Consequently, the emphasis is on mastery of the subject rather than a set number of credits. Doctoral programs generally encompass the equivalent of at least three years of full-time study at the graduate level. A minimum of 50 percent of the total credits above the baccalaureate required in each student's doctoral program must be completed at The University of Akron.

No graduate credit may be received for courses taken by examination or for 500-numbered courses previously taken as an undergraduate. No graduate credit may be received for courses taken in extension unless approved in advance by the Department Head and the Dean of Graduate Studies and Research.

## TRANSFER

Up to 50 percent of the total graduate credits above the baccalaureate required in a doctoral program may be transferred from an accredited college or university. All transfer credit must be at the A or B level in graduate courses. They must be relevant to the student's

program and fall within the ten-year time limit if beyond the master's level. Students already admitted to The University of Akron must receive prior approval to take courses elsewhere for transfer into their program.

Students admitted with a master's degree or equivalent will have their work evaluated in relation to their program to determine transfer credit. Credit transferable for master's degree holders may be up to 45 credits.

Students seeking to transfer credits must have full admission and be in good standing at The University of Akron and the school in which the credits were achieved. Transfer credit shall not be recorded until a student has completed 18 credits at The University of Akron with a grade point average of 3.0 or better.

## LANGUAGE REQUIREMENTS

The Foreign Language Requirement in all Ph.D. programs may be fulfilled by either of the following:

Plan A: Reading knowledge, with aid of a dictionary, of two approved foreign languages. At the discretion of the major department (1) an average of "B" in the second year of a college level course in a language will be accepted as evidence of proficiency in reading knowledge for that language; (2) English may be considered as one of the approved foreign languages for students, whose first language is not English; and (3) demonstrated competence in a research technique (e.g., statistics and/or computers) may be substituted for one of the two foreign languages. Under option (3), each department should define competence and publicize.

Plan B: Comprehensive knowledge of one approved foreign language, including reading without the aid of a dictionary and such additional requirements as the department may impose.

## OPTIONAL DEPARTMENT REQUIREMENTS

Each department may determine requirements for doctoral students with regard to Entrance Examinations, Qualifying Examinations, Preliminary or Comprehensive Examinations, and Course Sequences.

## ADVANCEMENT TO CANDIDACY

A student must apply for Advancement to Candidacy at least two quarters before the quarter in which the degree is to be conferred.

Applications for Advancement to Candidacy will not be accepted by the Dean of Graduate Studies and Research until a substantial portion of the degree requirements have been completed. A student must be in good standing to be advanced to candidacy.

#### DISSERTATION AND ORAL DEFENSE

The ability to do independent research and demonstrate competence in scholarly exposition must be demonstrated by the preparation of a dissertation on some topic related to major subject. It should represent a significant contribution to knowledge, be presented in a scholarly manner, reveal candidate's ability to do independent research, and indicate experience in research techniques.

A doctoral dissertation committee supervises and approves the dissertation and administers an oral examination upon the dissertation and related areas of study. The

final examination is open to the Graduate Faculty. The dissertation and oral examination must be approved by the committee before the student is recommended to the Graduate School by presenting two copies of the dissertation to the Dean of Graduate Studies and Research. These copies must conform to "Instructions For Writing a Doctoral Dissertation" and be signed by director, reader, department head and college dean.

#### GRADUATION

To be cleared for graduation, a candidate must have completed his academic program with a grade-point average of at least 3.0; have been Advanced to Candidacy; submitted an approved Dissertation and passed an oral examination; filed an Application for Graduation with the Registrar; paid all applicable fees; and met any other department and University requirements applicable.

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# ***Buchtel College of Arts and Sciences***

## **The Doctor Of Philosophy Degree**

The following programs leading to the Doctor of Philosophy Degree are offered in the Buchtel College of Arts and Sciences: The Doctor of Philosophy Degree in Chemistry, the Doctor of Philosophy Degree in History, the Doctor of Philosophy Degree in Psychology, and Doctor of Philosophy Degree in Polymer Science.

### **DOCTOR OF PHILOSOPHY IN CHEMISTRY**

In addition to satisfying the general requirements of the Graduate School, students working toward the Doctor of Philosophy Degree in Chemistry must meet the following requirements:

1. Must take proficiency exams in Organic, Inorganic, Physical and Analytical Chemistry. Results of these exams will be used by the department for diagnostic purposes.

2. Satisfactory completion of a course of study designed and accepted by the student's advisory committee. This course of study shall consist of a program deemed suitable to prepare the student in his designated area of chemistry, and shall consist of a minimum of 36 credits in graduate courses. Eight credits a quarter shall be considered a normal load. At least 18 credits of graduate work, and all dissertation credits, must be completed at The University of Akron.

3. Earn credit for a dissertation, to be established by enrollment in 315:865, such that course credits plus dissertation credits total at least 126 credits (exclusive of M.S. dissertation credit).

4. Pass cumulative examinations given approximately monthly. The candidate is urged to begin to take these examinations early in his graduate program, and must pass seven cumulative exams, six written and one oral, for the degree requirement.

5. Pass an oral examination upon completion of the research dissertation.

6. Pass the general requirements for the Doctor of Philosophy degree.

### **DOCTOR OF PHILOSOPHY IN HISTORY**

The Doctor of Philosophy degree in History is granted primarily for high scholarly achievement in four fields of study selected by the student and for demonstrated ability to pursue independent research. Each student must

1. Fulfill the admission requirements of the Graduate School.

Admission will not usually be considered unless the applicant has a Master's degree, or the equivalent, with a grade point average of B from an

accredited institution. Those holding Master's degrees from The University of Akron or other accredited institutions should not assume automatic permission to pursue doctoral studies. Prior to admission to the doctoral program, the applicant must present evidence of the likelihood of success in advanced study. A personal letter from the applicant and three letters of recommendation from former professors are required to support an application for admission to the doctoral program. Special admissions examinations may also be required.

2. Satisfactorily complete a course of study selected by the student in consultation with an advisory committee. This will include (a) completion of 90 credits beyond M.A. degree requirements, including dissertation credit; (b) demonstration of competency in four fields of study selected from the following areas: Ancient, Medieval, Modern Europe to 1815, Modern Europe Since 1789, England and the Empire, U.S. to 1865, U.S. Since 1865, Latin America, Far East, (one of the four fields may be in a cognate area outside of History); (c) satisfactory performance in written and oral comprehensive examinations; (d) defense of the dissertation in an oral examination.

3. Complete all general requirements for the Doctor of Philosophy degree.

### **DOCTOR OF PHILOSOPHY IN POLYMER SCIENCE**

An Interdisciplinary Program leading to the Doctor of Philosophy in Polymer Science is administered by the Department of Polymer Science. Graduates from the three main disciplines (Chemistry, Physics and Engineering) are guided into the appropriate courses of study and research under the supervision of a departmental staff member in their own field. Research facilities of the Institute of Polymer Science are available for thesis research.

In addition to satisfying the general requirements of the graduate School, students working toward the Doctor of Philosophy Degree in Polymer Science must meet the following requirements:

1. Satisfactory completion of a course of study prescribed by the student's advisory committee, based on their judgment of his background, and on the result of any special examinations that they might impose. This course of study will consist of a minimum of, but usually more than, 54 credits in graduate courses, as outlined below, or their equivalent. At least 18 credits of graduate course work, and all dissertation credits must be completed at The University of Akron.

2. Credit for a dissertation, to be established by enrollment in 394:791, such that course credits plus dissertation credits total 126 credits (exclusive of M.S. thesis credit).

3. Pass eight cumulative examinations which are given at intervals during the academic year. The candidate is urged to begin these examinations early in his graduate program.

4. The passing of an oral examination upon completion of the research dissertation.

5. Pass the general requirements for the Doctor of Philosophy degree.

### DOCTOR OF PHILOSOPHY IN PSYCHOLOGY

The Department of Psychology offers a general Ph.D. degree with specialization in Experimental or Industrial Psychology.

The degree will be awarded to students who, besides fulfilling the general requirements of the Graduate School, have met the following specific requirements:

#### I. ENTRANCE REQUIREMENTS

1. Completion of M.A. Degree including 45 credits Graduate Courses.

2. Completion of M.A. Core Courses.

3. 3.00 GPA Graduate Work.

4. GRE Exam — Aptitude and Advanced Tests.

5. Two letters of recommendation.

6. Successful performance on Psychology Department Qualifying Examinations (See Department Ph.D. Manual)

#### II. COURSE REQUIREMENTS

1. 135 credit *minimum* total course requirement beyond B.A. including a 45 credit Masters' program). A student may be required to take additional courses.

2. Completion of Ph.D. Core courses (8 courses 28-46 credits out of 135). All required.

	<i>Credits</i>
375:763 Psych. Exp. Design	
or	
347:673 Advanced Behavioral Statistics III	3
375:630 Adv. Gen. Psych.	4
375:640 Experimental Methods and App. I	4
375:710 Theories of Learning	4
375:612 Theories of Personality	4
375:517 History of Psychology	4
375:718 Systems of Psychology	3
375:790 Dissertation Research*	2-20

3. Completion of a major area of study.

The major area course curriculum is planned in conjunction with the student's major adviser and follows suggested Experimental or Industrial Psychology courses specified in department Ph.D. Student manual.

4. Completion of a minor area of study.

The minor area consists of at least 18 credits. See Department Ph.D. Student Manual for specification of minors. A student may petition for variations in minor area.

#### III. LANGUAGE REQUIREMENT

The language requirements, which must be completed prior to taking the Ph.D. Comprehensive Examinations, may be satisfied under Plan A or B. (See Section on Doctoral Degree Requirements.)

German, French, and Russian are commonly most appropriate. Exceptions may be permitted under Plan A only. Computer Language would be an appropriate substitution under Plan A for the Industrial Ph.D. specialty. Completion of this substitute involves completion of three courses: 445:160 or 445:301, 445:260 and 445:360 with a grade B, no separate examination or independent study with an examination. All substitutions must be approved by the psychology department and must be clearly related to the student's training. No exceptions to French, German, or Russian will be permitted under Plan B. The student must obtain approval of a language substitution in advance from the faculty of the Psychology Department, and register his desire to be examined by the Language Department. The time and place of the language exams are announced by the Modern Language Department.

#### IV. RESIDENCE REQUIREMENT

The University specifies at least one year in full time academic residence. Full time residency is defined as completing a full academic load within three quarters (20-24 credits excluding 375:790 Dissertation Research). The Psychology Department may require that this year in full time academic residence be spent as a graduate assistant or fellow.

#### V. DISSERTATION (Refer to Psychology M.A. & Ph.D. Student Manuals.)

#### VI. OTHER REQUIREMENTS

##### 1. Comprehensive Examination

The comprehensive examination consists of two parts: (1) In the major area an eight-hour written examination which may include essay and objective questions, and (2) a two-hour oral examination by a committee of five members covering the major areas, as well as additional topics deemed important by the committee. The minor area may be included in this oral.

After a student passes the written examination he and his major adviser agree upon a Committee of five members of the Graduate Faculty. This committee conducts the two-hour oral examination.

A Ph.D. student must take the comprehensive exam within four years of his beginning date as a Ph.D. student. He must have passed the comprehensive exams by the end of his sixth year. Admission to candidacy as well as additional course work is prohibited for students who fail to meet either of the above requirements or twice fail the comprehensive examinations.

2. Advancement to Candidacy — When a Ph.D. student has met the language requirements and passed the comprehensive exam, he should file with the Dean of the Graduate Division an application for Advancement to Candidacy.

The application will bear the approval of the Head of the Psychology Department and will list all requirements that remain to be completed. Prior to advancement to candidacy the performance of every student will be evaluated by the entire staff.

### 3. Final Oral Examination

For the Ph.D. candidate, the final oral examination by at least five members is conducted by the same procedures as the comprehensive oral examination and must be completed two weeks before the day of Commencement.

The Dean of Graduate Division should be notified of the oral examination two weeks in advance and he will appoint an outside representative to serve with the five-member Dissertation Committee.

This examination is primarily a defense of the dissertation, and an oral examination of the minor area. A majority vote is needed to pass or fail the student. Usually there is no second opportunity to defend the thesis except by petition to the University through the Graduate School.

4. Refer to the Department of Psychology Ph.D. Student manual for other guidelines.

## DOCTOR OF PHILOSOPHY IN SOCIOLOGY AKRON-KENT JOINT PH.D. PROGRAM IN SOCIOLOGY

The University of Akron and Kent State University Departments of Sociology offer a joint program leading to the Ph.D. degree. Faculty and students engaged in the joint Ph.D. program are for all intents and purposes regarded as one single graduate department. Course work is offered at both campuses and faculty and students interchange freely. Students may enter the program at either Akron or Kent. Applicants holding the baccalaureate degree who desire to enter the joint Ph.D. program must first enter the Master's program at either Akron or Kent.

Generally, applications to the Ph.D. program are accepted from students who hold the Master's degree or equivalent in Sociology or a related field.

The general objective of the Akron-Kent Ph.D. program is to educate generalists in sociology with a

special emphasis on social change in the context of urban systems.

In addition to meeting the general requirements of the Graduate School, students working toward the Doctor of Philosophy degree in Sociology must meet the following requirements:

- A. Two four-hour courses in Research Methodology.
- B. Two four-hour courses in Theory and Theory Construction.
- C. One four-hour course in Urban Sociology. (388:657)
- D. One two-quarter seminar in Social Change. It should be noted that this seminar focuses on the effects of urbanization on contemporary society and includes such topics as: integrative theories of social change including accommodation to deviance and protest, conflict theories of social change, and value bases of social change in urban systems. (388:620-21)
- E. One additional two-quarter seminar selected from the following:
  - a) Social Psychology (388:630-31)
  - b) Social Organization (388:640-41)
  - c) Human Ecology (388:655-56)
  - d) Deviance and Disorganization (388:665-66)
- F. Additional course work selected in conjunction with the student's advisory committee, plus dissertation research, to equal 90 quarter hours of credit.
- G. Complete all other requirements for the Doctor of Philosophy degree including 1) demonstrated foreign language skill or its equivalent, 2) candidacy examination, and 3) final oral examination in defense of the dissertation.

## THE MASTER'S DEGREE

Programs of advanced study leading to the Master's degree are offered by the Departments of Biology, Chemistry, Economics, English, Geography, Geology (Earth Science), History, Mathematics and Statistics, Modern Languages, (French and Spanish), Philosophy, Physics, Political Science, Polymer Science, Psychology, Sociology, and Urban Studies. Before undertaking such a program the student must show that he has:

1. Met the general requirements for admission to the Graduate School.

2. Met the standard requirements for an undergraduate major in the area of proposed graduate specialty or that he has performed work which the department head approves as equivalent to an undergraduate major.

General requirements for the degree are listed on preceding pages.

Additional requirements in effect in the several departments offering graduate programs follow:

### BIOLOGY

*Requirements for the Master of Science degree in Biology:*

Two options are available:

1. *Research option:* This program is designed primarily for students who will pursue a research career, including those who intend to enter a doctoral program in the biological sciences. Research and thesis, nine credits. A minimum of 36 credits total course work approved by the student's advisory committee is required. A minor may be taken in approved graduate courses including education. Participation in seminars and demonstration, prior to last quarter of enrollment, of reading proficiency in a foreign language appropriate to the field of study are required. Summer study at a biological station is recommended.

2. *Non-thesis option:* The curriculum is oriented to the needs of students for whom the M.S. degree will probably be a terminal scientific degree and who do not need extensive research experience.

The requirements are the same as option 1, except that no thesis and research is undertaken, but a total of 54 credits of approved course work is required.

### CHEMISTRY

*Requirements for the Master of Science degree in Chemistry:*

Research and Thesis, nine credits. A minimum of 36 credits of course work as approved by the student's advisory committee is required. With permission of the student's advisory committee a maximum of 18 credits may be taken in mathematics or physics. Attendance and participation in seminar-type discussions scheduled by the department are required. Demonstration, prior to the last quarter of enrollment, of reading proficiency in a foreign language appropriate to the field of study is required.

### ECONOMICS

*Requirements for the Master of Arts Degree in Economics:*

Option I: A minimum of 45 credits of course work including a thesis equivalent to 8 credits of the 45 credits.

Option II: A minimum of 45 credits of course work with no thesis required.

At least 30 of the 45 credits under each option must be at the 600-level in economics. The following courses are required: 325:520-526-602-611, plus a minimum of 8 credits in a single approved area of concentration, a list of which is available from the department. 325:520 may be waived for students with adequate preparation in mathematics. Exceptional departures from these requirements may be approved with the permission of the graduate faculty and department head. A comprehensive examination is intended to test the candidate's knowledge of economic theory and his area of concentration.

### ENGLISH

*Requirements for the Master of Arts degree in English:*

Forty-five credits of course work are required, with at least 23 on the 600 level. The program will include the following courses, unless previously taken:

330:501 (Chaucer)

330:562 (History of the English Language) or

330:689 (Modern Linguistics)

330:619 (Shakespearean Drama)

330:697 (Bibliography and Literary Research)

A thesis (330:699) or two thesis essays are required. Prior to the last quarter of enrollment, demonstration of reading proficiency in a foreign language appropriate to the field of study is required, except that completion of one junior or senior course in a foreign language will exempt the student from examination, provided the course was taken no more than five years before he begins his graduate work.

### FRENCH

*Requirements for the Master of Arts degree in French:*

Option I: Completion of 50 credits of graduate course work, no thesis required.

Option II: Completion of 45 credits of graduate work, including a thesis equivalent to 3-9 of the 45 credits required.

#### I. CORE REQUIREMENTS:

32 credits at the 500 level distributed as follows: Literature, nine credits; Linguistics, nine credits; Culture and Civilization, nine credits; Advanced Language Skill, five credits.

#### II. ELECTIVES:

Option I-18; Option II-9. With approval of the departmental graduate committee, up to nine elec-

\*Amount of credit allowed for dissertation decided by faculty at time of approval of prospectus.

tive credits may be taken in another discipline.

### III. ADDITIONAL REQUIREMENTS:

A. *Admission Requirement* — Proficiency level in the four competencies (listening comprehension, speaking, reading, and writing) will be evaluated by applicable parts of the MLA proficiency tests.

B. *Second Language Requirement* — at some time prior to the beginning of his last graduate quarter, the candidate will be required to demonstrate a reading knowledge of a modern foreign language other than French. Choice of the second language will be left to the student in consultation with his adviser.

C. *Final Comprehensive Examinations* — The candidate will be required to pass both a written and oral final examination covering all areas of study included in his program.

### GEOGRAPHY

*Requirements for the Master of Arts degree in Geography:*

1. Completion of a minimum of 45 credits of which at least 36 must be course work and of which 24 credits (exclusive of research), must be in Geography courses and must include: 335:680, 682, 687, and 690, and at least one of the following: 335:610, 620, 630, 640, or 660. Courses taken outside the department of Geography must be approved by the department prior to enrollment.

2. A thesis, carrying six to nine credits, must be approved by a committee of the department.

3. Successful completion of a comprehensive examination administered by the departmental committee.

Students who have undergraduate deficiencies in cartography, geographic research techniques and spatial analysis will be expected to remedy these by taking appropriate courses with the advice of the head of the department.

*Requirements for the Master of Science degree in Geography:*

1. Completion of a minimum of 45 credits of course work, of which at least 24 (exclusive of research) must be in Geography courses and must include: 335:680, 682, and 687, and at least one of the following: 335:610, 620, 630, 640, or 660.

2. Courses taken outside the department must be approved by the department.

3. Completion of 12 credits of graduate level statistics courses approved by the department.

4. Successful completion of a comprehensive examination administered by the departmental committee.

Students who have undergraduate deficiencies in cartography, geographic research techniques and

spatial analysis will be expected to remedy these by taking appropriate courses with the advice of the head of the department.

### GEOLOGY: EARTH SCIENCE

*Requirements for a Master of Science degree in Earth Science:*

1. The student must earn a minimum of 45 credits and maintain a "B" (3.00) average.

2. The student must take a proficiency examination at the beginning of his program. The examination will test competencies in the following areas: (1) The Solid Earth, (2) Earth History, (3) The Atmosphere and Hydrosphere, and (4) Earth-Space Relationships. The student who demonstrates a lack of basic knowledge in one or more of these areas will be required to successfully complete appropriate undergraduate courses. The student's program will be closely guided by an adviser appointed at the beginning of his program.

3. The program of the student must include thesis (337:692), geology field camp (337:413/513), either seminar 335:610 or 337:690, and a minimum of one graduate course in each of the four areas listed under item 3 above.

Courses in the Departments of Geography and Geology that are appropriate to the four areas include:

a. The Solid Earth — 335:418/518, 337:415/515, 337:416/516, 337:631, 337:665, 337:470/570.

b. Earth History — 337:411/511, 337:432/532, 337:660, 337:463/563, 337:625.

c. The Atmosphere and Hydrosphere — 335:415/515, 335:615, 337:434/534.

d. Earth-Space Relationships — 335:444/544, 337:404/504.

4. The student must successfully pass a written comprehensive examination after the completion of 28 graduate credits and before the formal beginning of work on a thesis. The department head will appoint a three-man thesis committee. The written comprehensive examination may be attempted two times only.

5. The student must complete, present, and orally defend his thesis (337:692) of eight credits.

6. The program of the student may include as many as eight graduate credits in allied fields of other departments plus other graduate courses in the Departments of Geography and Geology as listed in the *General Bulletin*.

7. The program of the student who is a teacher or will become a teacher of earth science must also include a minimum of three credits in Seminar in Secondary Education: Earth Science (530:780).

## HISTORY

### *Requirements for the Master of Arts degree in History:*

#### I. *Entrance Requirements:*

Must have had at least 15 semester or 22 quarter credits in undergraduate history courses. Persons who have not taken Historical Methods or its equivalent must complete this course in addition to the 45 credit hour degree requirements.

#### II. *Foreign Language Requirement:*

Students who plan to do Ph.D. work must demonstrate a reading knowledge of one foreign language within the first year of residency or on completion of 27 hours. The thesis advisor, or the director of master's studies, or both may require a student to have a reading knowledge or a specific language or mastery of a particular research skill if pertinent to the student's field of study. In other cases, a reading knowledge of one foreign language is desirable but not mandatory.

#### III. *Programs:*

Option A: A minimum of 45 credits which must include a research seminar, a satisfactory thesis, and field examinations. A board of at least three faculty members will conduct a final oral examination which will include a defense of the thesis and the relationship of the thesis to the major field.

Option B: A minimum of 45 credits which must include a research seminar, at least two pro seminars, and field examinations. The seminar paper must be read, approved, and awarded no less than a grade of B by the seminar adviser and at least one other faculty member to be designated by the director of master's studies.

#### IV. *Fields of Study:*

In consultation with the advisor, students select three fields of study from the following: Ancient; Medieval; Europe, Renaissance to 1815; Europe, 1815 to present; England and the Empire; United States to 1865; United States since 1865; Latin America and Far East. A third field may be selected from a cognate discipline such as Political Science or Economics. If all three fields are taken in History, one of the fields must be unrelated to the first two. Credit hours will be distributed among the three fields according to each person's needs. At least 16 of the minimum 45 hours must be at the 600 level, excluding individual reading.

#### V. *Examinations:*

Comprehensive written examinations, appropriate to the level of scholarship expected in major and minor fields are required. If the student does not pass these examinations unconditionally,

the examining faculty may reexamine the student orally or require him to retake a written examination or examinations after a lapse of three months.

#### VI. *Other Requirements:*

If the candidate has not had a course in Historiography it must be included in his minimum program of 45 credits.

## MATHEMATICS AND STATISTICS

### *Requirements for the Master of Science degree in Mathematics:*

Option I: 45 credits of graduate work, no thesis required.

Option II: 45 credits of graduate work, including a thesis equivalent to six credits of the 45 required.

#### 1. *Core Requirements*

The following courses are required: 345:611-612-613, 345:621-622-623, 345:698, plus nine graduate credits of additional courses in a single approved area of concentration.

#### 2. *Electives*

Option I: fifteen additional credits in 500-level or 600-level Mathematics or Statistics courses.

Option II: 15 additional credits in 500-level or 600-level Mathematics or Statistics courses.

#### 3. *Additional Requirements*

A comprehensive exam, taking the form suggested by the department, will be required.

### *Requirements for the Master of Science degree in Statistics:*

Option I: 45 credits of graduate work, no thesis required.

Option II: 4 credits of graduate work, including a thesis equivalent to 6 credits of the 45 credits required.

#### 1. *Core Requirements:*

The following courses are required: 347:651-652-653, 347:650, 347:661, 347:662, 347:665, 347:574, 345:610, 345:698.

#### 2. *Electives:*

Option I: 15 additional credits in 500-level or 600-level Mathematics or Statistics courses.

Option II: 9 additional credits in 500-level or 600-level Mathematics or Statistics courses.

#### 3. *Additional Requirements:*

A comprehensive exam, taking the form suggested by the department, will be required.

## PHILOSOPHY

### *Requirements for the Master of Arts degree in Philosophy:*

Complete at least 45 credits in approved courses with a B average.

Complete at least three seminars in 360:615 (Seminar in History of Philosophy) and one course in Value Theory, one in Logic, on the graduate level.

Pass a comprehensive examination in the History of Philosophy and two others from the following fields:

(1) Logic, Philosophy of Science, and Methodology.

(2) Value Theory, including Ethics, Aesthetics, and Social and Political Philosophy.

(3) Epistemology and Metaphysics.

In addition to English, demonstrate mastery of another language by written translation.

Complete a thesis under departmental supervision after passing the comprehensive examinations.

## PHYSICS

*Requirements for the Master of Science degree in Physics:*

The following courses should normally be included in the graduate program: 365:601-602-603 and 651-652-653, and 681.

A comprehensive examination, taking the form suggested by the department, must be passed; the fields covered will include classical mechanics, quantum mechanics, electricity and magnetism, atomic and nuclear physics, thermodynamics, and optics.

Graduate research participation is strongly encouraged. Up to eight credits may be earned in 365:697 upon the satisfactory completion of a graduate research project. One additional credit may, upon approval by the department, be permitted in 365:698 for the completion of a master's thesis based on such research. A successful thesis may thus account for up to nine of the total of 45 graduate credits required.

## POLITICAL SCIENCE

*Requirement for the Master of Arts degree in Political Science:*

Option I: 45 credits of Graduate Work, at least 27 credits of which (including Thesis) must be at the 600-level in Political Science. Nine credits for thesis. Thesis topic and completed thesis must be approved by student's thesis committee.

Option II: 45 credits of Graduate Work, at least 27 credits of which must be at the 600-level in Political Science. Each student must submit two high-quality seminar papers for approval by a Departmental Committee of three persons chosen by the Department Head.

*Additional Requirements:*

A. Each candidate must pass a comprehensive examination covering two fields to be determined in conjunction with a departmental adviser.

B. Each student will be required to take 370:640 and either 370:503 or 370:600. In addition, each student must take one course or seminar in each of the three subfields of Comparative Politics, American Politics, and International Politics."

C. In certain cases, at the discretion of the Department Head candidates may be asked to take undergraduate courses to overcome serious deficiencies.

## POLYMER SCIENCE

*Requirements for the Master of Science degree in Polymer Science:*

A minimum of 36 credits in appropriate courses in Biology, Chemistry, Mathematics, Physics, Polymer Science, and Engineering as prescribed by the student's advisory committee. The research project (enrollment in 394:691) and resulting thesis provide the nine additional credits required for the degree. Attendance at and participation in seminar-type discussions scheduled by the Department are required.

## PSYCHOLOGY

*Requirements for the Master of Arts degree in Psychology:*

I. *Entrance Requirement:*

1. 45 credits undergraduate psychology including following core courses:

General Psychology	375:141
Quantitative Methods	375:145
Int. to Exper. Psych.	375:147
Social Psychology	375:315
Tests and Measures	375:407
Psychology of Learning	375:412
Abnormal Psychology	375:400

2. 2.75 overall grade point average; 3.00 GPA in psychology courses.

3. GRE Exam — Aptitude and Advanced Tests.

4. Two letters of recommendation.

II. *Course Requirements:*

1. Completion of 45 credits graduate psychology courses.

2. Completion of 5 core courses:

— Credits refers to number of quarter credits assigned to various courses.

	<i>Credits</i>
375:601 Thesis Diss. Seminar	4
*375:602 Advanced Behavioral Statistics I	4
**375:603 Advanced Behavioral Statistics II	4
375:605 Research Methodology	4
375:660 Thesis Research	2-6

- \*347:671 May be substituted  
 \*\*347:672 May be substituted

3. Students must average grade B or above in core courses to remain in good academic standing.

4. Core courses must be taken prior to or concurrent with other graduate work except 375:660 — Thesis Research thesis is required.

5. Satisfactory performance on the Department of Psychology qualifying examination (refer to department's M.A. Student Manual).

## SOCIOLOGY

*Requirements for the Master of Arts degree in Sociology:*

A minimum of 48 credits, at least 36 of which (including thesis) must be at the 600 level in the department (385: Sociology; 386: Social Work; and 387: Anthropology). Required courses are 385:600, 601, 603, 614, 650. Each candidate is required to pass a written examination in which he demonstrates his competence in sociological research methods and his general mastery of Sociology; and an oral examination covering a defense of his thesis and relevant aspects of Sociology.

## SPANISH

*Requirements for the Master of Arts degree in Spanish:*

Option I: 50 credits of graduate work, no thesis required.

Option II: Completion of 45 credits of graduate work, including a thesis equivalent to 3-9 credits of the 45 credits required.

### 1. *Core Requirements:*

32 credits covering essential areas in Literature, Culture, Linguistics, and Language Skills, including at least 18 credits at the 600 level. Thesis candidates are required to enroll in the Seminar in Hispanic Bibliography and in Research Methods (358:607-608).

### 2. *Electives:*

With the approval of the departmental graduate committee, up to nine elective graduate credits may be taken in another discipline.

### 3. *Additional Requirements:*

A. *Admission Requirement* — Proficiency level in the four competencies (listening comprehension, speaking, reading, and writing) will be evaluated by applicable parts of the MLA proficiency tests.

B. *Second Language Requirement* — At some time prior to the beginning of his last graduate quarter, the candidate will be required to demonstrate a reading knowledge of a modern foreign language other than Spanish. Choice of the second language will be left to the student in consultation with his adviser.

C. *Final Comprehensive Examinations* — The candidate will be required to pass both a written and oral final examination covering all areas of study included in his program.

## URBAN STUDIES

*Requirements for the Master of Arts degree in Urban Studies:*

Completion of 50 credits, which must include the following:

1. Urban Studies Core 27 credits: 398:600 (4 credits) and 640 (3 credits) required. Credits taken in an academic department other than Urban Studies, may, if approved by the Department of Urban Studies, be applied towards the fulfillment of the Urban Studies core requirement.

2. Statistics: A minimum of 3 credits required from 335:680, 347:671-672, 375:602, 385:600, 398:641 or other approved statistics course.

3. Urban Related Courses (20 credits): This requirement may be fulfilled by taking urban related courses in a specific department, several academic departments, or by taking additional urban studies core courses.

Courses taken by the student to fulfill the Urban Studies requirement must be approved by the Urban Studies Department.

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Credits refers to number of quarter credits assigned to various courses.

# The College of Engineering

In addition to the general requirements for admission to the Graduate School, an applicant for graduate study in Engineering must either (1) hold a bachelor's degree in a curriculum accredited by the Engineers' Council for Professional Development at the time of his graduation, or (2) provide evidence of an equivalent academic background to the satisfaction of the Dean of the College of Engineering and the Department Head.

Additional College requirements may be specified.

## THE DOCTOR OF PHILOSOPHY DEGREE

Interdisciplinary programs of advanced study leading to the degree of Doctor of Philosophy in Engineering are offered by the Departments of Chemical, Civil, Electrical and Mechanical Engineering. In addition to the general requirements of the Graduate School, the candidate must meet the following specific requirements:

1. Satisfactorily complete a course of study prescribed by the student's advisory committee, based on their judgment of his background and a qualifying examination taken by the student.

2. Earn a total of 135 credits of graduate work (90 beyond the M.S. degree). This includes credits for dissertation.

3. Pass a set of preliminary examinations after successful completion of not less than two thirds of the coursework prescribed by the advisory committee.

4. Pass an oral examination in defense of the dissertation.

## THE MASTER'S DEGREE

The degrees Master of Science in Engineering, Master of Science in Chemical Engineering, Master of Science in Civil Engineering, Master of Science in Electrical Engineering, and Master of Science in Mechanical Engineering are offered.

### Requirements:

#### Chemical Engineering

The candidate for a Master of Science in Chemical Engineering degree must successfully complete the graduate course work and other criteria, including Plan A or B, which is outlined below:

Chemical Engineering Course Work	Credits
420:604 Transport Phenomena	3
420:615 Reaction Engineering	3

	Credits
420:620 Classical Thermodynamics	3
Electives*	12
Approved Electives	9
Approved Mathematics	6
	<hr/>
	36

\*The elective Chemical Engineering Course work may not include more than 3 credits of 500-level Chemical Engineering courses.

#### Plan A:

A formal engineering research thesis, representing at least nine additional credits and satisfactory performance in an oral defense-of-thesis examination.

#### Plan B:

A minimum of an additional 18 credits of approved course work.

All candidates for the M.S.Ch.E. degree must pass a Comprehensive Examination.

All graduate students are expected to attend and participate in the seminars conducted by the Chemical Engineering Department.

Civil Engineering	Credits
Thesis Option	
Civil Engineering Course Work	21
Approved Mathematics or Science	6
Approved Electives (Including a 6-9 credit thesis)	18
	<hr/>
Total	45

Non-Thesis Option	Credits
Civil Engineering Course Work	21
Approved Mathematics or Science	6
Approved Electives	18
Special Problem (430:691 or 430:692)	3
	<hr/>
Total	48

Electrical Engineering	Credits
Electrical Engineering Course work	21
Approved Mathematics or Science	9
Approved Electives (Thesis Optional)	15
Comprehensive Exam in Lieu of Thesis	0
	<hr/>
Total	45

#### Mechanical Engineering

Thesis Option	Credits
Mechanical Engineering Course Work	21
Approved Mathematics	6
Approved Electives	9
Thesis	9
	<hr/>
Total	45

*Non-Thesis Option*

Mechanical Engineering Course Work	21
Approved Mathematics	6
Approved Electives	18
Special Problems 460:695	3
<b>Total</b>	<b>48</b>

*\*Engineering*

Engineering Course work	21
Approved Mathematics	6
Approved Electives (Thesis Optional)	18
Comprehensive Exam in Lieu of Thesis	0
<b>Total</b>	<b>45</b>

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\*This program is intended for those students whose interests do not substantially coincide with one of the four Departments. The course selection and the examination are supervised by indepartmental committees.

## The College of Education

The Miller Analogies Test is required of all students seeking admission to graduate programs in the Departments of Secondary Education, Physical Education, Elementary Education and Counseling and Special Education. Students seeking admission to the graduate program in Educational Administration must take the Bernreuter Scale, Watson Glaser, and Guilford-Zimmerman examinations. It is the applicant's responsibility to make arrangements with the Testing and Counseling Bureau to take the appropriate examination or examinations.

### THE DOCTOR OF PHILOSOPHY DEGREE

Programs leading to the Doctor of Philosophy Degree in Elementary Education, Secondary Education, and Guidance and Counseling are offered through the College of Education. The degree will be awarded to students who, besides fulfilling the general requirements of the Graduate School, have met the following specific requirements:

1. A minimum of 135 graduate credits (including a 45-credit Master's program where applicable), including the doctoral dissertation. Students considered deficient in any area may be required to take additional courses.

2. The completion of a foundation studies program designed to prepare the student generally before he begins to specialize.

3. The completion of preliminary examinations on the foundation studies areas and the major field of concentration.

4. Successful completion of an examination in a language judged not to be the student's native tongue.

5. The completion of at least 18 credits beyond the Master's degree level in a cognate area.

6. The completion of final written and oral examinations in the student's major field of concentration.

7. The completion of a dissertation comprising not more than 22 credits. The oral examining committee must be constituted of at least five full-time staff members, one of whom must be from outside the College of Education.

8. Pass the general requirements for the Doctor of Philosophy degree.

### THE DOCTOR OF EDUCATION DEGREE

A program leading to the Doctor of Education degree in School Administration is also available.

The admission procedures and requirements for this degree are the same as outlined above in the Doctor of Philosophy degree program, except the language requirement is waived.

### FOUNDATION STUDIES IN EDUCATION

<i>Behavioral Studies</i>	<i>Credits</i>
565:602 Behavioral Bases of Education	4
OR	
565:620 Seminar in Human Development and Education	4
565:701 Learning Processes	4
OR	
565:710 Teacher Behavior and Instruction	4
<i>Humanistic Studies</i>	
<i>Historical</i>	
510:701 History of Education in American Society	4
OR	
510:709 Seminar: History and Philosophy of Higher Education	4
<i>Social and Philosophical</i>	
510:600 Philosophies of Education	4
OR	
510:611 Topical Seminar in the Cultural Foundations of Education	4
<i>Two of the following:</i>	
510:603 Education and Social Trends	3
510:702 Seminar: Modern Theories of Education	3
510:705 Interdisciplinary Seminar	4
<i>Research</i>	
590:603 Techniques of Research	5
590:711 Statistics in Education	4
590:899 Dissertation	15-30

Information regarding specific course requirements in each of the major areas of concentration may be obtained in the office of the College of Education.

### THE MASTER'S DEGREE

Programs of advanced study leading to the degree of Master of Arts in Education, Master of Science in Education and Master of Science in Technical Education are offered.

Students who expect to earn the Master's Degree for advancement in the field of teaching must have met the general requirements for admission to the Graduate School and must be qualified to hold a standard teaching certificate. Exceptions to this latter requirement will be made for qualified students who do not wish to teach or perform duties in the public schools, provided they present or acquire an appropriate background of study or experience. Students who expect to earn the Master's Degree in guidance and administration also should have some successful teaching

experience. A physical examination may be required if and when indicated. Any student who exhibits a deficiency in English or other skills may be required to correct it before recommendation for an advanced degree.

Credits refer to number of quarter credits assigned to various courses.

In addition to the general requirements for the Master's listed on the preceding pages, the specific requirements for each major field of concentration are listed on the following pages. A number of these programs indicate a requirement of 13 credits in "Foundation Studies Courses". These are:

	<i>Credits</i>
510:600 Philosophies of Education	4
OR	
510:611 Topical Seminar in the Cultural Foundations of Education	4
565:602 Behavioral Bases of Education	4
OR	
565:620 Seminar in Human Development and Education	4
590:603 Techniques of Research	5
<b>Total</b>	<b>13</b>

**ELEMENTARY EDUCATION**

<i>Required:</i>	<i>Credits</i>
Foundation Studies Courses	13
520:630 Elementary School Curriculum and Instruction	3
520:780 Seminar in Elementary Education	6-12
590:699 Research in Education	3
	25-31
<i>Electives:</i>	14-20
<b>Total Credits for Degree</b>	<b>45</b>

Electives may be any combination of courses to meet the minimum of 45 credits which may include up to 18 credits in pertinent course offerings outside the College of Education. Elective courses should be planned with the graduate adviser.

This program is intended primarily for the student who expects to progress as a teacher in elementary schools. Students who look forward to an elementary school principalship will qualify by electing courses in Administration.

**SECONDARY EDUCATION**

<i>Required:</i>	<i>Credits</i>
Foundation Studies Courses	13
590:610 Field Experience-Masters*	3
OR	
590:699 Research in Education*	3
530:525 Reading Programs in the Secondary School	3

	<i>Credits</i>
530:780 Seminar: Secondary Education (Subject Area)	3
530:619 Secondary School Curriculum and Instruction	3
530:721 Supervision of Instruction in the Secondary School	3
Choice of one of the following two seminars:	
530:780 Seminar: Secondary Education, The Junior High	3
OR	
530:780 Seminar: Secondary Education, The Senior High	3
Graduate Study in Subject Field (Limit of nine credits in 500 Level Courses)	15
	46
<i>Electives:</i>	3

Total Credits for Degree 49

\*Choice determined by student's advisor.

This program is intended to prepare the teacher of grades seven through 12 for the following areas: master teacher, department head, supervisor, and resource teacher. This program may also serve as preliminary preparation for those who wish to apply for the Doctor of Philosophy Degree in Secondary Education.

**ELEMENTARY SCHOOL PRINCIPAL**

<i>Required:</i>	<i>Credits</i>
Foundation Studies Courses	13
520:630 Elementary School Curriculum and Instruction	3
570:631 Elementary School Administration	3
520:732 Supervision of Instruction in the Elementary School	3
560:603 Guidance in the Elementary School	3
570:601 Principles of Educational Administration	4
570:610 Principles of Educational Supervision	5
570:661 Field Experience for the Elementary Administrator	3
590:699 Research in Education	3
	40
<i>Electives:</i>	5
<b>Total Credits for Degree</b>	<b>45</b>

Elective courses should be planned with the graduate adviser. This program is intended primarily for the student who expects to progress as a principal or administrator in the elementary schools.

**SECONDARY SCHOOL PRINCIPAL**

<i>Required:</i>	<i>Credits</i>
Foundation Studies Courses	13
570:621 Field Experience for the Secondary School Administrator	3

	<i>Credits</i>
560:602 Orientation to Guidance Services	3
530:619 Secondary School Curriculum and Instruction	3
570:620 Secondary School Administration	3
570:610 Principles of Educational Supervision	5
570:601 Principles of Educational Administration	4
570:607 Legal Basis of Education	3
530:721 Supervision of Instruction in the Secondary School	3
530:780 Seminar: Secondary Education: The Junior High School	3
530:780 Seminar: Secondary Education: Senior High School	3
540:505 Vocational Education for Youth and Adults	3
OR	
570:710 Principles of Curriculum Development	4
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Total Credits for Degree 49 or 50	

**SUPERVISOR**

<i>Required:</i>	<i>Credits</i>
Foundation Studies Courses	13
570:610 Principles of Educational Supervision	5
520:732* Supervision of Instruction - Elementary School	3
530:721** Supervision of Instruction - Secondary School	3
561:602 Supervision of Instruction - Special Education	3
570:710 Principles of Curriculum Development	4
520:630* Elementary School Curriculum and Instruction	3
530:619** Secondary School Curriculum and Instruction	3
561:601 Seminar: Special Education Curriculum Planning	3
510:701 History of Education in American Society	4
590:711 Statistics in Education	4
570:651 Field Experience for Supervisors	3
590:699 Research in Education	3
<hr/>	
54	
<i>Electives:</i>	3
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Total Credits for Degree 57	

\*Required only of Elementary Students

\*\*Required only of Secondary Students

\*\*\*Required only of Special Education students.

Electives may include up to six credits in pertinent course offerings outside the College of Education. Supervisory certificates are issued for the elementary and the secondary school levels.

**LOCAL SUPERINTENDENT**

<i>Required:</i>	<i>Credits</i>
Foundation Studies Courses	13
570:601 Principles of Educational Administration	4
570:605 Decision-making Theory and Practice in Education Administration	4
570:606 Evaluation of Educational Institutions	4
570:607 Legal Basis of Education	3
570:608 Principles of School Finance	3
570:610 Principles of Educational Supervision	5
570:710 Principles of Curriculum Development	4

	<i>Credits</i>
570:604 School and Community Relations	3
570:641 Field Experience for the Superintendent	3
590:699 Research in Education	3
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Total Credits for Degree 49	

**COUNSELING**

<i>Departmental Core:</i>	<i>Credits</i>
560:617 The Interview	3
561:561 Principles of Teaching Exceptional Children	4
OR	
561:569 Practices in Educating Children with Learning Disorders	5
561:571 Classroom Behavior Management for Exceptional Children	4
560:625 Seminar in Counseling and Special Education	3
<hr/>	
Total 14 or 15	

**Options  
(Student chooses one)**

<i>Elementary Counseling</i>	<i>Credits</i>
560:603 Guidance in the Elementary School	3
560:600 Seminar in Guidance	3
560:616 Career Guidance: Theory and Practice	4
560:618 Counseling: Theory and Philosophy	3
560:619 Techniques of Counseling	3
560:620 Group Counseling	3
560:621 Practicum in Counseling	5
560:623 Evaluation and Diagnosis of Learning Problems	4
<hr/>	
28	
<i>Secondary Counseling</i>	
560:602 Orientation to Guidance Services	3
560:600 Seminar in Guidance	3
560:616 Career Guidance: Theory and Practice	4
560:618 Counseling: Theory and Philosophy	3
560:619 Techniques of Counseling	3
560:620 Group Counseling	3
560:621 Practicum in Counseling	5
560:623 Evaluation and Diagnosis of Learning Problems	4
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28	

*College Adult Counseling*

560:601 Student Personnel Services in Higher Education	3
560:600 Seminar in Guidance	3
560:616 Career Guidance: Theory and Practice	4
560:618 Counseling: Theory and Philosophy	3
560:619 Techniques of Counseling	3
560:620 Group Counseling	3
560:621 Practicum in Counseling	5
560:623 Evaluation and Diagnosis of Learning Problems	4
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28	

**Electives:**

Select three (3) credits of electives. The following are recommended:

	<i>Credits</i>
560:624 Consultant: Counseling and Special Education	4
560:616 Career Guidance: Theory and Practice	4
560:701 Organization and Administration of Guidance Services	3
590:711 Statistics in Education	4
520:630 Elementary School Curriculum and Instruction	3
520:630 Elementary School Curriculum and Instruction	3
530:619 Secondary School Curriculum and Instruction	3
590:699 Research in Education	3

**SUMMARY**

	<i>Credits</i>
Foundation Studies:	13
Departmental Core:	14 or 15
Counseling Core:	28
Electives:	3
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	Total 58

**SPECIAL EDUCATION**

A program of studies for the candidate seeking graduate degree status in Special Education will be selected from the following course listings. The program will be established in conjunction with an adviser and in accordance with individual educational needs and state certification requirements. The areas for concentrated study include preparation for teaching the mentally retarded child, the learning and/or behavioral disordered child, and in combination with other departments, preparation in supervision and administration of special education.

<i>Departmental Core</i> (Required of all candidates)	<i>Credits</i>
560:617 The Interview	3
561:561 Principles of Teaching Exceptional Children	4
<b>OR</b>	
561:569 Practices in Educating Children with Learning Disorders	5
561:571 Classroom Behavior Management for Exceptional Children	4
560:625 Seminar in Counseling and Special Education	3
	<hr/>
	14 or 15

*Special Education* (20 credits from the following course offerings or related electives in consultation with an adviser).

561:560 Developmental Characteristics of Slow Learning Children	5
561:561 Principles of Teaching Exceptional Children	4

	<i>Credits</i>
561:562 Methods and Materials for Teaching Slow Learners	3
561:563 Arts and Crafts for the Slow Learner	3
561:564 Reading and Language Arts for the Slow Learner	3
561:565 Social Studies for the Slow Learner	3
561:566 Number Concepts for the Slow Learner	3
561:572 Development Procedures: Trainable Mentally Retarded	5
561:568 Occupational Orientation and Job Training for Exceptional Children	3
561:569 Practices in Educating Children with Learning Disorders	5
561:570 Clinical Teaching Practicum: Children with Learning Problems	5
561:571 Classroom Behavior Management for Exceptional Children	4
561:573 Superior Students — Their Growth Patterns and Education	3
561:600 Seminar in Special Education	3
Foundation Studies	13
	<hr/>
	Total Credits: 47 or 48

**VISITING TEACHER or  
SCHOOL SOCIAL WORKER**

The undergraduate prerequisites for these programs are 386:276, Introduction to Social Welfare (5 credits), and 386:373, Methods and Concepts of Social Work (5 credits).

	<i>Credits</i>
I. Foundation Studies:	13
II. Departmental Courses Required:	
560:617 The Interview	3
560:623 Evaluation and Diagnosis of Learning Problems	4
560:625 Seminar in Counseling and Special Education	
561:561 Teaching Exceptional Children	4
III. The Education Setting:	
One course required from each section	
A. 510:603 Education and Social Trends	3
510:702 Seminar: Modern Theories of Education	3
B. 570:631 Elementary School Administration	3
570:620 Secondary School Administration	3
570:704 Administrative Organization in Education	3
561:560 Developmental Characteristics of Slow Learning Children	5
C. 563:581 Sociological Foundation of Inner-City School Problems	5
563:582 Characteristics of Inner-City Youth	5
IV. Sociology Courses Required:	
386:673 Seminar in Social Work Methodology	4
385:533 Social Organization	4
V. The Sociological Foundation:	
One course required from each section	

	<i>Credits</i>
A. 385:504 The Family	4
385:523 Juvenile Delinquency	4
385:524 Probation and Parole	4
385:640 Seminar in Criminology and Juvenile Delinquency	4
B. 385:527 Racial and Cultural Inter-group Relations	4
385:532 The Sociology of Socialization	4
385:535 Sociology of Urbanization	4
398:621 Social Service Planning in an Urban Society	3
Total Credits	53-56

**READING SPECIALIST OR READING CONSULTANT**

To qualify as a reading specialist or consultant, the student must meet the following requirements:

1. Have a minimum of three years of successful teaching experience.
2. Earn a Master's Degree or its equivalent in credits, which includes the following program:

Foundation Studies Courses in Master's Program 13-16 credits.

Reading Instruction (Schedule minimum of four courses) 17-18 credits

	<i>Credits</i>
525:680 Trends in reading Instruction	3
525:681 Diagnosis of Reading Problems	5
525:682 Correction of Reading Problems	5
525:683 Clinical Practice in Reading I	4
525:684 Clinical Practice in Reading II	4

Related Professional Education 6-9 credits

With approval of his adviser, each student will schedule a minimum of two courses from the following:

520:630 Elementary School Curriculum	3
520:780 Seminar in Elementary Education — Reading	3
570:610 Principles of Education Supervision	5
530:619 Secondary School Curriculum	3
525:692 Advanced Study and Research in Reading Instruction	3
525:693 Supervision and Curriculum Development in Reading Instruction	3

Psychological Foundations 6-12 credits

With the approval of his Adviser, each student will schedule a minimum of two courses from among the following:

375:626 Principles of Individual Intelligence Testing	2
375:628 Practicum in Individual Intelligence Testing in Children	3
560:602 Orientation to Guidance Services	3
560:623 Evaluation and Diagnosis of Learning Problems	4

Students in graduate programs with other areas of concentration may elect any specialized course in reading, provided they meet the prerequisites.

**TEACHING THE CULTURALLY DISADVANTAGED**

The serious need for many more specially trained people for schools enrolling culturally disadvantaged is generally recognized by the experts in the field and is considered by many to be the most pressing of our current educational problems. Consequently, we need to make special efforts to find ways of getting more persons interested in making a commitment to teach in inner city schools.

Among the objectives of this program would be to help each student:

1. Acquire the basic knowledge and understanding of the American city with special emphasis on the unique characteristics of the "core" areas:

2. Acquire a knowledge of the developmental characteristics of culturally disadvantaged children and an understanding of how cultural deprivation, deteriorating neighborhoods, racial discrimination, and poor home conditions affect the youngsters' attitudes toward school and society — his level of aspiration, his self-image and other personal characteristics;

3. Develop a true sensitivity and empathy for disadvantaged children and their unique problems;

4. Develop an understanding of the impact which the special nature and characteristics of the inner city and its inhabitants have on the school curriculum, organization, instructional processes, guidance program, etc.;

5. Develop some insight into what action teachers, administrators, and supervisors might take to mobilize all the resources of the school and neighborhood it serves to help each child achieve at the level of his real ability especially through special relationships;

6. Develop skill in the selection of those instructional devices and materials likely to prove useful in teaching the culturally disadvantaged child.

The program is designed both for students already certified as well as those with no professional background.

**Program of Required Courses**

	<i>Credits</i>
563:581 Sociological Foundations of Inner-City School Problems	5
563:582 Characteristics of Inner-City Youth	5
563:686 Seminar: Educating the Disadvantaged	4
530:780 Seminar in Secondary Education: Instruction	3
530:780 Seminar in Secondary Education: Curriculum	3
560:623 Evaluation and Diagnosis of Learning Problems	4
590:603 Techniques of Research	5
510:690-691-692 Internship Teaching & Seminar	12

	<i>Credits</i>
OR	
Electives in Education, Urban Studies, Sociology or Political Science for students with teaching experience in inner-city schools.	12
Electives in Teaching Field in Special Fields in Education	9
Total Credits for Degree 50	

### EMPLOYMENT COUNSELOR

This program has been designed to meet the needs of Ohio State Employment Service Counselors and those who counsel in related or similar agencies. It may lead to a Masters degree if all requirements listed below are met.

Three different disciplines are represented: Education and Counseling, Management, and Sociology. Students must take the required Counseling courses and courses in at least one of the other two fields. Students may elect courses in all three fields. The required research paper may be done in any one of these three areas.

The listed prerequisites are not all essential. However, it is assumed that the candidate has a baccalaureate degree within which he has strength in one of these areas: Business, Economics, Psychology or Sociology. If he lacks a background in these areas, a selection among the following suggested prerequisites should provide helpful preparation for the graduate program. The candidate should make his choices in consultation with his academic adviser.

<i>Suggested Prerequisites:</i>	<i>Credits</i>
325:243 Survey of Economic Analysis	4
325:330 Labor Problems	4
375:141 General Psychology	5
375:160 Industrial Psychology	4
375:315 Social Psychology	4
385:100 Introduction to Sociology	5
386:270 Poverty in the Inner City	4
385:336 Social Change	4
650:350 Personnel Management	3
650:372 Management-Organization and Behavior	3

<i>I. Courses Required in the College of Education</i>	
560:600 Seminar in Guidance	3
560:616 Career Guidance: Theory and Practice	4
560:617 The Interview	3
560:618 Counseling: Theory and Philosophy	3
560:619 Techniques of Counseling	3
560:621 Practicum in Counseling	5
560:623 Evaluation and Diagnosis of Learning Problems (Group Testing)	4
<i>II. Research option in the College of Education</i>	
590:603 Techniques of Research	3
590:711 Statistics in Education	4
590:699 Research in Education	3

Elective Program in Management and/or Sociology. In consultation with an academic advisor, the student must select courses from one of these areas and may select courses from both.

<i>III. Courses Required in the College of Business Administration</i>		<i>Credits</i>
(or a selection from these)		
640:655 Government and Business		5
650:663 Industrial Relations		3
650:668 Administrative Behavior and Methods		3
650:669 Leadership Role in Organization		3
650:670 Organizational Theory and Policy Formulation		3
<i>IV. Research option in the College of Business Administration</i>		
650:547 Advanced Statistics		3
All required courses listed above must be completed before the student registers for		
650:698 Graduate Seminar in Management		3
<i>V. Courses Recommended in Sociology</i>		
385:530 Social Structures and Personality		4
385:531 Social Interaction		4
385:535 Sociology of Urbanization		4
385:538 Industrial Sociology		4
385:606 Sociology of Work		3
385:611 Seminar in Personality and Social Systems		4
385:620 Population Theory		4
<i>VI. Research option in Sociology</i>		
385:600 Sociological Research Methods		4
385:650 Thesis		3

The Master's degree requires a minimum of 50 quarter hours selected in consultation with an academic advisor in the College of Education.

### MASTER OF SCIENCE DEGREE IN TECHNICAL EDUCATION

#### A. Foundation Studies Courses: (13 Credits)

	<i>Credits</i>
510:600 Philosophies of Education	4
565:602 Behavioral Bases of Education	4
590:603 Techniques of Research	5

#### B. Professional Technical Education: (11 credits)

540:510 Postsecondary Technical Education	3
540:521 Industrial Techniques in Technical Education	5
540:530 Course Construction in Technical Education	3

For students selecting the Vocational Home Economics Option 540:551, Vocational Home Economics, 3 credits, may be taken in place of 540:530. Students selecting this option must also

take an additional 3 credits in a course emphasizing the adult in Vocational Education.

C. *Field of Specialization:* (One option is selected for a total of 13-14 credits)

1. *Teaching Option:* An approved schedule of technical courses selected from the graduate offerings of the College of Engineering, Business Administration, and Fine and Applied Arts and based on the student's academic and professional background.

2. *Guidance Option A:* (courses must be taken in sequence)

	<i>Credits</i>
560:619 Techniques of Counseling	3
560:617 The Interview	3
560:620 Group Counseling	3
560:621 Practicum in Counseling	5

3. *Guidance Option B:* (courses must be taken in sequence)

560:619 Techniques of Counseling	3
560:623 Evaluation of Diagnosis of Learning Problems	4
560:616 Career Guidance: Theory and Practice	4
Elective (as approved by adviser)	2-3

4. *Curriculum and Supervision Option:*

570:610 Principles of Educational Supervision	5
570:710 Principles of Curriculum Development	4
Elective	5

5. *Vocational Home Economics Option — Family Life:* (Leads to specialized certification)

Select 13-14 credits from the following courses:

740:501 Family Life Patterns in the Culturally Deprived Home	3
740:601 Family in Transition	3
740:602 Family: Establishment and Adjustment	3
740:603 Family: Middle and Later Years	3
740:651 Family Law	3
740:682 Individual Investigation in Family Life	2-5

6. *Vocational Home Economics Option — Child Care and Development:* (job training specialization)

Select 13-14 credits from the following courses:

740:501 Family Life Patterns in the Culturally Deprived Home	3
740:560 Organization and Supervision of Child Care Centers	3
740:616 Infant and Child Nutrition	3
740:660 Programming for Child Care Centers	3
740:665 Development in Infancy	3
740:683 Individual Investigation in Child Development	2-5

D. *Teaching Internship:*

Students who enter the program without teaching experience are required to take:

515:690 Internship Teaching and Seminar *Credits*  
4

Students in the Vocational Home Economics programs without teaching experience must take a teaching internship at a cooperating two-year institution under the Ohio Board of Regents. Students who already hold a four-year provisional certificate in Home Economics and who desire certification in Vocational High School Home Economics may select the internship experience in a Vocational High School Program.

E. *Electives:* (2-10 credits)

These hours may support the student's field of specialization, add to the student's general education, or be professional education courses.

F. *Total Credits Required:* 47

G. *Other Requirements:*

Work experience in a technical occupation is also required, the number of years being determined by the student's other qualifications.

**ADMINISTRATIVE SPECIALIST  
SCHOOL AND COMMUNITY RELATIONS**

<i>Foundation Studies Courses</i>	<i>Credits</i>
510:600 Philosophies of Education	4
565:602 Behavioral Bases of Education	4
590:603 Techniques of Research	5
590:699 Research in Education	3

Subtotal 16

*Required Courses*

570:601 Principles of Educational Administration	4
570:604 School and Community Relations	3
570:605 Decision-making Theory and Practice in Educational Administration	4
570:606 Evaluation of Educational Institutions	4
570:607 Legal Basis of Education	3
570:608 Principles of School Finance	3
570:610 Principles of Educational Supervision	5
570:710 Principles of Curriculum Development	4
570:732 Organizational Communication and the School Administrator	4
780:685 School Administration Communication Design in the Mass Media	4
780:686 Studies in Communication Media	4
780:687 Studies in Communication Media	4
780:688 Studies in Communication Media	4
590:610 Field Experience-Masters	3

Subtotal 53

Total 69

**SIXTH YEAR PROGRAM**

In addition to the foregoing Graduate Programs which meet minimum State of Ohio certification re-

quirements in the areas of Administration, Supervision, Guidance and Special Areas, the College of Education offers one year of study beyond the Master's Degree in the areas of School Superintendent and School Psychology.

### SCHOOL SUPERINTENDENT

#### Required:

	<i>Credits</i>
570:601 Principles of Educational Administration (1)	4
570:605 Decision-Making Theory and Practice in Educational Administration	4
570:606 Evaluation of Educational Institutions (2)	4
570:604 School and Community Relations	3
570:607 Legal Basis of Education	3
570:608 Principles of School Finance	3
570:701 School Buildings and Construction	3
570:703 Administration of Staff Personnel	3
780:631 Speech-Communication for the Educational Administrator	4
570:610 Principles of Educational Supervision	5
570:710 Principles of Curriculum Development	4
510:703 Educational and Social Trends	3
510:600 Philosophies of Education	4
510:701 History of Education in American Society	4
565:602 Behavioral Bases in Education	4
565:701 Learning Processes	4
590:603 Techniques of Research	5
590:711 Statistics in Education	4
590:699 Research in Education*	3
570:641 Field Experience for the Superintendent	3

Total Required Hours 74

#### Cognate Area Courses

*Acceptable Fields:* Sociology, Urban Studies, Political Science, Economics, Business Administration, Psychology, and History.

Minimum Required 12

#### Elective Courses

570:702 School Business Administration	3
570:704 Administration Organization in Education	3
570:730 Seminar in School Administration	4
570:731 Seminar: Problems of the School Administrator	3
570:732 Organizational Communications and the School Administrator	4
570:733 The Educational Administrator and Planned Change	4
780:685 School Administrator Communication Design in the Mass Media	4
570:850-851-852 Educational Administrative Internship	9
Minimum Required	4

Grand Total Required Hours 90

\*Required of those completing Master's Degree.

#### Other Requirements

The candidate will engage in a period of full-time study for at least one quarter. This requirement may be fulfilled during one full summer session.

### SCHOOL PSYCHOLOGY

#### Required Courses:

	<i>Credits</i>
375:503 Personality	4
375:608 Experimental Development I	4
375:619 Survey of Projective Techniques	3
375:626 Principles of Individual Intelligence Testing	2
375:628 Practicum in Individual Intelligence Testing in Children	3
510:600 Philosophies of Education	4
560:617 The Interview	3
560:623 Evaluation and Diagnosis of Learning Problems	4
560:625 Seminar in Counseling and Special Education	3
561:561 Principles of teaching Exceptional Children	4
561:571 Classroom Behavioral Management for Exceptional Children	4
562:601 Seminar: Role and Function of the School Psychologist	3
562:602 Cognitive Function Models for Prescriptive Educational Planning	4
562:604 Educational Diagnosis for School Psychologists	4
562:679 Practicum in School Psychology	5
562:680-681-682 Internship in School Psychology	9
565:701 Learning Processes	4
OR	
375:512 Psychology of Learning	4
590:603 Techniques of Research	5
590:711 Statistics in Education	4
590:699 Research in Education (Optional Course)	(3)

Total 76-79

Students enrolling in this program who do not have and do not wish to qualify for a teaching certificate must:

1. Take all required courses listed above.
2. Complete the following additional courses:

	<i>Credits</i>
565:157 Human Development and Learning	4
OR	
565:602 Behavioral Bases of Education	4
520:630 Elementary School Curriculum and Instruction	3
520:631 Elementary School Administration	3
525:681 Diagnosis of Reading Problems	5
590:610 Field Experience — Masters	3

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# The College of Business Administration

Programs of advanced study leading to the degrees of Master of Business Administration, Master of Science in Accounting, and Master of Science in Management are offered in the College of Business Administration. At the present time, graduate courses in the College of Business Administration are offered only in the evening.

Full Admission to graduate status in the College of Business Administration requires that an applicant:

a. possess a baccalaureate degree with a minimum of a 2.75 grade point average ( $A = 4.0$ ) in all undergraduate courses and a minimum of a 2.75 grade point average in all Economics and Business Administration courses previously taken. Students possessing degrees from outside the United States must have high academic standing (i.e., first class or the equivalent) plus satisfactory evidence of competence in English and will be admitted only on a selective basis after completing, within the United States, all of the post-baccalaureate courses listed below.

b. have an acceptable score on the Admission Test for Graduate Study in Business (ATGSB). A student should have his ATGSB score prior to filing an Application for Admission to Graduate School. A graduate student should normally have a score above 475 on the ATGSB: applicants scoring less than 450 will be denied admission to Graduate School.

c. have completed, with a grade of not less than "C" in any course, the quarter credits listed below (or their equivalent) at a regionally accredited college or university within the United States:

	<i>Credits</i>
325:243 Survey of Economic Analysis	4
620:401 Accounting Survey	5
640:371 Business Finance	5
650:348 Quantitative Business Analysis I	4
650:349 Quantitative Business Analysis II	3
650:372 Management-Organization and Behavior	3
660:300 Marketing Principles	4

Students taking these courses for post-baccalaureate credit at The University of Akron must maintain a minimum of a 3.00 grade point average for all post-baccalaureate work to be considered eligible for graduate status; exceptions to this rule are not made. Additional prerequisite courses in Accounting (Cost, Intermediate I & II, Auditing, and Taxation) will be needed by those students desiring to pursue a graduate concentration in Accounting but who do not have a baccalaureate degree in Accounting.

Special Admission to graduate status may be granted to applicants who do not possess a 2.75

grade point average for their undergraduate course work or those who have not earned a grade point average of at least 3.0 in all courses in Economics and Business Administration. Special Admission status may be recommended when there is reason to believe that the applicant can successfully complete the graduate program, as evidenced by his recent academic accomplishments. The guidelines outlined below will be used in evaluating students for Special Admission status.

If either of the following conditions exist:

	I	II
a. undergraduate grade point average in all courses	2.60- 2.74	2.40- 2.59
or b. grade point average for all courses in Economics and Business Administration previously taken	2.80- 2.99	2.60- 2.79

then *all* of the following requirements must be satisfied:

a. minimum acceptable ATGSB score	500	525
and b. minimum quarter credits in post-baccalaureate courses at The University of Akron (designated by the Head of the Graduate Business Program)	10	20
and c. minimum acceptable grade point average for all post-baccalaureate courses at The University of Akron	3.20	3.40

Applicants granted Special Admission status will not be considered for Full Admission status until they have completed at least 18 graduate credits with a grade point average of at least 3.00.

A person who has completed a course as an undergraduate or post-baccalaureate student cannot take an equivalent course for graduate credit toward a Master's degree in the College of Business Administration. A maximum of nine graduate credits may be transferred from an accredited college or university to the graduate program in the College of Business Administration.

## MASTER OF BUSINESS ADMINISTRATION

The Master of Business Administration program is designed to give the students a general knowledge of the functional areas of business as well as some concentration in one area. Students must have a minimum of 52 graduate credits earned

(within a five year period) with at least a 3.00 grade point average to meet the graduation requirements for an MBA degree. The following courses are required of all MBA students, regardless of their area of concentration:

	<i>Credits</i>
620:610 Accounting Management and Control	5
640:650 Administering Costs and Prices	5
640:655 Government and Business	5
640:674 Financial Management and Policy	5
650:640 Quantitative Methods in Operations Management	4
650:663 Industrial Relations	3
650:668 Administrative Behavior and Methods	3
650:669 The Leadership Role in Organization	3
660:660 Marketing Management and Policy	4
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In addition to the above requirements for all MBA candidates, specific supplementary requirements for the various concentrations on the MBA program are outlined below.

Concentration in Accounting (All Required)	
620:637 Advanced Accounting Theory	5
620:698 Seminar in Accounting	5
Approved electives	5
	<hr/> Total Credits required: 52

Concentration in Finance (All Required):	
640:698 Seminar in Finance	5
Approved electives	10
	<hr/> Total Credits required: 52

Concentration in International Business (All Required):	
660:629 The International Business Enterprise	4
660:689 Seminar in International Business	4
Approved electives	7
	<hr/> Total Credits required: 42

Prior to graduation, the student concentrating in International Business must demonstrate a reading and conversational proficiency in one language other than English by one of the following methods:

a. certification by the Modern Languages Department of The University of Akron.

b. presentation of earned college credits in such a language, averaging "C" or better, through two academic years (four semesters or six quarters)

Concentration in Management (All Required):	
650:670 Organizational Theory and Policy Formulation	3

650:698 Seminar in Management	<i>Credits</i> 5
Approved electives	7
	<hr/> Total Credits required: 52

Concentration in Marketing (All Required):	
660:699 Seminar in Marketing	4
Approved electives	11
	<hr/> Total Credits required: 52

### MASTER OF SCIENCE IN ACCOUNTING

The Master of Science in Accounting program is designed to give the student a limited exposure to the functional areas of business and a detailed concentration in Accounting. Those students desiring to earn the MS in Accounting must have a minimum of 45 graduate credits earned (within a five year period) with at least a 3.00 grade point average. The following courses are required:

2 of 3 Required:	
620:610 Accounting Management and Control	<i>Credits</i> 5
640:674 Financial Management and Policy	5
660:660 Marketing Management and Policy	4
1 of 3 Required:	
325:601 Macro-Economic Theory	4
325:611 Micro-Economic Theory	4
640:650 Administering Costs and Prices	5
All Required:	
620:637 Advanced Accounting Theory	5
620:698 Seminar in Accounting	5
650:668 Administrative Behavior and Methods	3
650:669 The Leadership Role in Organization	3
Accounting electives	14-16
	<hr/> Total Credits required: 45

### MASTER OF SCIENCE IN MANAGEMENT

The Master of Science in Management program is designed to give the student a limited exposure to the functional areas of business and a detailed concentration in Management. Those students desiring to earn the MS in Management must have a minimum of 48 graduate credits earned (within a five year period) with at least a 3.00 grade point average. The following courses are required:

2 of 3 Required:	
620:610 Accounting Management and Control	<i>Credits</i> 5
640:674 Financial Management and Policy	5
660:660 Marketing Management and Policy	4

## All Required:

	<i>Credits</i>		<i>Credits</i>
325:611 Micro-Economic Theory	4	650:670 Organizational Theory and Policy	
650:547 Advanced Statistics	3	Formulation	3
650:663 Industrial Relations	3	650:675 Applied Industrial Statistics I	3
650:665 Executive Decisions	3	650:676 Applied Industrial Statistics II	3
650:666 Operations Research	3	650:698 Seminar in Management	5
650:667 Manufacturing and Operation Analysis	3		
650:668 Administrative Behavior and Methods	3	Total Credits required:	48
650:669 The Leadership Role in Organization	3		

# ***The College Of Fine And Applied Arts***

## THE MASTER'S DEGREE

### HOME ECONOMICS

See Vocational Home Economics option under College of Education's graduate programs.

### MUSIC

The degree Master of Music is offered by the Department of Music with options for music education and for performance. Before undertaking such a program, the student must show that he has:

1. met the general requirements for admission to the Graduate School.

2. met the standard requirements for an undergraduate major in the area of proposed graduate speciality or that he has performed work which the department head approved as equivalent to an undergraduate major, and that he has maintained a 2.5 overall grade point average (on a 4.0 system) and a 2.75 average in his major field.

He must be able to demonstrate in an entrance examination satisfactory knowledge gained through undergraduate work in music history, theory, music literature, and basic conducting skills. If he is unable to do so, he must expect to audit the undergraduate courses in these areas until such examinations can be passed. He must demonstrate his performing skills on his major instrument and, depending upon his chosen option, satisfy a jury that he is prepared to undertake satisfactorily the applied music requirement.

He must complete 49 credits as follows: the *core program* will include 750:555, 605, 606, 607, six credits to be chosen from 750:551, 601, 604, and 608, six credits of applied music on his major instrument and three quarters of appropriate ensemble participation. The *music education option* includes 375:610, 750:553, 611 (530:611), 612 (530:612), 648 and eight credits of cognate work. The *performance option* includes six additional credits in applied music on the student's major instrument. Repertoire and Pedagogy in the pertinent field, 750:609 and 649 and eight credits of cognate. Cognate for both programs must be approved by the student's faculty advisor.

Following the completion of all course work, the student must pass a comprehensive examination covering the salient materials of his graduate program.

The special project (a recital for those choosing the performance option, a thesis for those in music

education) must be approved by the candidate's committee.

### SPEECH PATHOLOGY AND AUDIOLOGY

A program of study leading to the Master of Arts degree in Speech Pathology and Audiology is offered by the Department. The program may lead to certification by the American Speech and Hearing Association in speech pathology and/or audiology or language disorders. Before admission to any of the programs within the department, the student must:

1. Meet the general requirements for admission to the graduate school.

2. Meet the requirements for an undergraduate major in the area of proposed graduate specialty or complete undergraduate work within a calendar year of application.

3. Complete a course of study with a minimum of 48 credits, including thesis — or a minimum of 45 credits plus the non-thesis option outlined below.

4. Prepare a written thesis approved by the candidate's committee *or* select a non-thesis option to consist of 12 credits beyond the 45 previously indicated. It may be recommended that this option include up to 24 credits for those students anticipating dual ASHA certification; that is, clinical certification in both the areas of speech pathology and audiology.

All graduate students within the department must take 770:625 (One or two quarters) and 620 (three quarters) and six credits in audiology for speech pathology majors, and six credits in speech pathology for audiology majors.

### SPEECH AND THEATRE ARTS

A program of study leading to the Master of Arts degree, in Speech and Theatre Arts is offered by the Department. Before undertaking such a program, the student must show that he has completed:

1. the general requirements for admission to the Graduate School;

2. the standard requirements for an undergraduate major in the area of proposed graduate work, or that he has performed work with which the department head approved as equivalent to an undergraduate major.

In addition to the general requirements for the degree listed in the preceding pages, a course of study of a minimum of 45 credits must be completed. Thesis credit, ranging from 3 to 9 credits, must be earned in course 780:699 while preparing the Master's thesis. A written thesis (creative, historical, critical, or experimental) must be approved by the candidate's committee.

There is no *foreign language* required for the Master of Arts degree in Speech and Theatre Arts. To fulfill the *residence requirement*, work must be completed within a five-year period from the date of undertaking initial course work. This period will include at least three consecutive quarters in residence.

The student, before he applies for *advancement to candidacy*, must complete a comprehensive written and oral examination on his course work. The student, upon completion of his Master's thesis, must satisfactorily pass an oral examination on that thesis to be administered by his graduate committee.

#### I. *General Speech Concentration: Course of Study*

##### A. Required Courses Credits

780:600 Introduction to Graduate Studies	3
699 Research and Thesis	3-9

(Typically, one may expect six quarter hours of credit to be earned in Research and Thesis)

B. The remaining courses shall be chosen from among the offerings in the areas of Communication and Rhetoric, Mass Media, and Theatre Arts. The candidate and his adviser shall make the following options: (1) a minimum of 12 credit hours from each of the three areas of concentration; (2) more credit hours may be taken above the minimum from any one of the areas that best fits the interests and talents of the candidate; (3) selected cognate courses may be taken at the option of the candidate and his adviser.

C. It shall be understood by the prospective candidate in General Speech that 45 quarter hours is the *minimum* that must be earned beyond the *required courses* cited above. Further, it should be clearly understood that the total program will be in excess of 55 credit hours.

#### II. *Communication and Rhetoric Concentration: Course of Study*

##### A. Required Courses Credits

780:600 Introduction to Graduate Studies	3
699 Research and Thesis	3-9

(Typically, one may expect six quarter hours of credit to be earned in Research and Thesis)

B. The *Core Courses* for Communication and Rhetoric. The candidate should choose a minimum of 24 credit hours from the following:

780:545 Theory of Argument	3
554 Group Processes and Conference Leadership	4
590 Introduction to Analysis of Public Discourse	4

780:610 Seminar in Communication Problems	3-6
(may be repeated for 6 credit hours)	
681 Advanced Persuasion and Propaganda Analysis	3
684 Survey of Communication Theory	3
690 Classical Rhetorical Theory	3
691 Seminar in Rhetorical Theory	4-8
(may be repeated for 8 credit hours)	

##### C. Electives from the Departmental offerings:

The candidate should choose from these offerings those courses that will be of most benefit to his specialization:

780:540 Direction of Forensic Activities	3
601 Introduction to Quantitative Research in Speech Communication	4
605 Graduate Research in Speech and Theatre Arts	3-9*
(may be repeated for 9 credit hours)	
606 Communication Problems in the Basic Speech Course	1
631 Speech-Communication for the Educational Administrator	3
640 Seminar in Modern and Contemporary Rhetorical Theory	3-6*
(may be repeated for 6 credit hours)	
680 Special Problems in Communication and Mass Media	3-6*
(may be repeated for 6 credit hours)	
691-692 Critical Studies in American Public Address I, II	6
(3 credit hours each)	

\*No more than six credits may be taken from independent research seminars if the candidate is pursuing a rhetoric and public address interest.

D. Cognate areas within the department or from outside areas of interest may be taken. Eight credit hours or three courses should be considered the maximum load in cognate areas for the Communication and Rhetoric candidate.

#### III. *Mass Media Concentration: Course of Study*

##### A. Required Courses Credits

780:600 Introduction to Graduate Studies	3
699 Research and Thesis	3-9

(Typically, one may expect six quarter hours of credit to be earned in Research and Thesis)

B. The remaining courses shall be chosen by the candidate under the direction of his adviser from (1) the Mass Media courses cited in the catalogue descriptions, (2) appropriate Communication and Rhetoric courses, or (3) appropriate Theatre Arts courses. A minimum of 48 credit hours must be earned beyond the required courses cited above.

C. Cognate field courses from outside the department may be chosen if they are appropriate to the special interest of the candidate and meet the approval of the candidate's adviser.

D. Thesis options (see the general description).

#### IV. *Theatre Arts Concentration: Course of Study*

##### A. Required Courses

	<i>Credits</i>
780:600 Introduction to Graduate Studies	3
699 Research and Thesis	3-9

(The Graduate Faculty will assign the actual number after oral examination. Typically, six credits are earned for a thesis.)

B. A minimum of 45 additional credits shall be earned from the following courses or from approved courses in cognate fields:

780:560 Dramatic Criticism	4
566 Advanced Problems in Lighting	3
567 Contemporary Theatre Styles	4
568 Children's Theatre Workshop	4-8
605 Graduate Research in Speech and Theatre Arts	3.9**
636 Special Problems in Oral Interpretation	4
641 Problems in Directing	4
642 Problems in Contemporary Acting	4

	<i>Credits</i>
780:660 Advanced Technical Theatre	3
661 Playwriting	3
662 Seminar in American Musical Theatre	3
663 Seminar in American Theatre	3
664 Seminar in <i>Commedia Dell' Arte</i>	3
665 Seminar in Theatre Audience	3
667-69 Studies in Dramatic Practice (3 credits each)	9

\*\*This course may be used, in addition to an approved individual research project, for a group project for the study of a designated, specialized topic, such as a seminar on Brecht, the Irish Theatre, Black Theatre, *et cetera*.

C. There is no specific number of courses in cognate fields required. Students may elect related graduate courses in the department or in English, psychology, art, or music.

# The School of Law

Stanley A. Samad, J.S.D., *Dean*  
John P. Finan, J.D., *Associate Dean*

## OBJECTIVES

The purpose of the School of Law is to further the objectives of The University of Akron by providing a quality program of university education for Law and to pursue the following aims:

To prepare students for a career in the profession of law by imparting information concerning legal institutions, basic principles of the substantive and procedural law, and jurisprudential thought concerning the role of law in society.

To help to develop in students an active and critical attitude rather than a passive approach toward the rules of law and their social implications.

To develop in students a high sense of professional responsibility in terms of technical competency, appreciation of professional standards and the responsibility of the lawyer to achieve a more nearly perfect system of civil and criminal justice.

The School recommends each student for the Juris Doctor degree upon satisfactory completion of the requirements.

The School of Law was established on September 1, 1959 as the successor to the Akron Law School. Founded in 1921 as an independent evening law school, the Akron Law School produced two generations of successful members of the bench and bar, and leaders in industry and commerce. Recognizing that legal education is best conducted in university-centered programs, and mindful of the need for the continuation of a sound program of legal education in the most densely populated quadrant of the state, The University of Akron accepted an offer of merger, and formed the School of Law.

The School of Law continued to offer a plan of part-time study of law with all classes scheduled during the evening hours. The completion in 1965 of a modern, new building to house the School of Law and College of Business Administration, and a realization by the University of an impending shortage of opportunities for the study of law on a full-time

basis, led to a decision to offer both day and evening programs in law.

The schedule of courses for full-time students is designed so that the Juris Doctor degree may be earned in nine quarters or three academic years. Attendance at the summer sessions is optional.

The schedule of courses for part-time evening students is designed so that the Juris Doctor Degree may be earned in four academic years consisting of four fall quarters, four winter quarters, four spring quarters, and three summer sessions. The normal academic load in the evening program is nine credits. And the summer sessions are an integral part of the program.

The schedule of courses has been designed by the faculty to provide a logical progression of subject matter, as well as reasonable freedom in the selection of elective courses. Students are encouraged to observe this schedule in planning their programs so that they can continue their advantageous progression of subject matter.

The primary purpose of students enrolling in the School of Law is to accrue fundamental knowledge of law and the role of law in society, interlaced with a grasp of the public responsibilities of the lawyer, enabling them to become attorneys and counsellors at law and leaders in governmental affairs. The ultimate aim of the School is the development of graduates who will serve society not only through the representation of their individual, corporate, or governmental clients, but who will also serve as architects of society.

Students are trained to develop their powers of legal analysis and synthesis, to develop the technical skills of legal advocacy and legal draftsmanship, and to learn practical skills of research and the management of litigation.

## PRE-LEGAL EDUCATION

A student expecting to enter the School of Law should hold a baccalaureate degree which has been granted by an accredited institution of higher learning. His undergraduate courses should have developed his ability in expression and comprehension of the English language, afforded him basic information about human in-

stitutions and cultivated his ability to think creatively and critically, with thoroughness and intellectual curiosity.

Requirements are flexible for undergraduate study preceding legal education. However, it is generally recommended that students have a liberal arts background with majors in any of these fields: English, economics, history, mathematics, philosophy, political science, psychology, sociology or a science. Also, acceptance is granted to students with degrees in areas of business administration, education and engineering.

Comments on specific fields of logical background study are as follows:

**ACCOUNTING** — so that a future lawyer will be able to understand financial terminology.

**ECONOMICS** — valuable because law protects and regulates economic interests.

**HISTORY** — important because political, economic and constitutional history are basic to the study of law.

**POLITICAL SCIENCE** — a logical program for pre-law students because their future profession deals with governmental and political policies.

**SOCIOLOGY** — valuable because many jurists explain law in sociological terms and advocate a sociological, humanistic approach to the development of law.

**PHILOSOPHY** — philosophic methods are useful in achieving orderly, critical thinking.

**PSYCHOLOGY** — essential because law is a means of regulating human behavior and therefore, a lawyer should understand behavioral motivation and response.

**LANGUAGES** — valuable because much of law practice is apt to have international significance and an awareness of other tongues brings understanding of other people.

For additional information, see the official *Pre-Law Handbook*, 1971-72 edition, published in October 1971 and prepared by the Law School Admission Test Council and the Association of American Law Schools. This book includes material on the law and lawyers, pre-law preparation, applying to law schools, and the study of law, together with individualized information on most American law schools. It may be obtained at college bookstores or ordered from Educational Testing Service, Princeton, New Jersey 08540.

## REQUIREMENTS FOR ADMISSION

An applicant for admission to the School of Law desiring to become a candidate for the

Juris Doctor degree must satisfy the following requirements:

1. He must be of good moral character.

2. He shall show evidence that he has received a Bachelor's degree from a regionally accredited college or university in a field of study deemed appropriate by the faculty of the School of Law, with an academic average substantially better than the minimum average required for such degree.

3. He must have taken prior to admission the Law School Admission Test and earned a satisfactory score.

4. He must register with the Law School Data Assembly Service (LSDAS).

## ADMISSION PROCEDURES

The procedures for securing admission are as follows:

1. Obtain an application form from the School of Law.

2. Submit to the School of Law, The University of Akron, an application fee of \$20.00 if never previously enrolled for credit courses at The University of Akron.

3. Arrange to take the Law School Admission Test (LSAT), which is given at the University and elsewhere, by making application to the Law School Admission Test, Educational Testing Service, Box 944, Princeton, New Jersey 08540.

4. Register with the Law School Data Assembly Service (LSDAS) by making application to the Law School Data Assembly Service, Educational Testing Service, Box 944, Princeton, New Jersey 08540. (An LSDAS registration form is contained in the Educational Testing Service packet of materials on the Law School Admission Test.)

File with the Law School Data Assembly Service a copy of the transcript of record from each college or university attended. (The LSDAS analyzes the transcript(s) and Law School Admission Test score, and sends copies to the School of Law.)

5. A personal interview with the Assistant Dean of the School of Law may be required as a condition of admission; otherwise, the personal interview is optional.

6. If accepted for admission by the School of Law, file with the School of Law an official, final copy of the transcript of the record from the institution which awarded the baccalaureate degree, at least one week prior to the official registration period published in the University Calendar.

The School accepts beginning students only in the fall quarter.

All inquiries and correspondence pertaining to admission should be sent to:

Assistant Dean  
School of Law  
The University of Akron  
Akron, Ohio 44325

PI	Permanent	
	Incomplete	0
CR	Credit	*
NC	No Credit	0

\*Not calculated in cumulative average.

**ADMISSION TO ADVANCED STANDING**

A law student who has completed part of his law course at a school on the approved list of the Section of Legal Education and Admissions to the Bar, American Bar Association, and who is eligible for readmission to his former law school, may be admitted to advanced standing. A student desiring admission to advanced standing shall (1) obtain from the Dean of his former law school a letter setting forth the fact that he is eligible for further instruction, and consent to the transfer; (2) submit evidence of meeting the admission requirements of The University of Akron School of Law; (3) present an official transcript of all work completed at his previous law school. Credit to be given for the prior law school work shall be that determined by the Dean of the School of Law.

Academic averages are computed by dividing the quality points achieved by the credits attempted. When a course is failed and repeated, the credits and the quality points involved each time are included in the computation as if the repeated course were an independent course.

A quality point ratio of less than 2.0 is unsatisfactory. A law student whose scholarship is unsatisfactory may be placed on probation, suspended for a definite period of time or dropped from the School at any time by the Dean.

If a student withdraws from a course with the permission of the Dean, it will not count as work attempted. If a student leaves a course without permission of the Dean or is dropped from any course by the Dean, he is given a failing grade in the course and it is counted as work attempted.

**AUDITORS**

Members of the Bar and graduates of law schools who are not yet members of the Bar may, with the permission of the Dean of the School of Law, enroll for a course without credit. The auditor is required to do all the work prescribed for the regular student enrolled for credit except taking examinations. The fee for the auditor is the same as for a regular student.

**REQUIREMENTS FOR A DEGREE**

The Juris Doctor degree is conferred upon students of good moral character who have been recommended by the Dean and faculty of the School of Law and who have:

1. Completed satisfactorily all required courses, seminars and electives to earn at least 126 credits.
2. Attained at least a 2.0 average for all courses taken and at least a 2.0 average for the senior year.
3. Spent their last year in residence at the University unless excused by the Dean.

**STANDARDS OF ACADEMIC WORK**

The following system of grades is used in recording the quality of a student's academic work:

Grade	Quality Points Per Credit
A Excellent	4
B Good	3
C Satisfactory	2
D Poor	1
F Failed	0

Grade	Quality Points Per Credit
I Incomplete	0
IP In Progress	0

**FEES AND EXPENSES**

Fees are as Follows:

Application fee, nonrefundable;	\$20.00
Fees for residents of Ohio, per credit:	\$23.00
Fees for nonresidents of Ohio, per credit:	\$29.00

Students taking less than nine credits in any quarter pay a General Fee of \$5.00 for that quarter. Students taking nine or more credits pay \$15.00.

For those students living in University housing, the cost is \$1140 for three quarters.

This fee includes room (two students per room), bed linen, and twenty meals per week for three quarters.

Books (new) will cost approximately \$140 per year for full-time students and about \$95 per year for part-time students.

### LOAN FUNDS

University loans by which tuition and maintenance fees may be paid over the quarter in periodic installments may be requested through the Cashier's Office. Normally, these loans do not exceed one-half the fees due in a quarter.

Law students may apply for the following loans: National Defense Student Loans, the Philip H. Schneider Scholarship Loan Fund, Ohio Higher Educational Assistance Commission Loans (available to full-time students who are residents of Ohio), and the American Bar Association Fund Federally-insured Loan for Legal Education.

Application for loans should be obtained from the Student Financial Aids Office, The University of Akron, well in advance of the beginning of the quarter.

Loans for emergency purposes will be considered during the academic year.

### LIBRARY

The law library is the laboratory of the School of Law and is most important in providing the law student with materials for research and study. The law library contains approximately 65,000 volumes. University libraries comprising more than 500,000 books, tapes, publications and other items are available to law students.

Credits refers to number of quarter credits assigned to various courses.

### ENROLLMENT IN OTHER SCHOOLS

A student who is enrolled in the program leading to the Juris Doctor degree may not take work in any other school, college or course of instruction, unless he first obtains the written consent of the Dean. No student may attend a course designed as a review for the bar examination until he has completed all course requirements for the Juris Doctor Degree.

### BAR ADMISSION REQUIREMENTS

Each student entering the School of Law is encouraged to read Rule XVII of the Supreme Court of Ohio, Admission to the Practice of Law, or the comparable rule of court in the jurisdiction wherein he desires to take the bar examination and practice law.

The Supreme Court of Ohio requires that each student entering a law school and who intends to practice law in Ohio shall file within 120 days from the beginning day of the fall quarter an application for registration as a law student, evidence of his meeting the pre-legal educational requirements established by the Rule, a legible set of fingerprints on a prescribed form and filing fee of \$20.00. As a condition for taking the bar examination, the applicant must file an application not less than 90 days prior to the date of the bar examination, a certificate of the School of Law that the student has completed or will complete all courses required by the Rule and a filing fee of \$40.00. The Rule requires that a student be tested in the following courses: Business Associations (including Agency, Partnerships and Private Corporations), Constitutional Law, Contracts, Criminal Law, Equity (including Trusts), Evidence, Federal Taxation, Negotiable Instruments, Pleading and Practice, Property (Real and Personal), Torts and Wills. Further, the student must be certified as having had instruction in Legal Ethics.

The appropriate forms may be obtained from the School of Law on request. It is the responsibility of the student to initiate a request for, to execute properly, and to file timely, the requisite forms.

### THE HONOR SYSTEM

Consistent with the aim of training professionally responsible lawyers, and in recognition of the importance of honor and integrity of the individual lawyer, the faculty has placed the responsibility of honorable conduct on the individual student, and the administration of the honor system on a council of students composed of Student Bar Association officers and class representatives.

One noteworthy feature of the honor system is that each examination is unproctored. Entering students are urged to familiarize themselves with the Honor Code.

### LAW STUDENT ASSOCIATIONS

The Student Bar Association is designed to introduce law students to the professional

responsibilities and problems they will face upon admission to the bar, to provide closer integration among the future lawyers and present-day leaders of the legal profession, promote professional responsibility and to acquaint law students with the opportunities and obligations to improve the administration of justice through the organized bar. In addition, the Student Bar Association provides a form of student government and promotes good fellowship.

The Grant Chapter, Phi Alpha Delta Law Fraternity was established in 1962. This fraternity has as its objectives the advancement of the legal profession, the attainment of a high standard of scholarship and the development of a spirit of good fellowship among its members. Law students in good standing may become pledges after the first quarter and active members after the second quarter.

The Judge Florence E. Allen Chapter, Phi Delta Delta Legal Fraternity (International) for women was established in 1965. The objectives of this fraternity are to promote the highest professional standards among women law students and women in the legal profession and to promote the achievement of its members.

An appellate moot court program known as BRACON'S INN is offered to all students. BRACON'S INN has as its purpose the development of skills in legal research, brief writing and oral advocacy before a moot appellate tribunal. BRACON'S INN is student-managed.

The wives of law students have established an organization called Law Wives. This association holds social events and provides services for wives of entering students, for the Student Bar Association, and for the School.

#### THE AKRON LAW REVIEW ASSOCIATION

A board of student editors prepares and edits, with the advice of the faculty, *The Akron Law Review*, a semi-annual legal periodical devoted to legal research and commentary on the law. Membership on the board is limited to those students of superior academic achievement who desire to engage in legal research, analysis, writing, and editorship. Membership on the board of student editors is indicative not only of scholarship, but of uniquely valuable training in skills important to the profession of law.

#### SCHOLARSHIPS, HONORS AND AWARDS

Applications for scholarships may be obtained from the Assistant Dean of the School of

Law. These applications should be submitted not later than May 1. No awards will be made until the student is accepted by the School of Law. Grants up to the equivalent of one year's fees may be made for an academic year, and may be considered for renewal, provided the student's performance is superior.

Tuition remission scholarships in the sum of \$15,000 are available for entering law students. These scholarships are renewable from year to year, on superior performance.

The Akron Bar Association Auxiliary Scholarship, established by the Akron Bar Association Auxiliary, provides an annual scholarship from principal and income not to exceed \$1,000 to an entering student in a full-time program of law study. The University Scholarship Committee, on the basis of scholarship, legal aptitude, character and need, and with the advice of the Dean of the School of Law shall make the selection, giving first preference to a resident of Summit County, Ohio. A recipient may apply for an annual renewal of the scholarship.

The Akron National Bank and Trust Company provides an annual award of \$200 to the graduating senior who excels in the study of the law of trusts and estates, with the selection to be made by the Dean.

The American Law Book Company has authorized the West Publishing Company to award four titles of *Corpus Juris Secundum* to students of all classes who have made the most significant contribution to overall legal scholarship.

The W. H. Anderson Company, Publisher, awards to the highest ranking student in Corporations each year a copy of ANDERSON'S OHIO CORPORATION DESK BOOK, and to the highest ranking student in wills a copy of ADDAMS AND HOSFORD: OHIO PROBATE PRACTICE.

The Banks-Baldwin Law Publishing Company awards annually a copy of BALDWIN'S OHIO CIVIL PRACTICE MANUAL to the graduating law student displaying scholarship in the study of Code Pleading.

The Bracton's Inn Award is a fund established in 1971 by the Law Wives Club of the School of Law, of which the principal and income is to be used to support the program of Bracton's Inn (the Case Club of the School of Law) for awards, expenses of competition on the local, regional and national level, and in any other way to promote competition and recognition of superior performance in the moot court program.

Mr. and Mrs. Evan B. Brewster have established an annual award in the sum of \$130.00, half of which is to assist a deserving law student who ranks in the upper half of his class to obtain the use of assigned case and text books, and half for the expansion of the Law Library collection.

The Bureau of National Affairs, Inc. awards a year's complimentary subscription to THE UNITED STATES LAW WEEK to a graduating student who, in the judgement of the faculty, has made satisfactory progress in his senior year.

The Robert Crafts Memorial Scholarship is a fund established in 1969 by Mrs. Robert Crafts in memory of her husband, Robert Crafts, Esq., of which the income or principal or both will be used to assist worthy students in the School of Law who enter under the Council on Legal Education Opportunity program, and students similarly situated, on the recommendation of the Dean of the School of Law.

The Fellows of the Ohio State Bar Association Foundation award annually two \$245 scholarships. One scholarship is awarded to a sophomore law student with the highest academic average and the second to a junior law student with the highest academic average.

The Goodyear Tire & Rubber Company Fund For Council on Legal Education Opportunity (CLEO) Students is a fund established in 1969 by the Goodyear Tire & Rubber Company Fund, of which the principal and income will be used for living expenses, during the academic year, of students admitted to the School of Law under the Council on Legal Education Opportunity program, on the recommendation of the Dean of the School of Law. The fund is administered by The University of Akron Development Foundation.

The William S. Hein Law Book Company Award of \$200 and law books is presented annually to a student (or students), who in the judgment of the Dean, has excelled in scholarship and student leadership.

The Law Wives Club Award of \$50 is presented annually to a law student displaying scholarship and leadership in student affairs, as determined by the Dean of the School of Law.

The Lawyers Co-operative Publishing Company and Bancroft-Whitney Company, joint publishers of AMERICAN JURISPRUDENCE, award to top ranking students in about twenty courses a specially bound copy of the equivalent title from their multi-volume publication.

The Judge W. E. Pardee Memorial Award of \$150 (established 1963-64) is presented an-

nually to a participant or team of participants in Bracton's Inn (the Case Club of the School of Law) who best displays advocacy skill and professional decorum.

The Judge and Mrs. W. E. Pardee Memorial Scholarship in an amount not to exceed \$500 is awarded annually to a deserving student who has demonstrated scholarship.

The Phi Delta Delta Legal Fraternity (Women's International) Beta Xi Chapter Award of \$25 is awarded annually, in memory of Judge Florence E. Allen, to a graduating woman law student excelling in the study of law, as determined by the Dean of the School of Law.

Prentice-Hall, Inc. provides annually a complimentary subscription to its Federal Tax Guide, Edition "A", to the graduating senior who has excelled in the study of taxation, as determined by the Dean of the School of Law.

The Charles and Ada H. Sacks Scholarship is a fund established in 1969-70, the Centennial Year of the University, in honor of Mr. and Mrs. Charles Sacks by their children, Robert and Naomi Christman, Sy and Laurel Fischer and Harvey and Shirley Friedman, of which the income will be used to provide scholarships to deserving students in the School of Law, on the recommendation of the Dean of the School of Law.

The West Publishing Company annually awards suitable law books to students with the highest first year average, highest second year average, highest third year average and to a student who had displayed leadership and scholarship.

## CLINICAL TRAINING

The School offers, under the supervision of its Director of Clinical Training, opportunities to its students to serve in the program of legal aid and legal services to the poor sponsored by the Summit County Legal Aid Society (or a comparable program in the county in which the student resides), in the office of the Summit County Prosecutor, and in the offices of corporate counsel and in private law offices. The aim of the program is both to develop skills in interviewing, counseling, drafting, negotiating and advocacy that are associated with the management of the affairs of a client, and to develop a critical awareness of the lawyer's responsibility to improve the administration of civil and criminal justice.

Students who have completed 42 credits may, with the permission of the instructor, undertake a credit course in Legal Aid, and may,

on successful completion thereof, enroll for a second (advanced) course.

Students who have completed 84 credits toward the Juris Doctor degree and who are enrolled as candidates for the Ohio bar examination may be admitted to the limited practice of law in Ohio as Legal Interns.

**CURRICULUM  
FULL-TIME PROGRAM**

(These courses are offered during the day.)

*First Year, Required*

	<i>Credits</i>
<i>First Quarter</i>	
920:603 Legal Process	4
920:605 Contracts I	4
920:614 Property I	4
920:641 Civil Procedure I	4

<i>Second Quarter</i>	
920:606 Contracts II	4
920:617 Torts I	4
920:623 Legal Research & Advocacy I	1
920:625 Property II	3
920:642 Civil Procedure II	3

<i>Third Quarter</i>	
920:618 Torts II	4
920:624 Legal Research & Advocacy II	1
920:626 Property III	3
920:638 Criminal Law	4
920:643 Civil Procedure III	3

*Second and Third Year, Required*

<i>First Quarter</i>	
920:628 Legal Profession I	1
920:633 Evidence I	3
920:685 Constitutional Law I	3

<i>Second Quarter</i>	
920:629 Legal Profession II	1
920:634 Evidence II	3
920:686 Constitutional Law II	3

*Third Quarter*

**PART-TIME PROGRAM**

(These courses are offered during the evening.)

*First Year, Required*

	<i>Credits</i>
<i>First Quarter</i>	
920:603 Legal Process	4
920:605 Contracts I	4
920:623 Legal Research & Advocacy I	1

<i>Second Quarter</i>	
920:606 Contracts II	4
920:617 Torts I	4
920:624 Legal Research & Advocacy II	1

<i>Third Quarter</i>	
920:618 Torts II	4
920:628 Legal Profession I	1
920:638 Criminal Law	4

*Second Year, Required*

<i>First Quarter</i>	
920:614 Property I	4

920:641 Civil Procedure I	<i>Credits</i> 4
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*Second Quarter*

920:625 Property II	3
920:642 Civil Procedure II	3

*Third Quarter*

920:626 Property III	3
920:629 Legal Profession II	1
920:643 Civil Procedure III	3

*Third and Fourth Year, Required*

*First Quarter*

920:633 Evidence I	3
920:685 Constitutional Law I	3

*Second Quarter*

920:634 Evidence II	3
920:686 Constitutional Law II	3

Credits refers to number of credits assigned to various courses.

*Electives*

	<i>Credits</i>
920:602 Development of Law and Legal Institutions	4
920:604 Moot Court	2
920:607 Insurance Law I	2
920:608 Insurance Law II	2
920:619 Basic Business Association I	2
920:620 Basic Business Associations II	2
920:622 Administrative Process	4
920:631 Commercial Transactions: Negotiable Instruments	4
920:632 Commercial Transactions: Sales	3
920:640 Administration of Criminal Justice	3
920:644 Federal Jurisdiction and Procedure	4
920:645 Problems in Trial Advocacy	2
920:647 Air Law	4
920:649 Law of Consumer Credit	3
920:650 Seminar in Product Liability	4
920:652 Creditors' Rights	4
920:653 Local Government Law	3
920:654 Domestic Relations	3
920:655 Individual Studies and Research	1-5
920:658 Seminar in Business Planning I	3
920:659 Seminar in Business Planning II	2
920:660 Seminar in Selected Legal Problems	1-4
920:661 Seminar in Political and Civil Rights	3
920:662 Seminar in Estate Planning	4
920:663 Patent, Trademark and Copyright Law	3
920:665 Land Use Planning	3
920:666 Seminar in Jurisprudence	4
920:667 Seminar in Comparative Legal Systems	3
920:668 Labor Law	4
920:670 Seminar in Legal Problems of the Poor	3
920:671 Corporations I	3
920:672 Corporations II	3
920:673 Wills	3
920:674 Trusts and Estates I	3
920:675 Trusts and Estates II	3
920:676 Problems in Labor Law	4

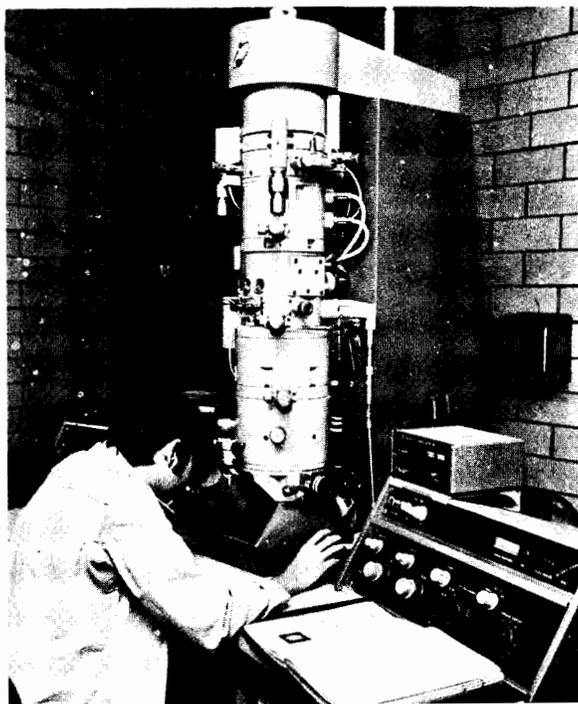
920:678 Seminar in International Transactions and Relations	4		
920:679 Commercial Transactions: Secured Transactions	4		
		<i>Electives</i>	
		<i>Credits</i>	
920:681 Seminar in Judicial Administration	3	920:689 Federal Estate and Gift Taxation	4
920:682 Accounting For Lawyers	3	920:690 Antitrust Law	4
920:683 Conflict of Laws I	3	920:691 Legal Regulation of Competition	4
920:684 Conflict of Laws II	3	920:692 Administration of Law Relating to Juveniles	3
920:687 Federal Income Taxation I	3	920:693 Remedies I	3
920:688 Federal Income Taxation II	3	920:694 Remedies II	2
		910:695 Legal Aid	3
		920:696 Law Review	1
		920:697 Legal Control of the Environment	4
		920:698 International Law I	4
		920:699 Selected Problems, International Law	3



## ***Research Centers and Institutions***

In the past, colleges and universities have been thought of as ivy-covered storehouses of knowledge where neatly packed information was dispensed to eager students. But this has never been true, for it is here that much of the new knowledge developed. And with the accelerating tempo of our times, there is an increased call for the universities to provide more new knowledge to enable society to cope.

The University of Akron is alive to this challenge and has sought to develop its research program with an eye to the needs of the society it serves. Here the emphasis is on work that is relevant, not on mere knowledge for knowledge's sake.



## **Research**

Edwin L. Lively, Ph.D., *Dean of Graduate Studies and Research*  
Robert G. Corbett, Ph.D., *Coordinator of Research*

One consequence of the University's concern with relevant research has been the number of interdisciplinary teams that have been put together to tackle specific problems. Thus problems in connection with water pollution have used the services of chemists, biologists, chemical, mechanical and civil engineers.

All of this benefits the student. While the planning and organization of a research project is usually carried out by or with the assistance of a faculty member, both graduate and undergraduate students have the opportunity to participate, depending on the nature of the project and the skills and knowledge required.

Additionally the student is assured of a skilled, knowledgeable faculty, not cloistered in an ivory tower, but alert to the latest developments in the various disciplines. It also makes it easier for the student to bridge the gap between the knowledge of the past that he is obtaining from his books and lectures, and the up-to-date activities of the worlds of commerce, industry, education and technology. All of the research activities on campus are coordinated by the University Research Council which also serves as the policy making body for research. The Council consists of the Coordinator of Research and the Directors of the four Research Institutes, the Institute of Polymer Science, the Institute of Civic and Educational Research, the Institute of Business and Economic Research and the Institute of Science and Engineering Research.

**INSTITUTE OF POLYMER SCIENCE** — The oldest of the research institutes, this was originally known as the Institute of Rubber Research. This institute has a staff of seventeen faculty members who direct the work of its pre-doctoral and post-doctoral students in a wide range of studies in the chemistry,

physics and engineering aspects of polymers. The Institute is equipped with an extensive array of instrumentation and specialized research equipment appropriate to its activities.

**INSTITUTE OF CIVIC AND EDUCATIONAL RESEARCH** — Concerned with the increasingly complex human problems facing our society today, this Institute is carrying out a number of studies designed to assist government and industry meet the challenges of the times. In addition to studies whose concern is with how to improve the educational process, there are a number of programs which aim to improve governmental service, both by devising new solutions to problems and by bringing together experts in various fields to share their expertise with others.

**INSTITUTE OF BUSINESS AND ECONOMIC RESEARCH** — The work of this institute is carried out principally by members of the Department of Economics and the College of Business Administration. Most of the work in this Institute is not of a project nature but rather is of the nature of a consultation. The specific problem of a specific client is handled rather than large-scale, long-range theoretical studies.

**INSTITUTE OF SCIENCE ENGINEERING RESEARCH** — The studies conducted in this Institute are what most people think of when the word research is used, for it is this Institute that deals with the natural sciences. Here are the chemists and physicists and engineers, with the test tubes, spectrophotometers, nuclear reactors and all of the varied paraphernalia of modern science. As a result, this Institute possesses a large number of specialized laboratories and many unusual pieces of equipment.

### ***Institute of Polymer Science***

Maurice Morton, Ph.D., *Director*

The **INSTITUTE OF POLYMER SCIENCE** was originally established as the Institute of Rubber Research in 1956, in order to prosecute its main functions: basic and applied research in polymer science and the graduate training of polymer scientists and engineers.

Because of its location in the heart of the world's largest concentration of rubber industries, The University of Akron has always maintained a special interest in the science of rubber, dating back to the establishment in 1908 of the world's first course in rubber chemistry by the late Dr. C. M.

Knights. During World War II, the research activities were expanded under the impetus of the U.S. Government Synthetic Rubber Program.

After the war, it soon became apparent that the phenomenal rise of the giant synthetic rubber industry had brought the whole science and technology of rubber into the broader field of *polymer science*, and the need for polymer scientists was fast outstripping the meager supply. Hence the establishment of the Institute of Rubber Research was accompanied by the inauguration, in 1956, of the University's Ph.D. program in polymer chemistry, the first of its doctoral programs.

Because polymer science and technology seeks ultimately to relate the molecular structure of macromolecules to their physical behavior, it requires the combined efforts of chemists, physicists and engineers. Hence the best trained polymer scientist or engineer is one who has a broad understanding of this material science, including areas outside his own specialty. To fill this need, The University of Akron, in 1964, broadened its original polymer chemistry program into an interdisciplinary program in polymer science, available to chemists, physicists and engineers, and leading to *M.S. and Ph.D. degrees in Polymer Science*. This program is administered by the Department of Polymer Science, the academic arm of the Institute. Its faculty also hold appointments in other science and engineering departments. This enables the graduate student, while pursuing his individual field of science or

engineering, to obtain both a broad and a specialized training in polymer science.

The Institute occupies the North Tower of the Auburn Science and Engineering Center, comprising about 45,000 square feet of floor space. It includes both chemical and physical laboratories, the latter devoted to physical measurements on polymers and elastomers. These facilities enable a wide scope of research to be carried out, including organic reactions, polymerization studies, characterization of macromolecules, and physical behavior and testing of polymers and elastomers. The well-equipped laboratories, together with the large interdisciplinary group of faculty, staff and graduate students, make the Institute a unique facility in this field. It is now comprised of thirteen full-time faculty members, holding ranks ranging from Professor to Asst. Professor in various disciplines, a combined technical and non-technical staff of 10, and 65 full-time graduate students, mainly pursuing doctoral degrees. Thus the Institute is now undoubtedly the largest academic facility of its kind in the United States.

The basic research work at the Institute is performed by graduate degree candidates under the supervision of faculty members. The fundamental character of this research makes it suitable for use in the graduate dissertation required of each student. The Institute also operates an Applied Research Section which undertakes projects as a service for government and industry, performed by a special staff of investigators.

## ***Afro-American Studies Program***

Lascalles F. Anderson, Ph.D., *Director*

The new Afro-American Studies program at The University of Akron has been created generally to broaden the University's curricula in order to meet the needs of a changing society. The goal of the program is to evolve a solid series of academic offerings that will give students exposure to Black culture not only in the United States context, but from non-United States traditions in South America, the West Indies, and Africa. All the courses, are offered through the departments of associate studies, history, English, speech and theatre arts, economic and political science.

A task force of students and faculty has formulated a customized approach to Black Studies for The University of Akron. The requirements stipulate in part that courses be developed as they apply to academic disciplines within existing departmental

structures. Afro-American Studies courses are open to all students in all disciplines and, to date, enrollment has been representative of a cross section of the campus.

Additional courses will be developed at logical points in the curriculum but the new courses will be offered only after they have been submitted to and approved by the University Council, the faculty legislative body on the campus which reviews all new course offerings. The possibility of offering independent seminars in specific interdepartmental areas is currently under consideration.

The Certificate Program is described under the Buchtel College of Arts and Sciences curricular requirements section of this *Bulletin*.

## ***Center for International Programs***

H. Kenneth Barker, Ph.D., *Dean*  
International Programs

Arno K. Lepke, Ph.D., *Director*  
International Studies

The University of Akron serves a community that is very much on the international scene. The world's major rubber industries that are located here have plants in every part of the globe, as do many of the city's smaller industries. Our student population includes 450 foreign students. The faculty of this University has wide interests and has traveled extensively to various parts of the world.

The various colleges of the University have developed programs to give our students an awareness of the global nature of knowledge. There are numerous courses in Non-Western studies, area

concentrations, programs in international business and various opportunities for students and alumni to travel overseas.

Through its Advisory Committee, composed of faculty and students of the various colleges, the Center for International Programs attempts to find ways of committing the University to programs that produce students who will be more knowledgeable about the total world in which we find ourselves. Hopefully, this can be done by increasing the international content of our various courses and finding ways to expose students and faculty to the various cultures of the world.

## ***Center For Peace Studies***

Warren F. Kuehl, Ph.D., *Director*

The Center for Peace Studies at The University of Akron has been established to study the subject of international peace within the threefold framework of the University's goal of education, research, and public service. A Peace Studies certificate program is available for students who wish to pursue this

course of study and the Center sponsors special campus programs, a film series, and an international newsletter. It is engaged in research projects and cooperates with organizations in the community interested in peace and with institutes and peace centers on other campuses.

## ***Center For Urban Studies***

Edward W. Hanten, Ph.D., *Director*

The Center for Urban Studies was established in 1965 to analyze and explore the basic problems of the urban structure through a continuing program of urban research. The establishment of the Center represents a recognition by the administration and faculty of the University of the need to gain a more comprehensive understanding of the complex interrelationships which cause expansion decay, wealth and poverty, advantage and exclusion, and a host of other problems and opportunities in the highly urbanized area today.

The Center for Urban Studies represents a commitment on the part of the University to help find solutions to many of the complex problems created by urban growth and development.

The objective of the Center is to provide a deeper understanding of the urban growth process on both the local and regional levels through a continuing program of basic and applied research. Initially the Center's major emphasis was Akron and its environs, more recently, the Center's horizons have broadened and programs have been undertaken which encompass the whole of Northeast Ohio. However, the findings and applications of the Center's work have a much broader scope and application.

The Center for Urban Studies represents an interdisciplinary approach to the analysis of the urban region. In its research activities the Center draws upon the skills of the faculty members in the various

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disciplines represented in the Colleges of Arts and Sciences, Engineering, Education, Business Administration, and Fine and Applied Arts. The Center provides facilities through which interested faculty and graduate students can carry out urban research activities.

To achieve its objective the Center for Urban Studies initiates and conducts programs in three major areas — Research, Data Accumulation and Extension.

BASIC AND APPLIED RESEARCH is being undertaken in many diverse areas, some of which are: Law Enforcement Planning, Urban Recreation, Community Development, Low Income Housing, Municipal Administrative Organization, and Social

Service Planning. Research in these areas will be useful to local communities, planners, organizations, urban researchers, and the citizenry of urban regions.

ACCUMULATION of data resulting from research conducted by the Center and other agencies will be maintained in the Center's research library for the storage, processing and retrieval operations necessary to continual program of research.

EXTENSION programs including seminars and conference are designed to make the results of the urban research activities directly available to public officials, the business community and residents of the urban region.





## *Continuing Education*

Education at The University of Akron is a year-round, round-the-clock endeavor. To help individuals who must work or maintain a home during the day, the University offers an extensive Evening College program of both fully-accredited credit courses leading to baccalaureate, associate and graduate degrees and non-credit courses designed to improve their work skills or to enrich a leisure-time avocation. For students who wish to accelerate their study programs or who cannot attend at other times, the University offers a variety of credit and non-credit summer courses. And, to make it convenient for persons who live beyond easy commuting distance of the main campus, the University is presently constructing a branch campus at Orrville, Ohio.



# ***The Urban Commitment Through Continuing Education and Public Services***

William A. Rogers, Ed.D., *Executive Dean*

Evening College  
Summer Sessions  
Wayne General and Technical College  
Institute for Civic Education  
Special Programs  
Developmental Programs

## **PHILOSOPHY**

The three basic missions of universities are teaching, research and public service. Time and location dictates the varying manner by which institutions of higher education administers and achieves these missions.

Since man's knowledge has grown, the rate has accelerated at a staggering pace in the past three decades. There now exists a need for continued education. The universities' dual, traditional mission to educate 18 to 22-year olds and reproduce its own replacements in the Ph.D. format is too limiting a role for the urban institution. A society that supports urban public higher education expects the university to play a wider role and to intersect with almost all segments of its population.

Some have observed that for the first time in America's history, Americans are members of a learning society in addition to the working one.

If an urban institution of higher learning is to fulfill its non-traditional role, different administrative structures within the institution are necessary to provide a proper balance among teaching, research and service.

Within the content of Continuing Education and Public Services, at The University of Akron are located a variety of units dedicated to the support of the urban commitment.

## **PRIMARY OBJECTIVES**

The primary objective is to provide university-level continuing education; degree programs for those beyond college age and other educational programs for adults interested in non-degree oriented activities.

Congruent with the primary objective, in relation to the urban commitment, is the establishment and maintenance of an effective liaison with

all Akron area agencies responsible for formal and informal post-secondary education.

## **MORE SPECIFIC OBJECTIVES ARE:**

1. To develop an Akron area higher education council embracing all post-secondary agencies. Council to function as a primary market research agency responsible for facilitating more effective utilization of efforts.

2. To offer meaningful learning opportunities (for which the university has talents) to those engaged in the various professions.

3. To offer assistance to industry, business, labor, public officials and community leaders in developing staff personnel and programs that will help them function more effectively.

4. To offer university-level assistance and joint community assistance to local, specialized organizations, agencies and other community groups to help them achieve their educational goals.

5. To offer a variety of opportunities to adults who wish to increase their personal awareness and insights as individual members of a larger society.

To accomplish these objectives, Continuing Education and Public Service will:

1. Maintain a climate and organization which will elicit a high level of cooperation from all segments of the faculty.

2. Cooperate with all campus offices in the development of proposals that will attract funds to help the University better serve its many audiences.

3. Serve as a coordinating body for all Akron area higher education activities. (Higher education is identified by post-secondary activity.)

4. Support and conduct research directed toward the identification of innovative approaches to continuing education and public service.

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5. Provide training programs for off-campus clients that will up-grade skills and help organizations improve the quality of their services.

6. Lastly, motivate the University's continuing education personnel to become sensitive to individual and group, implicit and explicit, needs within the larger community.

### ORGANIZATION

*Evening College:* To increase the community awareness of the availability of and value of academic programs for those beyond the college age.

*Summer Sessions:* To insure year-around academic programs and to encourage innovative programming through institutes, seminars, and workshops.

*Wayne General and Technical College:* To extend to Wayne, Holmes, and Medina counties the

newest higher educational format of the two-year community college that provides college transfer and technical education.

*Institute for Civic Education:* To function as the interface between community organizations and the University community. Its professional staff fill a variety of roles including coordinating, advising, managing, recommending, innovating, helping, and supportive.

*Special Programs:* To provide regular, on-going eleven-week, non-credit courses that prepare adults with specific skills and specific information. Program possibilities are almost limitless.

*Developmental Programs:* To provide courses, tutoring, and individual program materials for those who are academically disadvantaged. Develop, through external funding, up-grading programs for the educationally disadvantaged to insure their entry into the job market.

## The Evening College

Caesar Carrino, Ph.D., Dean

The University of Akron has a rich, historical tradition to devoting special attention to the development of courses for the education and interest of busy part-time students through evening classes which were first offered in 1909. This form of continuing education for adults has become as significant a pattern for urban universities in America today as was the pattern of agricultural extension in rural America nearly a century ago.

Through evening credit courses, informal special interest courses and programs of education for public responsibility, the Evening College keeps its doors open around-the-clock and around-the-year.

The Evening College at The University of Akron is a continuation of the regular daytime college life on campus. Credit courses have the same academic value whether taken in day or evening. Many of the full-time day faculty members also teach Evening College courses, insuring a high calibre of instruction.

Additional part-time faculty members are engaged to augment the Evening College teaching staff and accommodate large annual enrollments. These part-time instructors are people from the community with a full range of academic and practical experiences in their own and related fields.

The Evening College fulfills its responsibilities for the continuing education of adults by administering the credit courses offering of the University's several undergraduate and graduate colleges and schools. Informal, special interest courses are arranged by the College's Department of Special Programs.

Students enrolled in the Evening College include, but are not limited to, the following:

1. Persons who desire to accumulate University credits in a formal degree pattern, but who hold full-time jobs during the day. These students may begin, continue, or complete their education with Evening College courses.

2. Some students, in accepting part-time jobs, are requested by their employers to work during some of the daytime hours. They may attend lectures in the morning, work a partial schedule in the late afternoon, and return to the campus for evening lectures. The Evening College's definition of full and part-time job includes the role of the homemaker who often finds this College the major means of achieving her personal educational goal.

3. Many mature people, who are established in their chosen professions, invest some of their night hours in the Evening College to improve themselves

academically and professionally. They may be awarded any of the University's degrees after meeting all of the requirements and earning sufficient credit in the Evening College.

Evening College classes begin officially at 4 p.m. Class patterns are generally arranged on a Monday-Wednesday or Tuesday-Thursday cycle. There are also a few Evening classes on Friday evenings.

#### THE WEEKEND COLLEGE

In the Winter Quarter, 1970, as part of its continuing commitment to expanding opportunities for part-time, college-level education, the Evening College offered an academic innovation — the Weekend College.

The concept is this: some working people (housewives, traveling sales personnel) may be unable to attend day or evening classes during the week. To provide them with their opportunity to pursue a college education, the Evening College is offering classes on Saturday mornings and afternoons. On 10 consecutive Saturdays a student will have the same number of classroom contact hours as his day counterpart who attends three sessions per week, or the evening student who attends two sessions per week for the 10-week quarter.

#### EVENING COLLEGE ACTIVITIES

An Evening Student Council coordinates the extracurricular student activities of the College, which

are similar to those of the day college and, in fact, sometimes are part of the daytime schedule.

Organizations which have been established for Evening College students include Alpha Sigma Lambda, the national scholastic honorary fraternity; Gamma Beta, the Evening College sorority; Chi Sigma Nu, the Evening College fraternity, and Alpha Epsilon, the honorary fraternity.

Bulletins, brochures and flyers with Evening College Department of Special Programs information may be obtained from the Evening College offices, Room 118, Spicer Hall. These offices are opened from 8 a.m. to 9 p.m. Monday through Thursday, from 8 a.m. to 5 p.m. on Fridays, and 8 a.m. to 1 p.m. on Saturdays during the regular academic year. These publications outline admissions procedures, steps in registering, prerequisites, student course loads, absences, withdrawals, and grades.

A student newsletter, the *Nite-Life*, written and edited by a student staff, keeps Evening College credit enrollees informed of current happenings on campus.

Enrollment in the Evening College each quarter approximates 6,000 students. This compares to approximately 12,000 students enrolled in the day session. These figures do not include approximately 2,000 students registered in the Department of Special Programs.

## *The Summer Sessions*

Caesar Carrino, Ph.D., *Dean*

In 1973 slightly over 13,000 students enrolled in the summer program. Summer study opportunities are designed to satisfy a variety of student educational needs. Some students enroll in the summer session to help accelerate their academic progress. In doing so they will enter the job market earlier. Others who have taken less than a full academic load during the regular quarters enroll to make up course work. Entering fall freshmen begin programs to accelerate or take remedial courses. Elementary and secondary school teachers look to the summer as a period for regeneration of their intellectual energies. Summer is popular as study time because there are other "inherent" differences between the regular academic year and the summer.

Faculty, student, and administration have, on

occasion, noted that the summer "feels" different from the regular academic year. Obviously, the change in the weather is an important differential. Equally important is the fact that summer study represents a period when the on-going rhythm of the academic year is broken. The system of 10-week quarters, 50-minute classes, four or five courses three days a week is changed to two courses that meet daily for five days for 80 or 105 minutes each, for five weeks. The rhythm of instruction is changed because the faculty member must recast his material into a new time sequence. Obviously, this change helps the faculty member take a refreshed look at his subject matter.

Students generally tend to increase their outside work commitments in the summer and decrease

their academic load, which tends to be the reverse in the academic year.

Add to this the energy and beauty that the summer sun produces, and one can more easily understand why the summer session experience is different and refreshing.

#### Examples of Three-Week Patterns

##### FIRST THREE WEEKS

###### Daily

9:00-10:45	Institutions 110:115 — 3 crs.
7:05- 8:50	Western Cult. 110:317
10:30-11:40	Lecture — 0 crs.
11:50-12:50	Discussion — 3 crs.
1:00- 2:00	Discussion — 3 crs.
	Inorganic Chemistry 315:121
7:45- 8:50	Lecture — 3 crs.
9:00-12:00 MWF	Lab — 0 crs.

##### SECOND THREE WEEKS

###### Daily

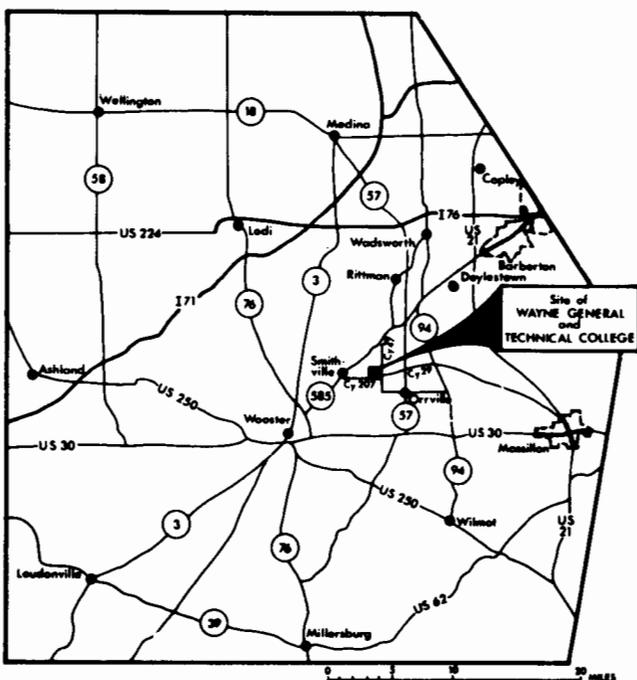
9:00-10:45	Institutions 110:116 — 3 crs.
7:05- 8:50	Western Cult. 110:318
10:30-11:40	Lecture — 0 crs.
11:50-12:50	Discussion — 3 crs.
1:00- 2:00	Discussion — 3 crs.
	Inorganic Chemistry 315:122
7:45- 8:50	Lecture — 3 crs.
9:00-12:00 MWF	Lab — 0 crs.

##### THIRD THREE WEEKS

###### Daily

9:00-10:45	Institutions 110:117 — 3 crs.
7:05- 8:05	Western Cult. 110:319
10:30-11:40	Lecture — 0 crs.
11:50-12:50	Discussion — 3 crs.
1:00- 2:00	Discussion — 3 crs.
	Inorganic Chemistry 315:123
7:45- 8:50	Lecture — 3 crs.
9:00-12:00 MWF	Lab — 0 crs.

# The Wayne General and Technical College



## Suggested Routes from:

### Akron

US 224 and 76 to Ohio 57 to Wayne County 29 at yellow blinker, right to Wayne County 47.

### Medina

Ohio 57 to Wayne County 29 at yellow blinker, right to Wayne County 47.

### Wadsworth

Ohio 57 to Wayne County 29 at yellow blinker, right to Wayne County 47.

### Rittman

Ohio 57 to Wayne County 29 at Yellow blinker, right to Wayne County 47.

### Wooster

US 30 to Ohio 57, north to junction of Wayne County 29, left to Wayne County 47.

# The Wayne General and Technical College

John G. Hedrick, M.A., *Director*  
Martin Kemp, M.S., *Assistant Director*

The University of Akron, allied with The Wayne General and Technical College for administrative and academic support, operates on the principle that students bring to the campus a wide range and variety of experience, needs, capacities, aspirations and interests. This principle has been incorporated in planning of The Wayne General and Technical College. Thus, The Wayne General and Technical College exists for these specific purposes:

1. To provide the first and second year of baccalaureate instruction integral to the traditional four-year liberal arts and sciences programs. After successful completion of the first two years, students will be awarded the degree of Associate in Arts. These students may transfer as juniors to four-year colleges and universities.

2. To provide collegiate technical education leading to the degree of Associate in Applied Science in such specialized areas of Business Technology, Engineering Technology and Public Service Technology. Students will acquire specific skills leading to employment or advancement if currently employed.

3. To provide programs of community service, adult education, and cultural activities as determined jointly with local community interest groups. Community services are provided in cooperation with other educational institutions, labor and business.

4. To provide continuing general education for all members of the community on a demand basis. Citizens at any age beyond high school are able to attend day or evening classes with ease of admission accorded by open-admission policies established throughout the Ohio system of higher education. Continuing Education is concerned with the common knowledge, skills and attitudes needed by each individual to be effective as a person, member of a family, employee and citizen in our free society.

5. To provide counseling and education-vocation information to assist enrolled students and other members of the community in the selection and pursuit of a lifework appropriate to aptitude, values and interests.

## B. Instructional Programs

Consistent with the purposes and objectives of

the Ohio Board of Regent's standards, The Wayne General and Technical College of The University of Akron will offer the following two major academic career choices:

1. *The College Transfer Program*, a replication of the liberal arts programs of the first two years of a baccalaureate college or university.

A growing number of students each year choose to take the first two years of collegiate study near home in a two-year college; The Wayne General and Technical College, for example. A complete academic

2. *The Two-Year Technical Program* is designed to provide specialized collegiate technical programs organized to develop high levels of skill in specialized occupations.

A major objective of The Wayne General and Technical College is to provide an all inclusive series of programs in technology and business to serve the needs of employers and individuals in Wayne, Holmes and Medina Counties.

## A PROFILE OF TWO YEAR COLLEGE STUDENTS

All students live off campus.

All students commute to campus; most drive.

Most day students are recent high school graduates in the age range 17-24.

Most evening students are working adults in the age range 17-70 (average 28).

Most day students enroll for slightly more than 12 credits per quarter.

Most evening students enroll for 4 to 6 credits per quarter.

Most day students have part-time jobs.

Most evening students are employed in full-time jobs.

Many evening students have previously attended college.

Fewer day students attended college previously.

Most day students change their academic goals several times prior to their junior year.

Most evening students have decided upon vocational or academic goals.

Some evening students enroll in courses mainly for self-interest and enrichment.

All students day and evening have long-term community relationships.

#### ADMISSION

Admission applications are available at the Admissions Office on campus or at The Wayne General and Technical College in Orrville.

#### REGISTRATION

Campus students who wish to take a course(s) at Wayne College too, include the branch courses along with their other selections.

Wayne College students who wish to take a course(s) on campus too, include campus courses along with their other selections.

## ***Institute For Civic Education***

Marvin E. Phillips, M.A., *Director*

Mary Elizabeth Chesrown, B.A., *Assistant Director*

The Institute for Civic Education is the public services programming center for The University of Akron. Many Informal programs of a continuing educational nature are designed for the community, utilizing the resources of the entire university and community. These programs are conducted both on and off the university campus and they vary in length and frequency; many are free.

Universities cannot completely rely on the traditional academic classroom approach to fulfill the requirements of education for public responsibility because learning is a life-long process distilled from varied educational and practical experiences.

The Institute sees its role as the catalyst for bringing together the skills and expertise of university personnel and community leaders to focus on the issues and problems of the urban society.

Among the continuing educational services provided by the Institute:

1. Coordination and cooperation with over 400 community organizations in program planning, workshops and seminars.
2. Complete conference planning for organizations both on and off campus.
3. Presentation of lectures by speakers in public life and national and world affairs, often in cooperation with University departments and community organizations.
4. Developing leadership training programs for implementation within the community organizations.
5. Developing training programs for discussion leaders, board members and program planners.
6. Community and College Ambassador Programs.

7. A Speakers Bureau with over 100 faculty members and 300 topics.

8. World-at-Our-Door travel film series.

9. Monthly Civic Educalendar listing events and programs.

10. Study discussion programs.

Programs are described in special announcements that are distributed to a community mailing list of approximately 3,500.

The Institute also serves as the liaison agency of The University of Akron in administering the Akron-Summit Tutorial Program (A-STP), with its joint sponsor, the Akron Community Service Center and Urban League. A-STP is one of the most successful anti-poverty educational projects in Summit County.

In cooperation with the Akron Area Adult Education Council, which was established in 1952 the Institute produces weekly Community and National Issues Forums and World Affairs Forums.

The University of Akron, through the work of the Institute, is a charter member of the University Council on Education for Public Responsibility. Institutional members, all equally dedicated to informal public affairs education, include the University of California, New York University, University of Oklahoma, Pennsylvania State University, Southwestern at Memphis, Syracuse University, and the University of Washington.

The University is also represented, through the Institute, on the Ohio Council on Higher Continuing Education which develops and sponsors cooperative regional and statewide continuing education programs among the public four and two year institutions in Ohio.

## ***Department of Special Programs***

Cecil L. Dobbins, B.B.A., *Director*

Continuing education in today's age of specialization is a necessity for many persons wishing to improve work skills. For others, it is a leisure-time avocation for personal enrichment. Since 1937 The University of Akron, through the Department of Special Programs' year-round sessions of informal courses, has offerings in both categories, for adults who do not require academic credit.

More than 175 classes, based upon the educational needs of the community, are offered each quarter. There are no requirements for admission to informal courses and any educational background is acceptable. Interest in learning in a relaxed and non-competitive environment is the only consideration.

Permanent student records are kept for all persons enrolled. Homework and examinations may be given, however, certificates of satisfactory completion are awarded based solely on attendance.

Following is a representative though partial listing of types of subjects taught in informal classes:

**BUSINESS & INDUSTRY** — Accounting, Bookkeeping for Small Business, Building Trades Blueprint Reading, Diesetting, Estimating for Construction, Federal Income Taxation, Human Relations, Investing, Psychology in Business and Industry, Production & Inventory Control, Quality Control, Selling, Small Business Management, Steam Plant Operation, Supervision, Technical Drawing.

**COMMUNICATIONS SKILLS, VERBAL & WRITTEN** — Creative Writing, Effective Oral Communications, English as a Second Language — Verbal, English Grammar, English Review for the College Bound, Practical Journalism, Reading Improvement,

Skills in Listening, Speed Reading, Vocabulary Improvement.

**DATA PROCESSING** — Assembler Language, Business Data Processing & Computer Programming, Cobol Workshop, Fortran, Key Punching.

**ELECTRONICS** — Basic Electronics, Fundamentals of AC-DC Circuitry.

**HUMANITIES AND FINE ARTS** — Antiques, Glass Blowing, Interior Decorating, Judaism, Motion Picture Production, Photography.

**MATHEMATICS** — Algebra, Math for Everyday Use, Plane Geometry, Trigonometry.

**METALLURGY** — Metal Casting.

**MODERN LANGUAGES AND CULTURE** — Arabic, Chinese, French, German, Greek, Italian, Polish Romanian, Russian, Serbo-Croatian, Spanish, Swahili.

**PHYSICAL EDUCATION AND RECREATION** — Korean Karate, Physical Fitness for Men, Women, and Scuba and Skin Diving, Swimming for Women, Self-Defense for Women, Yoga.

**REAL ESTATE** — Appraising, Commercial Property, Communications, Finance, Fundamentals, I, II, House Construction, Legal Aspects, Management and Investment, Marketing, Understanding Real Estate.

**SCIENCE** — Air Pollution, Engineering Refresher, German, Russian for Polymer Scientists.

**SECRETARIAL SKILLS** — Business Machines, Certified Professional Secretaries Review Seminar, Gregg Shorthand, Office Receptionist, Typewriting.

## ***Department Of Developmental Programs***

Peter J. Hampton, Ph.D., *Director*  
Gordon A. Hagerman, B.A., *Coordinator*

The University of Akron has established a number of developmental services for academically needy and disadvantaged students. The purpose of these services is to help those students who have experienced gaps in their secondary school education. Through developmental teaching, tutoring, and counseling, and through study in a learning laboratory, attempts are made to help students fill these gaps so that they can compete more readily for success with other college students.

Developmental courses are available in English, mathematics, chemistry, physics, reading and study skills. They are taught by high school and college staff, and may be taken days or evenings. Sections are small to provide for a considerable amount of individual help. Course content permits students to review what they had in high school and also furnishes them with the preparation they need for beginning college courses. Students may enroll in these courses up to the fourth week of the quarter.

Developmental tutoring is provided on an individual basis. Tutoring is available in all beginning freshman subjects. In tutoring, the student is helped in those areas of his course work where he needs help. Individual tutors are advanced students who have had the courses in which they tutor. Tutoring is free of charge to needy students.

Developmental counseling may be arranged for by students who are enrolled in developmental courses or students who are being tutored. Counseling is performed by developmental teachers and by graduate students from the College of Education who are working toward their doctorates in counseling. Areas in which counseling may be obtained are adjustment to college work, finances, living conditions, employment, vocational and educational planning, personal-psychological relations, social and recreational activities, and home and family relations. Counseling is free of charge.

To augment and facilitate the learning process among academically needy students, study opportunities in a learning laboratory are also provided. The learning laboratory is equipped with a variety of learning machines that can be used by students to support their learning efforts. Learning programs in the different subject matter areas have been developed for use with the learning machines. These can be checked out by students. A laboratory assistant is on duty ready to answer questions and help students with instructions on how to use the learning equipment. Laboratory participation is free of charge.

Additional information about the University's Developmental Programs may be obtained by calling the Office of Developmental Programs, Tel. 375-7087, Rm. 201, Exchange Building, The University of Akron.

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***VI.***  
***Courses of***  
***Instruction***

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## COURSE NUMBERING SYSTEM

### THE GENERAL COLLEGE (100)

- 110 General Studies
- 150 Aerospace Studies
- 160 Military Science

### THE COMMUNITY AND TECHNICAL COLLEGE (200)

- 201 Developmental Programs
- 202 Associate Studies
- 220 Educational Technology
- 222 Criminal Justice Technology
- 224 Commercial Art
- 226 Community Services Technology
- 228 Food Service Management
- 242 Commerce
- 244 Data Processing
- 252 Sales and Merchandising
- 254 Secretarial Science
- 256 Transportation
- 278 Physical Therapy Technology
- 284 Chemical Technology
- 286 Electronic Technology
- 288 Industrial Technology
- 290 Instrumentation Technology
- 292 Mechanical Technology
- 298 Surveying and Construction Technology

### THE BUCHEL COLLEGE OF ARTS AND SCIENCES (300)

- 310 Biology
- 315 Chemistry
- 320 Classics
- 321 Greek
- 322 Latin
- 325 Economics
- 330 English
- 331 Journalism
- 335 Geography
- 337 Geology
- 340 History
- 345 Mathematics
- 347 Statistics
- 352 French
- 353 German
- 355 Italian
- 357 Russian
- 358 Spanish
- 360 Philosophy
- 365 Physics
- 370 Political Science
- 375 Psychology
- 385 Sociology
- 386 Social Work
- 387 Anthropology
- 388 Joint Ph.D. Program — Sociology
- 394 Polymer Science
- 398 Urban Studies

### THE COLLEGE OF ENGINEERING (400)

- 410 General Engineering
- 420 Chemical Engineering
- 430 Civil Engineering
- 440 Electrical Engineering

- 445 Computer Science
- 460 Mechanical Engineering

### THE COLLEGE OF EDUCATION (500)

- 510 Educational Foundations
- 515 General
- 520 Elementary
- 525 Reading
- 530 Secondary
- 540 Technical and Vocational
- 555 Physical Education
- 557 Men's Physical Education
- 559 Women's Physical Education
- 560 Guidance and Counseling
- 561 Special Education
- 562 School Psychology
- 563 Inner-city Education
- 565 Educational Psychology
- 570 School Administration
- 580 Special Programs
- 585 Educational Technology
- 590 Research

### THE COLLEGE OF BUSINESS ADMINISTRATION (600)

- 620 Accounting
- 640 Finance
- 650 Management
- 660 Marketing

### THE COLLEGE OF FINE AND APPLIED ARTS (700)

- 710 Art
- 740 Home Economics
- 750 Music
- 751 Music Organizations
- 752 Applied Music
- 770 Speech Pathology and Audiology
- 780 Speech and Theatre Arts

### THE COLLEGE OF NURSING (800)

- 820 Nursing

### THE SCHOOL OF LAW (900)

- 920 Law

### INTERDISCIPLINARY PROGRAMS (1000)

- 1010 Afro-American Studies
- 1030 Environmental Studies
- 1060 Peace Studies

\*When approved undergraduate courses are taken for graduate credit they become 500 level courses.

Note: Numbers appearing at the end of the first line in the course description in parenthesis (1-3) indicate hours of recitation or lecture and hours of laboratory work. In the example (1-3) there would be one recitation hour per week and three laboratory hours.

Note: In multiple-numbered courses, the word "sequential" means that the courses must be taken in numerical order.



# The General College

## 110: GENERAL STUDIES

### 110:108. EFFECTIVE SPEAKING. 4 credits.

Through this course the student will acquire speaking-listening proficiency; he will develop an awareness of and skill in the accurate use of language and learn to relate fundamentals of effective speaking to certain aspects of reading, writing and listening. The course will place special emphasis on the argumentative and persuasive aspects of speech. At least two-thirds of the course will be devoted to speech performance.

110:111-112. ENGLISH COMPOSITION. 4 credits each.  
Must be taken in sequence.

### 110:205. TYPES OF LITERATURE. 4 credits.

Prerequisite, 112. Courses 111-112 and 205 are intended to enable the student to obtain proficiency in the reading and writing of English. The reading materials used will be primarily, outstanding literary works of our Western tradition.

Through these courses the student will gain competence in reading and writing. He will improve his writing skill through short expository papers (writing at least one a week), and, in the following courses, progress to writing longer and more complex critical and analytical pieces, including, in 112, a longer documented paper. He will improve his reading skill through reading, analyzing and discussing selected materials arranged in order of increasing difficulty and through critical analysis and appraisal of his own and other students' compositions.

### 110:115-116-117. INSTITUTIONS OF THE UNITED STATES. 3 credits each.

Sequential. Primary objective of this course is to enable the student to achieve an understanding of human relationships through a comparative, descriptive, and analytical study of the institutions of the United States. An exposition of basic institutional principles will be followed by a discussion of these principles in terms of the institutional structure of the United States.

### 110:120-181. PHYSICAL EDUCATION.

Minimum 2 credits.

Participation in individual and group sports, in which each individual can acquire knowledge and skill in activities which may be of value and satisfaction to him throughout his life. Two periods each week.

#### MEN'S PHYSICAL EDUCATION

- 110:120 ARCHERY. 1 credit.
- 110:121 BADMINTON. 1 credit.
- 110:122 VARSITY BASEBALL. 1 credit.
- 110:123 BASKETBALL. 1 credit.
- 110:124 VARSITY BASKETBALL. 1 credit.
- 110:125 BODY MECHANICS. 1 credit.
- 110:126 BEGINNING BOWLING. 1 credit.
- 110:127 INTERMEDIATE BOWLING. 1 credit.
- 110:128 VARSITY CROSS COUNTRY. 1 credit.
- 110:129 CONDITIONING. 1 credit.
- 110:130 FOLK DANCE. 1 credit.
- 110:131 VARSITY FOOTBALL. 1 credit.
- 110:132 GOLF. 1 credit.
- 110:133 VARSITY GOLF. 1 credit.
- 110:134 GYMNASTICS-TUMBLING. 1 credit.

- 110:135 HORSEMANSHIP. 1 credit.
- 110:136 SOCCER. 1 credit.
- 110:137 VARSITY SOCCER. 1 credit.
- 110:138 BEGINNING SWIMMING. 1 credit.
- 110:139 INTERMEDIATE SWIMMING. 1 credit.
- 110:140 LIFE SAVING. 1 credit.
- 110:141 SKIN AND SCUBA DIVING. 1 credit.
- 110:142 BEGINNING TENNIS. 1 credit.
- 110:143 INTERMEDIATE TENNIS. 1 credit.
- 110:144 VARSITY TENNIS. 1 credit.
- 110:145 VARSITY TRACK. 1 credit.
- 110:146 VOLLEY BALL. 1 credit.
- 110:147 BEGINNING WRESTLING. 1 credit.
- 110:148 VARSITY WRESTLING. 1 credit.
- 110:149 VARSITY SWIMMING. 1 credit.
- 110:150 VARSITY INDOOR TRACK. 1 credit.
- 110:151 GYMNASTICS-APPARATUS. 1 credit.
- 110:152 BODY MECHANICS-THEATRE. 1 credit.
- 110:153 FOOTBALL. 1 credit.
- 110:154 KARATE. 1 credit.
- 110:155 JUDO. 1 credit.
- 110:156 TEAM HANDBALL. 1 credit.
- 110:157 SKIING. 1 credit.
- 110:158 CANOEING. 1 credit.

#### WOMEN'S PHYSICAL EDUCATION

- 110:160 ARCHERY. 1 credit.
- 110:161 BADMINTON. 1 credit.
- 110:162 BASKETBALL. 1 credit.
- 110:163 BODY MECHANICS. 1 credit.
- 110:164 BEGINNING BOWLING. 1 credit.
- 110:165 INTERMEDIATE BOWLING. 1 credit.
- 110:166 FOLK DANCE. 1 credit.
- 110:167 MODERN DANCE. 1 credit.
- 110:168 GOLF. 1 credit.
- 110:169 GYMNASTICS. 1 credit.
- 110:170 FIELD HOCKEY. 1 credit.
- 110:171 HORSEMANSHIP. 1 credit.
- 110:172 SOCCER, SPEEDBALL. 1 credit.
- 110:173 BEGINNING SWIMMING I. 1 credit.
- 110:174 BEGINNING SWIMMING II. 1 credit.
- 110:175 INTERMEDIATE SWIMMING. 1 credit.
- 110:176 ADVANCED SWIMMING. 1 credit.
- 110:177 SENIOR LIFE SAVING. 1 credit.
- 110:178 SKIN AND SCUBA DIVING. 1 credit.
- 110:179 BEGINNING TENNIS. 1 credit.
- 110:180 INTERMEDIATE TENNIS. 1 credit.
- 110:181 VOLLEY BALL. 1 credit.
- 110:182 BODY MECHANICS-THEATRE. 1 credit.
- 110:183 SKIING. 1 credit.
- 110:184 CANOEING. 1 credit.
- 110:185 KARATE. 1 credit.
- 110:186 JUDO. 1 credit.

### 110:211. NUMBERS COMMUNICATION. 4 credits.

Through this course in the language of quantitative relationships the student will develop his ability to receive and express ideas in mathematical symbols, increase his appreciation of the methods of mathematical reasoning, and come to understand and think creatively about the quantitative aspects of the world in which he lives. Two lecture and two participation-discussion periods each week.

**110:221-222-223-224.**

Minimum of nine credits of science. This requirement can be met either by taking courses in the Departments of Biology, Chemistry, Geology or Physics, or by any combination of three out of four of the Natural Science courses:

**110:221. NATURAL SCIENCE — BIOLOGY. 3 credits.**

Designed for non-science majors to illustrate the fundamental concepts of living organisms with emphasis on man's position in, and influence on, the environment.

**110:222. NATURAL SCIENCE — CHEMISTRY. 3 credits.**

Designed for non-science majors. Chemical principles and facts, with emphasis on generalization designed particularly to prepare the student to appreciate modern advances in chemistry.

**110:223. NATURAL SCIENCE — GEOLOGY. 3 credits.**

A study of the basic principles and investigative techniques in various fields of geology with emphasis on the relationship of geological processes to society.

**110:224. NATURAL SCIENCE — PHYSICS. 3 credits.**

An introduction to, and commentary upon, some of the most significant principles, perspectives and developments in contemporary physics. Intended for non-science students.

**110:317-318-319. WESTERN CULTURE TRADITIONS. 4 credits each.**

Primary objectives of this course are to enable the student to understand human experiences of the past, so that he may develop an intelligent and constructive standard of personal behavior and may become a responsible member of society. To achieve these objectives, it is necessary for the student to grasp the essential features of the traditions of Western civilization as manifested in its outstanding accomplishments and creative endeavors in letters, music,

and the visual arts. It is not intended that this course give a complete portrayal or minute development of any of these fields, but rather that certain particularly important eras which have special significance for our time should be chosen. Two lectures and two participation-discussion periods each week.

**EASTERN CIVILIZATION:** Students will be required to take six credits to complete General Studies requirements, except students in the engineering program who need only three credits. Prerequisite, 96 credits.

**110:330 EASTERN CIVILIZATIONS: CHINA. 3 credits.**

**110:331 EASTERN CIVILIZATIONS: JAPAN. 3 credits.**

**110:332 EASTERN CIVILIZATIONS: SOUTHEAST ASIA. 3 credits.**

**110:333 EASTERN CIVILIZATIONS: INDIA. 3 credits.**

**110:334 EASTERN CIVILIZATIONS: NEAR EAST. 3 credits.**

**110:335 EASTERN CIVILIZATIONS: AFRICA. 3 credits.**

The primary objective of these courses is to give the student a knowledge of past human experiences and an understanding of present attitudes in some of the major cultural areas of the non-Western world. The student will become familiar with the essential features of these areas as manifested in their outstanding accomplishments in religion, philosophy, art, science and political organization.

**110:401. SENIOR SEMINAR. 2 credits.**

Prerequisite, Senior standing. An analytical examination of significant, current problems and issues, including their origin and development, and the consideration of possible solutions for them. Each student must satisfactorily complete this course before graduation and should take it in either one of his last three quarters preceding graduation.

## **U.S. AIR FORCE R.O.T.C.**

### **150: AEROSPACE STUDIES**

**150:113-114-115. FIRST YEAR AEROSPACE STUDIES (AS100), General Military Course (GMC).**

*1 1/2 credits each.*

Classes meet weekly and consist of both academic courses and military training. The academic portion, United States Military Forces in the Contemporary World, focuses primarily on the United States Air Force. It is fundamentally an account of the mission and organization of Air Force units. The purpose is to show how the U.S. military forces are structured and how they contribute to national defense. The subject matter is valuable to the student in his capacity as a citizen, voter and taxpayer even if he is not a member of the military service. The weekly Corps Training experience is designed to provide a working environment for the practice of military customs and courtesies and to develop a student's leadership skills.

**150:253-254-255. SECOND YEAR AEROSPACE STUDIES (AS200), General Military Course (GMC).**

*1 1/2 credits each.*

Classes meet weekly and consist of both academic courses and military training. The academic portion, the Growth and Development of Aerospace Power, is an introduction to defense policy. The course discusses, among other things, military strategy, foreign policy, and history in order to develop the framework or politico-military environment in which the Armed Forces operate. It affords the student an understanding of the relationship between national power and the military forces. It contributes to the understanding of

civic responsibilities in a democratic society. The weekly Corps Training period provides practical leadership experiences in basic military and leader activities.

**150:303-304-305. THIRD YEAR AEROSPACE STUDIES (AS300), Professional Officer Course (POC).**

*3 credits each.*

Prerequisite, completion of GMC and/or individual selection by Professor of Aerospace Studies on the basis of competitive standing. Four one-hour classes each week. This is the first half of the two-year Professional Officer Course. The AS 300 course focuses attention on the military profession, civil-military interaction, and the framework and formulation of defense policy and strategy. Within this study, attention is devoted to developing the communicative skills needed by junior officers. Corps Training provides advanced leadership experiences in a practical leadership environment.

**150:453-454-455. FOURTH YEAR AEROSPACE STUDIES (AS400), Professional Officer Course (POC).**

*3 credits each.*

Prerequisite, 303, 304, 305. Four one-hour classes each week. Second half of the two-year Professional Officer Course. The AS 400 course includes a study of professionalism; professional responsibilities; the military justice system; leadership theory, functions, and practices; management tools, practices, and controls. Within this study, attention is devoted to developing the communicative skills needed by junior officers. Corps Training consists of advanced leadership experience in a practical leadership environment and detailed preparation for active duty.

# U.S. ARMY R.O.T.C.

## 160: MILITARY SCIENCE

### MILITARY SCIENCE I

#### 325:100. INTRODUCTION TO ECONOMICS.

*5 credits.*

#### 160:100. INTRODUCTION TO MILITARY SCIENCE.

*1 1/2 credits.*

Orientation and overview of the Army ROTC program. Familiarization with the organization and capabilities of the Army to include parachute operations, ranger and special forces capabilities, and the use of helicopters.

#### 160:101. AMERICAN MILITARY HISTORY.

*1 1/2 credits.*

Familiarization with the historical growth and development of the Army with emphasis on changes in organization, tactics and weaponry. Analysis of the nature and causes of warfare with respect to significant errors and misjudgments.

#### 160:102. MARKSMANSHIP AND ORGANIZATIONAL CONCEPTS. *1 1/2 credits.*

Introduction to rifle marksmanship. Familiarization with organizational concept and equipment common to the Army division.

### MILITARY SCIENCE II

#### 160:200. AMERICAN DEFENSE SYSTEM.

*1 1/2 credits.*

Investigation of the nature and dynamics of the international system and the structure and operation of the US Security System. Discussion of contemporary issues concerning the US Defense Forces.

#### 160:201. SMALL UNIT TACTICS.

*1 1/2 credits.*

Fundamentals and techniques of tactics to include analysis of associated leadership and management problems. Discussion and application of the problem solving process.

#### 160:202. MAP READING.

*1 1/2 credits.*

Fundamentals of map reading to include topographic

analysis, navigation techniques and applicatory work in the use of maps and aerial photographs.

### MILITARY SCIENCE III

#### 160:300-301-302. MILITARY SCIENCE III.

*3 credits each.*

Development of an understanding of the leadership process to include applicatory work emphasizing officer leadership duties and responsibilities. Methods and techniques of military instruction.

Familiarization with branches of the Army. Review of the fundamentals and principles of small unit leadership and tactics stressing application and problem solving processes.

Familiarization with communications equipment and review of the fundamentals of map reading. Orientation for Advanced Camp.

Requirements for enrollment: Completion of three years of High School ROTC or two years college ROTC (Army, Navy, or Air Force); *or* at least one year active service; *or* by successful completion of Basic Camp between Sophomore and Junior years.

### MILITARY SCIENCE IV

#### 160:400-401-402. MILITARY SCIENCE IV.

*3 credits each.*

Prerequisite 160:300-301-302. Principles and practices of administrative and operational staff executives, their roles and responsibilities in support of the manager. The study of formal and informal organizations, communication, job satisfaction, authority and leadership.

Training and development of organizational leaders and managers by role playing, conflict resolution and situation studies. Concepts and implications of the Military Judicial System for the executive decision-maker.

Analysis of the decision making process under a high stress condition, including planning, organizing, directing and controlling functions of the manager.

# The Community and Technical College

## 201: DEVELOPMENTAL PROGRAM

### 201:41. DEVELOPMENTAL ENGLISH.

3 hours, no credit.

This course is designed to help students think and express themselves in writing so that they can become better prepared for college English.

### 201:51. DEVELOPMENTAL MATHEMATICS.

3 hours, no credit.

This course is designed to help students with basic skills of arithmetic which are combined with careful definitions of elementary Algebra and Geometry to help the student understand broad mathematical concepts necessary to an understanding of beginning college mathematic courses.

### 201:61. DEVELOPMENTAL READING & STUDY

SKILLS. 3 hours, no credit.

This course is designed to help students develop effective reading and study skills in order to succeed more readily in college courses.

### 201:71. DEVELOPMENTAL NATURAL SCIENCE —

CHEMISTRY. 3 hours, no credit.

This course is designed to help students use scientific knowledge to solve problems so that they can become better prepared for college chemistry and other beginning natural science courses.

## 202: ASSOCIATE STUDIES

### 202:118. ENGLISH. 4 credits.

Intended to improve a student's writing by developing his perception; uses short readings, art, films, and environment as stimuli to increase fluency and basic skill in language. Students keep a journal and write many papers of observation and evaluation.

### 202:120. ENGLISH. 3 credits.

Prerequisites, 118 or 254:119. Examines the techniques of expository writing through close reading of essays. Students apply skills by writing paragraphs and full-length compositions.

### 202:122. TECHNICAL REPORT WRITING. 3 credits.

Prerequisite, 120. Practice in preparing and writing the technical and industrial reports most likely to be required of technicians, engineers, scientists, and writers.

### 202:131. MATHEMATICAL ANALYSIS I. 3 credits.

Prerequisite, two units of high school mathematics. Theory of sets, real numbers, absolute value, polynomials, algebraic fractions, exponents, roots and radicals, first degree equations and selected topics of geometry.

### 202:132. MATHEMATICAL ANALYSIS II. 4 credits.

Prerequisite, 131 or equivalent. Advanced factoring, exponents and radicals, variation, trigonometry of the right triangle, complex numbers, first and second degree equations, functions and graphs, first degree analytic geometry, determinants, sequences and series, binomial theorem.

### 202:133. MATHEMATICAL ANALYSIS III. 4 credits.

Prerequisite, 132. Trigonometric functions, triangulation, radian measure, vectors, complex numbers in polar form,

inverse functions, trigonometric identities, laws of sines & cosines, graphs of trig functions, exponential and logarithmic functions.

### 202:135. MATHEMATICS FOR DATA PROCESSING.

4 credits.

Prerequisite, 132. Algebraic structures, sets, logic, Boolean algebra, matrix algebra, sequences, mathematical induction, computer algorithms, error analysis, basic probability and statistics and business application.

### 202:234. MATHEMATICAL ANALYSIS IV. 4 credits.

Prerequisite, 133. Theory of equations, second degree analytic geometry, systems of quadratic equations, graphical methods of calculus, differentiation and applications, basic integration and applications, methods of integration.

### 202:240. HUMAN RELATIONS. 4 credits.

A study of the principles and methods which aid in understanding the individual's response to his society and the roles between society and the individual.

### 202:241. MAN AND TECHNOLOGY. 4 credits.

An examination of man as he exists, now and in the future, within the context of a society oriented toward technical achievements and technological solutions to the problems confronting it. Emphasis on the promise and problems of technology with relation to human values. Areas include biomedical technology, automation, economic growth, the natural environment, and technology and the quality of life.

### 202:242. AMERICAN URBAN SOCIETY. 4 credits.

This course examines the development and problems of the urban setting in American society. It explores the proposition that urbanism is or could or will be a tolerable and/or desirable life style for large numbers of human beings.

### 202:247. SURVEY OF BASIC ECONOMICS.

5 credits.

A survey of basic economic principles and issues. An introductory course designed for those students who intend to take only one course in economics. Included are discussions of: economic systems; exchange, money, and banking; national income, employment, and fiscal policy; and current domestic economic problems.

### 202:251. WORK RELATIONSHIPS. 2 credits.

A study of the various principles and methods which can aid the individual in understanding responses of a job situation.

### 202:253. INTERGROUP RELATIONS. 2 credits.

A course designed to study the nature of diverse groups and the relations between groups in our society.

### 202:254. THE BLACK AMERICAN. 2 credits.

A study of the Black American including origins, historical achievement and the present strivings to achieve first class citizenship in American Society. Emphasis is on the thoughts and beliefs of black men rather than on white reaction to Negro society.

### 202:336. MATHEMATICS FOR TECHNICAL

APPLICATIONS. 4 credits.

Prerequisite, 234. Methods of integration, application of integral calculus, elementary differential equations including Laplace Transforms.

## 220: EDUCATIONAL TECHNOLOGY

### 220:201. PROCESSING, CATALOGUING AND CLASSIFYING MATERIALS. 4 credits.

Introduction to the Dewey Decimal and Library of Congress classification systems. Processes involved in cataloguing and identifying materials for a library media center will be explained in class and practiced in a laboratory session.

### 220:202. ORGANIZING AND ADMINISTERING LIBRARY MEDIA CENTERS. 4 credits.

Organizing a media center. Includes handling materials, ordering materials, circulation procedures, inventory and other control systems. The administrative role includes physical facility, library finance and public relations.

### 220:203. MATERIALS SELECTION. 4 credits.

Introduction to the tools used in selecting print and non-print materials for library media center. Problems of censorship, intellectual freedom and academic freedom as they relate to the selection process.

### 220:204. REFERENCE PROCEDURES. 4 credits.

Introduction to the study and use of basic information tools including almanacs, encyclopedias, dictionaries, directories, yearbooks and specialized reference tools including foreign works. Actual reference practices and procedures will be examined.

## 222: CRIMINAL JUSTICE TECHNOLOGY

### 222:100. INTRODUCTION TO CRIMINAL JUSTICE. 3 credits.

The philosophy and history of law enforcement; overview of crime and police problems; organization and jurisdiction of local, state and federal enforcement agencies and a broad survey of professional qualifications and opportunities.

### 222:102. CRIMINAL LAW FOR POLICE. 4 credits.

Prerequisite, 100. In-depth view of the English Legal System; the structure, definition, and application of commonly used Penal Statutes and current case laws; elements of crime; law of arrest, search and seizure.

### 222:104. CRIMINAL EVIDENCE AND COURT PROCEDURES. 4 credits.

Prerequisite, 100. Review of court systems, procedures, from arrest to final disposition; principles of constitutional, federal and state laws as they apply to law enforcement; the kinds and degrees of evidence; rules governing the admissibility of evidence in court; probation and parole procedures.

### 222:200. POLICE ROLE IN CRIME AND DELINQUENCY. 3 credits.

Prerequisite, 100. A comprehensive study of law and legal procedures pertaining to juveniles. A brief review of the causal factors and precipitating forces that influence the potential delinquent. The prevention techniques and research projects in the adolescent/police relationship.

### 222:202. BASIC CRIMINALISTICS. 5 credits.

Prerequisites, 100, 284:100. The scientific approach to the conduct of criminal investigations; the collection, preservation, analysis and interpretation of evidence.

### 222:204. VICE AND NARCOTIC CONTROL. 3 credits.

Prerequisite, 100. An overview of vice squad operations, emphasizing methods used by syndicated gamblers, prostitutes and narcotics pushers. Recognition of narcotics

and addicts, the use of informers and undercover methods used to combat vice.

### 222:240. LAW ENFORCEMENT ADMINISTRATION AND SUPERVISION. 3 credits.

Prerequisite, 100. Organization, management and administrative principles applicable to law enforcement agencies. A functional survey of unit organization, personnel policies and command dynamics of the agency, the ability to apply administrative law in police administrative processes.

### 222:244. INDUSTRIAL SECURITY. 3 credits.

Prerequisite, 100. Establishing and managing an industrial guard force. Plant Security with a concentration on property protection by use of mechanical and electronic security devices. Federal government security regulations and security clearances.

### 222:250. CRIMINAL JUSTICE THEORIES AND PRACTICES. 3 credits.

Prerequisite, 100. The establishment of a rationale for patrol functions based upon a review of historical applications; techniques and methods of police patrol; responsibility for special patrol functions; handling of complaints; mechanics of arrest, search, and seizure, review of problems in personal safety; public relations and crime prevention.

### 222:252. POLICE COMMUNITY RELATIONS. 3 credits.

Prerequisite, 100. An examination of the interrelationship between the community and the police. An in-depth study of attitudes and education; emphasis on human relations methodology in bettering relationships. The role of the police administrator in handling conflict and disturbance.

### 222:256. CRIMINAL INVESTIGATION. 3 credits.

Prerequisite, 100. Theories and concepts of the investigator's role in the total police function; techniques of interviews and interrogations; crime scene search; collection and preservation of evidence; sources of information, and the conduct of specialized investigations.

### 222:258. TRAFFIC PLANNING AND OPERATIONS. 3 credits.

Prerequisite, 100. An overview of traffic planning and operation emphasizing the educational, engineering and enforcement concepts; the conduct of special traffic programs, accident investigation and traffic laws.

### 222:259. POLICE INTERNSHIP. 6 credits.

Prerequisite, 100. A supervised work experience for the purpose of increasing student understanding of law enforcement administration and operation. The police work study is initiated by the school in an agency. Both school and agency supervise and direct the student's program.

### 222:299. LAW ENFORCEMENT SEMINAR.

1-3 credits. (may be repeated for a total of 6 credits.)

Prerequisite, permission. Seminar in selected areas of Law Enforcement such as community relations and police middle management problems and methods.

## 224: COMMERCIAL ART

### 224:124. COMMERCIAL ART STUDIO MECHANICS. 3 credits.

Prerequisites, 140, 292:121, 710:125. Craftmanship is stressed in exercises using the specialized tools, materials and techniques of the commercial art studio.

### 224:140. TYPOGRAPHY AND LETTERING. 3 credits.

Letter symbols studied in terms of communication and esthetic considerations. History of letter forms, hand lettering, alphabet design, contemporary type faces.

**224:222-223. PHOTOGRAPHY.** *3 credits each.*

Sequential; prerequisite, 710:244. Creative use of photographic materials and equipment. Photography is studied as a fine and applied art. Student must own or have use of a camera with controllable shutter, lens diaphragm and focus.

**224:242-243-244. COMMERCIAL ART PROBLEMS I, II AND III.** *3 credits each.*

Sequential. Prerequisites, 124, 292:122, 710:147. Problems in commercial graphic design. Analysis, research, visual experimentation and finished art. Emphasis on craftsmanship and visual problem solving.

**224:245. DESIGN IN COMMERCIAL ART.** *3 credits.*

Prerequisites, 124, 292:122, 710:147. Advanced projects in visual design fundamentals. Research in audience response to visual media and form. Creative problem solving.

**224:247. PACKAGING AND DISPLAY DESIGN.** *3 credits.*

Prerequisites, 242, 245. Visual design and development of protective devices for packaging, shipment and display of consumer products.

**224:248. PRESENTATION TECHNIQUES.** *3 credits.*

Prerequisites, 222, 243. Techniques of visual communication and presentation of design concepts. Illustration, charts, models, layout and sketches. Development of personal portfolio.

## 226: COMMUNITY SERVICES TECHNOLOGY

**226:278. TECHNIQUES OF COMMUNITY WORK.** *5 credits.*

For those intending to work at community organization and outreach assignments in inner city and other poverty areas in the United States and for others desiring an understanding of these newly developing technical community service roles.

**226:279. TECHNICAL EXPERIENCE IN COMMUNITY AND SOCIAL SERVICES.** *3-6 credits (may be repeated for a total of 6 credits).*

Prerequisite, 226:278 or permission. Individual placement in selected community and social service agencies for educationally supervised experience in a community and social services technician position. Does not substitute for 386:476 or 477.

## 228: FOOD SERVICE MANAGEMENT

**228:121-122-123. FUNDAMENTALS OF FOOD PREPARATION I, II, III.** *3 credits each. (1-2).*

Fundamental principles of food preparation and cookery. Laboratory experience in high standards of production, attractive service, use and selection of equipment and time management. Emphasis on basic principles from which food preparation techniques are formed.

**228:135. FOOD PURCHASING.** *4 credits.*

Food purchasing for various types of food services; storing and handling. Emphasis on specification requirements and selection for major foods purchased for food services.

**228:233. QUANTITY FOOD SERVICE.** *5 credits. (1-4).*

An introduction to large quantity food service procedures with emphasis on fundamental principles of food preparation, service and sanitation in large quantity

operations. This course will give an opportunity for both theoretical and practical application of knowledge of good operation in carefully selected food service situations.

**228:236. MENU PLANNING AND COST CONTROL.** *4 credits.*

Menu planning for various types of commercial, industrial, school, and institutional food services; basic factors influencing planning; merchandising techniques. Special emphasis on catering and vending services. Food cost control.

**228:237-238. FOOD SERVICE INTERNSHIP I AND II.** *4 credits each.*

Sequential. Prerequisite 233. A continuation of 233. Food Service experience under commercial operating conditions.

**228:243. FOOD EQUIPMENT AND PLANT OPERATIONS.** *3 credits. (2-1).*

A course to acquaint the student with available food service equipment, its selection, use and care. Field trips will be taken to wholesale outlets and food service establishments to see food service equipment demonstrated and in operation.

## 242: COMMERCE

**242:101. ELEMENTS OF DISTRIBUTION.** *4 credits.*

A study of the basic principles and methods in distribution. This includes an examination of the functions, institutions and general commodities involved in the marketing process. An overview of agricultural, consumer and industrial goods disbursement through the economy with special attention to brand, product and channels of distribution policies.

**242:102. PERSONNEL PRACTICES.** *4 credits.*

A study of current personnel practices and principles as applied to offices, stores and industry. This includes basic personnel functions, interviewing, counseling, supervisory training, morale factors and union-management relations.

**242:104. INTRODUCTION TO BUSINESS.** *4 credits.*

A survey course of business in its entirety including production, distribution, finance, control, and personnel functions. Emphasis is on descriptive materials, technical vocabulary, and career opportunities and responsibilities in various business fields.

**242:105. REAL ESTATE PRINCIPLES.** *3 credits.*

An introduction to the real estate industry in the United States. Includes units on ethics, property rights, tax factors, financing, real estate management, valuation, and the role of regulation in the real estate industry.

**242:111. PUBLIC RELATIONS.** *3 credits.*

A study of the philosophy and functions of management known as Public Relations. This includes newspaper, radio and television, brochures and other types of organizational publications.

**242:121. ADMINISTRATIVE OFFICE SUPERVISION.** *4 credits.*

This course is a survey of the background and growth of office operations, procedures, and services. Conceptual ideas for assembling, processing, distributing and retaining information are presented through fundamental principles and successful practices used in getting office work accomplished. Limited case studies emphasize implementing action as well as help in acquiring useful knowledge.

**242:170. BUSINESS MATHEMATICS.** *3 credits.*

A course designed to develop skill and accuracy in

mathematics used in business offices, retailing, and sales. It provides a review of the fundamentals of mathematics as they apply to business, including decimals, fractions, percentages, equations, interest, stocks and bonds, time payment plans, prices and profits, and checking accounts.

**242:180. ESSENTIALS OF LAW.** *4 credits.*

A brief history of the law, study of contracts, agency, criminal law, sales, bailments, domestic relations, probate law, and courts as they relate to business.

**242:185. REAL ESTATE LAW.** *3 credits.*

Prerequisite, 105. A study of the development of contemporary real estate law. Analysis of nature and classification of property rights. Real estate contracts, deeds and conveyances, mortgages and deeds of trust, leases, and liens. Also tax problems in real estate, insurance, and zoning.

**242:211. BASIC ACCOUNTING I.** *3 credits.*

This course includes a fundamental study of the principles and procedures of double-entry accounting as applied to the sole proprietorship form of business. This course covers the accounting cycle, special journals, special ledgers, special accounts for a trading concern, and payroll accounting.

**242:212. BASIC ACCOUNTING II.** *3 credits.*

Prerequisite, 211. This course includes a fundamental study of accounting principles and procedures as applied to partnership and corporate forms of business. Study will also be in the area of internal control, negotiable instruments, asset valuation, departmental accounting, sales and property taxes, and other methods of determining adjustments.

**242:213. BASIC ACCOUNTING III.** *3 credits.*

Prerequisite, 212. This course is a continued study of fundamental accounting principles as they apply to the corporate form of business. Emphasis will be in the areas of investments, analysis and interpretation of statements, budgeting, manufacturing, job order cost accounting and tax considerations in accounting.

**242:243. SURVEY IN FINANCE.** *4 credits.*

Prerequisites, three credits of Economics and three credits of Accounting. A survey of the field including instruments, procedures, practices and institutions. Emphasis on basic principles.

**242:245. REAL ESTATE FINANCING.** *3 credits.*

Prerequisites, 105 and 185. A study of the financing function in real estate including the Federal Reserve System, influence of "money policies", savings and availability of mortgage banking, the secondary mortgage market, government subsidy and guarantees.

**242:255. VALUATION OF RESIDENTIAL PROPERTY.** *3 credits.*

Prerequisites, 105 and 185. A study of the elements and characteristics of value. Fundamental considerations in real estate appraising. Approaches to residential appraising: replacement cost, market data approach, income approach.

**242:265. REAL ESTATE BROKERAGE.** *3 credits.*

Prerequisites, 105 and 185. A description of the real estate broker and his management functions. Included is discussion of problems in operating a real estate office, licensing of real estate brokers and salesmen, advertising, real property management, title search and examination, title closings.

\*Student programming is included.

## 244: DATA PROCESSING

**244:100. DATA PROCESSING PRINCIPLES.** *2 credits.*

Prerequisite, permission. This course is designed to provide preparation for course 121. Introduction to programming for beginning students having some experience in data processing. Includes overview of data processing and use of equipment and study of computer math. When taken, replaces 120 in program.

**244:120. INTRODUCTION TO INFORMATION PROCESSING.** *4 credits.*

This course is designed to give a general overview of data processing techniques, and provide the fundamentals necessary for subsequent computer oriented courses. Such topics as computer math, unit record theory and I/O flexibility will be discussed.

**244:121. INTRODUCTION TO PROGRAMMING.** *3 credits.*

Prerequisite, 120. This course is designed to illustrate the basic function of a computer and provide specific information about second generation computers. Second generation programming is featured including programs in actual and assembly language as an introduction to programming.\*

**244:130. COMPUTER PROGRAMMING I.** *3 credits.*

Prerequisite, 121. This course provides the fundamental information concerning third generation computers, specifically the system/360. It includes 360 machine language programming as well as an introduction to Basic Assembly Language.\*

**244:131. COMPUTER PROGRAMMING II.** *3 credits.*

Prerequisite, 130. This course is a continuation of Programming I with emphasis on practical applications in Basic Assembly Language including the decimal instruction set.\*

**244:229. RPG PROGRAMMING.** *2 credits.*

Prerequisite, 130. Study of Report Program Generator (RPG) programming. Includes training in RPG coding and debugging as well as discussion of applications which lend themselves to the use of RPG.\*

**244:232. COMPUTER PROGRAMMING III.** *3 credits.*

Corequisite, 131. This course is an introduction to COBOL with specific orientation toward the system/360.\*

**244:233. COMPUTER PROGRAMMING IV.** *3 credits.*

Prerequisite, 232. This course is a continuation of programming III including detailed applications in areas such as payroll and inventory. Disk and tape concepts will be discussed.\*

**244:234. COMPUTER PROGRAMMING V.** *3 credits.*

Prerequisite, 233. This course emphasizes topics which are varied to fit the needs of the students at the time. Such topics as utility utilization, operating systems, advanced topics in disk storage and introductory programming in PL/1 may be offered.\*

**244:240-241. DATA PROCESSING SYSTEMS I AND II.** *3 credits for 240, 2 credits for 241.*

Sequential; corequisite, 232. These two courses are designed to cover all systems design from data collection to data dispersment. The course includes system flowcharting at all levels of automation.

**244:251-252. DATA PROCESSING PROJECTS I AND II.** *4 credits for 251, 2 credits for 252.*

Sequential; Prerequisite, 240 or permission. These courses provide a workshop for an accomplished student to thoroughly apply what he has learned. Projects vary to fit the individual needs.\*

**244:299. SPECIAL TOPICS IN DATA PROCESSING.**

*1-4 credits* (may be repeated for a total of 4 credits).

Prerequisite, permission. Seminar in topics of current interest in Data Processing or special individual student project in Data Processing.

## **252: SALES AND MERCHANDISING**

**252:103. PRINCIPLES OF ADVERTISING. 3 credits.**

A review of the basic principles and functions of current advertising practice. A strong emphasis is placed on copy, layout and their interaction upon consumer's buying motives. Also included is an overview of related distributive institutions, media types and economic functions of advertising.

**252:104. INTRODUCTION TO VISUAL MERCHANDISING. 3 credits.**

A basic studio course in Retail Display Techniques. Includes window, interior, and point of purchase display categories.

**252:105. ADVANCED VISUAL MERCHANDISING. 3 credits.**

Prerequisite, 104. Principles of design as applied to commercial art. Function in visual design, elements of design, color theory, lettering, printing processes, layout to camera-ready art. Studio projects in advertising graphics. No credit toward Commercial Art major.

**252:202. RETAILING AND FRANCHISING. 3 credits.**

Presents basic principles and practices of retailing and franchising operations. This includes site selections, store design, types of retail institutions, store operations and services, distribution centers and branch coordination.

**252:203. TECHNIQUES OF RETAIL MERCHANDISING. 3 credits.**

Prerequisite, 202. A survey of current retailing procedures at the department level to include the merchandising function, buying and pricing procedures, inventory control, sales analysis, open-to-buy planning and control and department expense control.

**252:206. INTRODUCTION TO ADVERTISING MEDIA. 3 credits.**

Prerequisite, 103. This course develops the elementary relationships between the advertising media themselves and also between the media and their position in the overall advertising mix. After a brief introduction in which the concept of an advertising plan is defined, the course moves into a discussion of the basic advertising media. Campaign planning with media selection and scheduling are stressed in relation to the overall advertising plan. The course concludes with a brief description of international and non-commercial advertising.

**252:210. CONSUMER SERVICE FUNDAMENTALS. 3 credits.**

Prerequisite, 242:101. Particular functions performed by firms involved in the distribution of goods. Includes general examination of the formulation of product policies, pricing policies, promotion policies, and distribution policies.

**252:211. MATHEMATICS OF RETAIL DISTRIBUTION. 3 credits.**

Prerequisite, 242:170. A basic skills course dealing with merchandising mathematics. This includes an understanding of the types of markups, the retail method of inventory, sales and stock planning and open-to-buy

computations. Problem solving techniques are utilized throughout in order that the student can acquire a working knowledge of the mathematical concepts and background for successful retail buying.

**252:212. PRINCIPLES OF SALESMANSHIP. 3 credits.**

A study of the basic principles of selling, emphasizing individual demonstrations and sales projects. A review of the sales function as an integral part of the marketing process. This includes personal preparation for the vocation, buying motives, prospecting, the selling process and ethical problems related to industrial, wholesale, retail and direct selling.

**252:290. FIELD STUDY IN RETAILING. 1 credit.**

An intensive study of techniques, principles, and concepts currently used in retailing. Field trips and individual projects are utilized in conjunction with ideas gained from guest lecturers who are currently active in retailing management. The general areas covered are: Merchandising; Advertising and Display; Store Service Operations; Personnel; Finance and Control; Store Layout and Publicity.

## **254: SECRETARIAL SCIENCE**

**254:119. BUSINESS ENGLISH. 3 credits.**

Fundamentals of English and its use in the business world.

**254:121. OFFICE PROBLEMS. 4 credits.**

This course is designed to develop the secretary's occupational intelligence by teaching the best use of reference materials, office time, office supplies and equipment, the processing of incoming mail, postal and shipping services and knowledge about card punch and electronic data processing.

**254:125. BUSINESS MACHINES. 2 credits.**

Techniques of machine and slide rule calculation as applied to business. Basic operations of the key-driven, fully- and semi-automatic, and 10-key calculators are taught.

**254:126. ADVANCED BUSINESS MACHINES. 3 credits.**

Prerequisites, 125, 153, 242:170, 211. To prepare students to operate key-driven, ten-key, and rotary calculators with greater efficiency and in more complex business applications and to operate mechanical accounting machines in applications such as posting, payroll, accounts receivable, and accounts payable.

**254:150. BEGINNING TYPEWRITING. 4 credits.**

For students with no previous typewriting. Fundamentals of typewriting followed by drill to acquire skillful coordination of machine parts and to introduce personal and business letter styles. A minimum standard of 35 gross words per minute with five or fewer errors must be attained on a 3-minute writing. (Note: this course to be substituted for elective credits in program of study.)

**254:151. INTERMEDIATE TYPEWRITING I. 4 credits.**

Prerequisite, 150 or the ability to pass proficiency examination based on course requirements of 150. Application of typewriting skill to various typewriting problems. Minimum standard of 45 gross words per minute must be attained with three or fewer errors on a 5-minute timed writing.

**254:152. INTERMEDIATE TYPEWRITING II. 4 credits.**

Prerequisite, 151 or the ability to pass proficiency examination based on the course requirements of 151. Application of typewriting skill to letter production and special communication forms. A minimum standard of 55 gross

words per minute must be attained with three or fewer errors on a 5-minute writing.

**254:169. SHORTHAND REFRESHER & TRANSCRIPTION.** *4 credits.*

For the student who has completed Gregg shorthand theory and needs a review. Theory review and typewriter transcription. Minimum dictation speed, attainment: 70 wpm for five minutes. Credit not allowed for this course and 171.

**254:171. SHORTHAND PRINCIPLES.** *4 credits.*

For the beginning shorthand student. Presentation of the Gregg shorthand theory and brief forms. Minimum reading rate from homework notes at 100 wpm.

**254:172. INTERMEDIATE SHORTHAND AND TRANSCRIPTION.** *4 credits.*

Prerequisite or corequisite, 151. For the students who completed Gregg shorthand theory. Introduction to the new matter dictation and typewritten transcription.

**254:173. SHORTHAND AND TRANSCRIPTION.** *4 credits.*

Prerequisite or corequisite, 152. Emphasis on skill in writing Gregg shorthand and transcribing. A minimum dictation skill of 70 wpm on new material for 5 minutes is required to complete this course.

**254:181. OFFICE NURSING TECHNIQUES I.** *3 credits.*

This course provides theory and practice in nursing duties most often performed in a physician's and dentist's office. These include temperature, pulse, and respiration reading; examination room supplies, instruments, and methods of sterilization; taking of blood pressure and administering injections.

**254:182. OFFICE NURSING TECHNIQUES II.** *3 credits.*

Prerequisite, 181. This course is devoted to medical and dental office laboratory techniques. These include laboratory orientation to urinalysis, Hematology, Bacteriology, Roentgen Rays, EKG, Basic Metabolism, and nature of dental materials.

**254:241. RECORDS MANAGEMENT.** *2 credits.*

A study of the creation, storage, retention, transfer, and disposition of records in the business office.

**254:253. ADVANCED TYPEWRITING.** *3 credits.*

Prerequisite, 152. Statistical typewriting, shortcut techniques, service mechanisms, legal, medical, technical, accounting, and various other business papers. A minimum standard of 60 gross words per minute must be attained with three or fewer errors on a 5-minute timed writing.

**254:257. SECRETARIAL MACHINES.** *4 credits.*

(2-hour lab required).

Prerequisite, 253. Demonstration and laboratory practice in machines used to process data in the modern office, including machines used in dictation and transcription, duplicating, automated typing and statistical typing.

**254:274. ADVANCED DICTATION AND TRANSCRIPTION I.** *4 credits.*

Vocabulary building; general dictation on letters, articles, and standard speed material. The minimum speed requirement is 80 wpm on new material for five minutes.

**254:275. ADVANCED DICTATION AND TRANSCRIPTION II.** *4 credits.*

Prerequisite, 274. Dictation of letters articles, and standard speed material. Minimum speed requirement is 90 wpm on new material for five minutes.

**254:276. EXECUTIVE DICTATION AND TRANSCRIPTION.** *4 credits.*

Prerequisite, 275. Dictation on letters, articles, and

standard speed material. Minimum speed requirement is 100 wpm on new material for five minutes.

**254:277. LEGAL DICTATION AND TRANSCRIPTION.** *4 credits.*

Prerequisite, 275. A course designed to develop shorthand and transcription skill of legal correspondence, basic pleadings, legal papers, reports, and rules of practice. A minimum dictation skill of 100 wpm on new material for five minutes is required to pass the course.

**254:278. TECHNICAL DICTATION AND TRANSCRIPTION.** *4 credits.*

Prerequisite, 275. A course designed to develop skill in the writing and transcribing of specialized shorthand dictation for the technical, science, and engineering secretary.

**254:282. MEDICAL MACHINE TRANSCRIPTION.** *3 credits.*

Prerequisite, 283. Introduction to medical terminology. Emphasis on meaning, pronunciation, spelling, and application of common medical terms, abbreviations, stems, and suffixes as related to the human body.

**254:283. MEDICAL TERMINOLOGY.** *4 credits.*

Vocabulary and terms used by medical personnel. Usage and spelling of medical terms.

**254:291. DATA COMMUNICATIONS.** *3 credits.*

Development of knowledge, techniques, and skills to work successfully with data communications systems. Emphasis on written, oral, and machine language communication. Practice in operating equipment such as TWX, keypunch, PBX board, etc.

**254:293. BUSINESS COMMUNICATIONS.** *3 credits.*

Prerequisite, 202:120. Course designed to develop skill in writing better business letters and reports. Intensive practice in writing adjustments, credit and collection letters, departmental and branch reports, applications and resumes, inquiries and refusals.

## 256: TRANSPORTATION

**256:110-111. TRANSPORTATION ECONOMIC POLICY I AND II.** *3 credits each.*

Sequential. The economic characteristics of the transportation industries. A survey course of the early development of the economical aspects of rail, highway, water, air and pipeline. An analysis of the role of transportation in the nation's economic development.

**256:115. TRANSPORTATION: COMMERCIAL MOTOR.** *3 credits.*

A study of the economic characteristics of the commercial motor industry. Emphasis on the problems, practices, rates, regulation, fares, and tariffs of the motor carrier. Attention is also given to operations, equipment, and financial aspects in this field.

**256:116. TRANSPORTATION: COMMERCIAL AIR.** *3 credits.*

A critical analysis of the economic characteristics of the commercial air industry. A study of the problems, practices, regulations, rates, fares, and tariffs of the air carrier. Types of carriers and their services will be examined.

**256:117. TRANSPORTATION: COMMERCIAL WATER.** *3 credits.*

Theories, practices, and regulations of the commercial water transportation industry with a detailed analysis of the part it plays in the nation's economy. Emphasis will be placed on inland and lake shipping as well as ocean-going water

carriers. Classification, rates, practices, and tariffs will be included in the study.

**256:118. TRANSPORTATION FREIGHT RATES AND CLASSIFICATION.** *3 credits.*

An analysis of freight rates, tariffs, and classifications. Detailed study of motor transport ratings and their applications utilizing extracts of existing tariffs of various regions. Details of posting, filing, and construction of tariffs are emphasized through problem solving.

**256:220. TRANSPORTATION TERMINAL MANAGEMENT AND OPERATIONS.** *3 credits.*

A study of the management problems, practices, and decision-making as pertains to location of facilities, personnel programs, operations, organization, and control. Attention will be directed to the practical aspects of terminal management.

**256:221. TRANSPORTATION TRAFFIC PRINCIPLES.** *3 credits.*

Principles applicable to industrial traffic management; traffic organization and documentation; shipping documents; carrier liability; shippers responsibility, routings; and transits will be explored. Emphasis on the problems encountered by the shipper in the economical movement of cargo will be highlighted.

**256:222. TRANSPORTATION TRAFFIC PRACTICES AND PROCEDURES.** *3 credits.*

Prerequisite, 221. Practices applicable to industrial traffic management and problems involving the shipper will be studied. Operations, services, warehousing, privileges, and locational factors will be analyzed.

**256:225-226-227. INTERSTATE TRAFFIC PRACTICES AND PROCEDURES I, II, III.** *3 credits each.*

Sequential. A series of three courses which includes comprehensive study of federal regulation of the transportation industry. 225 covers a thorough review of the Interstate Commerce Commission; its functions and organization; and remedial action available to shippers and carriers under the Interstate Commerce Act. Emphasis on ICC regulations, related acts, and practitioner procedures. 226 covers an analysis of the Interstate Commerce Regulations Acts affecting transportation and the National Transportation Policy. 227 constitutes a continuing analysis of the Interstate Commerce Commission with emphasis on related Federal Regulatory agencies; General Rules of Practice before the Commission; Study of cases establishing transportation policy; and code of ethics required.

## 278: ALLIED HEALTH

**278:100. BASIC PROCEDURES IN MEDICAL ASSISTING.** *4 credits. (3-1).*

Techniques basic to all areas of medical assisting. Emergency treatment of burns, bleeding injuries, fractures, loss of consciousness, cessation of heartbeat and breathing. Techniques of bandaging, aseptic procedures and isolation. Transfer of injured or ill patients and their proper positioning. Monitoring of vital signs.

**278:101. INTRODUCTION TO PHYSICAL THERAPY.** *3 credits. (3-0).*

History of Physical Therapy. 3 credits (3-0). History of Physical Therapy and survey of treatment procedures. Role and rationale for the Physical Therapist Assistant. Legal and ethical responsibilities.

**278:121. PHYSICAL THERAPIST ASSISTING PROCEDURES I.** *4 credits. (3-1).*

Prerequisite, 100, 101. Beginning skills in Physical Therapy. Preparation for treatment. Major emphasis on medical massage. Range of motion exercises and use of the tilt table.

**278:122. PHYSICAL THERAPIST ASSISTING PROCEDURES II.** *4 credits. (3-1).*

Prerequisite, 121, continuation of 278:121. Therapeutic application of heat. This includes moist heat, hydrotherapy and radiant heat.

**278:131. CLINICAL APPLICATION I.** *2 credits. (0-2).*

Corequisite, 122. Application of learned skills to patients in an affiliated hospital.

**278:223. PHYSICAL THERAPIST ASSISTING PROCEDURES III.** *4 credits. (3-1).*

Prerequisite, 131, continuation of 278:121 and 122. Continuation of the therapeutic application of heat. Cold application. Peripheral vascular pump. Lung (postural) drainage.

**278:224. PHYSICAL THERAPIST ASSISTING PROCEDURES IV.** *4 credits. (3-1).*

Prerequisite, 223. Assisted ambulation. Utilization of orthotics, prosthetics, and ambulation aids. Introduction to exercise theory and gait. Activities of daily living.

**278:225. PHYSICAL THERAPIST ASSISTING PROCEDURES V.** *4 credits. (3-1).*

Prerequisite, 224. Traction, specific exercise routines, situational problems. Clerical procedures. Introduction to the Physical Therapists' evaluative techniques.

**278:232. CLINICAL APPLICATION II.** *2 credits. (0-2).*

Corequisite, 223; prerequisite, 131. Application of learned skills to patients in an affiliated hospital.

**278:233. CLINICAL APPLICATION III.** *2 credits. (0-2).*

Corequisite; 224 and 240; prerequisite, 232. Application of learned skills to patients in an affiliated hospital.

**278:234. CLINICAL APPLICATION IV.** *6 credits. (0-6).*

Corequisite, 225; prerequisite, 233 and 240. Application of learned skills to patients in an affiliated hospital.

**278:240. PATHOLOGICAL CONDITIONS.**

*3 credits. (3-0).*  
Corequisite, 224 and 233. Most frequent diagnosis of patients receiving physical therapy. Central and peripheral nervous system diseases. Genetic traits leading to disease. Degenerative and skin diseases. Burns, fractures, lung and heart disease.

## 284: CHEMICAL TECHNOLOGY

**284:100. BASIC CHEMISTRY.** *4 credits.*

Elementary treatment of facts and principles of chemistry emphasizing biological application. Elements and compounds important in everyday life, biological processes and medicine. Introduction to laboratory techniques and measurement of chemical and physical quantities. Primarily for Medical Assistant and Law Enforcement students. Laboratory.

**284:101. INTRODUCTORY CHEMISTRY I.** *4 credits.*

Basic facts and principles of chemistry at an elementary level. Important elements and compounds and their uses in different fields. For Chemical Technology and Bachelor of Technology Students. Laboratory.

**284:102. INTRODUCTORY CHEMISTRY II.** *4 credits.*

Prerequisite, 101. Continuation of 101 with emphasis on structure of matter and deeper treatment of basic concepts

of inorganic chemistry. Reactions in aqueous solutions. Laboratory.

**284:103 QUALITATIVE METHODS.** *4 credits (3-1)*  
Prerequisite, 102. Principles of Analytical Chemistry. Organization of the laboratory; materials and safety. Semi-micro inorganic qualitative analysis with the underlying theory. Laboratory.

**284:121-122. ORGANIC PRINCIPLES I AND II.** *4 credits each.*  
Sequential; prerequisite, 101. Nomenclature, classification, preparation, physical and chemical properties of organic compounds. Laboratory.

**284:201. QUANTITATIVE METHODS.** *4 credits.*  
Prerequisite, 102. Elementary theory of analytical chemistry with emphasis on gravimetric and volumetric procedures. Laboratory.

**284:202-203. INSTRUMENTAL METHODS I AND II.** *4 credits each.*  
Prerequisite, 201 and 292:151, 152, 153; or permission. Instrumentation employed in qualitative and quantitative analysis. Theory and practice in chromatographic, electrochemical, optical, thermal and other methods. 202 or 203 can be taken independently. Laboratory.

**284:210-211. SCIENTIFIC GLASS BLOWING I AND II.** *1 credit each.*  
Sequential. Prerequisite, permission. Laboratory instruction in the art of glass blowing. Fabrication and blowing of scientific glassware and chemical apparatus.

**284:250. ELEMENTS OF PHYSICAL CHEMISTRY.** *4 credits.*  
Prerequisite, 102, 202:133, 292:151, 153. Physical principles governing behavior of chemical systems. Introductory thermodynamics, solution properties, chemical equilibrium, phase rule, electrochemistry, chemical kinetics and structure of matter. Laboratory.

**284:255. LITERATURE OF CHEMISTRY.** *1 credit.*  
Prerequisite, permission. The literature of chemistry and how it can be used to gather information. Techniques of abstracting and computer application. Bibliography.

**284:260. COMPOUNDING METHODS.** *3 credits.*  
Prerequisites, 102, 122 and 202:131 or permission. Principles and methods of selecting and compounding rubber for specific end uses. The compounder's art. Design and manufacture of rubber products. Processing and testing of basic elastomers.

**284:270. POLYMER CHEMISTRY METHODS.** *4 credits.*  
Prerequisite, 122, 204. A survey of polymer structure and properties and basic polymer preparation and testing methods. Commercially important polymers will be used as examples. Laboratory.

## **286: ELECTRONIC TECHNOLOGY**

**286:122. CIRCUIT THEORY.** *4 credits.*  
Prerequisites, 153. Corequisite 202:132. Sinusoidal voltages and currents, reactance and impedance, methods of circuit analysis, resonance, nonsinusoidal wave forms.

**286:123. ELECTRONICS I.** *4 credits.*  
Corequisite, 122. Fundamentals of electronic devices. Theory of solid state, vacuum tube and gas tube

components; their elements, nomenclature, operation and interaction with other circuit components and environment.

**286:124. ELECTRONICS II.** *4 credits.*  
Prerequisite, 123. Study of Class A single and multistage transistor amplifiers. Biasing considerations, equivalent circuits, basic amplifier design.

**286:127. MEASUREMENTS.** *3 credits.*  
Corequisite, 122. Principles and use of electrical and electronic instruments including moving coil instruments, bridges, oscilloscopes, and signal generators. Analysis of measurement errors.

**286:128. ELECTRONIC DRAFTING.** *2 credits.*  
Prerequisite, 123. Fundamentals of electronic drafting. Preparation of principle types of electronic drawings. Survey of sources of electronic data and standards and experience in their use.

**286:153. DC CIRCUITS.** *6 credits.*  
Corequisite, 202:131. Nature of electricity, current and voltage. Ohm's Law, network analysis, DC instruments, magnetism, inductance, capacitance, transients and time constants.

**286:225. ELECTRONICS III.** *4 credits.*  
Prerequisite, 124. Study of application of transistors in low frequency circuits. Topics include single stage feedback, multistage feedback, power amplification and power supplies.

**286:226. INTEGRATED CIRCUITS.** *2 credits.*  
Prerequisite, 237. A survey of the development of the integrated circuit, its impact on the electronics industry, and its use in digital and analog applications.

**286:237. DIGITAL COMPUTERS.** *4 credits.*  
Prerequisite, 124. Fundamentals of digital computation, Boolean algebra, switching circuits, computer units, analog-digital conversion.

**286:242. MACHINERY.** *4 credits.*  
Prerequisite, 122. Principles of current and torque generation in DC and AC rotating machinery. Transformer theory. Basic control circuits for rotating machinery. Practical problems involving power conversion.

**286:245. ANALOG COMPUTERS.** *4 credits.*  
Prerequisites, 225, and 202:234. Principles and design of electronic analog computers and associated circuits. Solution of differential equations by analog computers.

**286:249. INDUSTRIAL ELECTRONICS.** *4 credits.*  
Prerequisites, 225, and 242. Industrial electronic circuit principles including timing, heat and light sensing devices, power controls and typical control circuits. Laboratory practice with device characteristics and simple circuits.

**286:250. ELECTRONIC PROJECT.** *2 credits.*  
Prerequisite. Final quarter or permission. Design, construction, and testing by student of electronic circuit. Progress reports and final report required. Presentation of electronic concept, principles involved, design and fabrication techniques.

**286:251. COMMUNICATIONS SYSTEM.** *4 credits.*  
Prerequisite, 225. Principles of radio-wave propagation, modulation, and demodulation. Fundamentals, components, and circuits of communications systems.

**286:253. SERVOMECHANISMS.** *3 credits.*  
Prerequisite, 245. Principles of closed loop control systems. Methods of analysis to predict performance. Design of simple servomechanisms.

**286:255. SHOP PRACTICES.** *1 credit.*  
Prerequisites, 124 and 128. Use of hand and small power

tools; assembly and construction of typical electronic equipment; design and production of printed circuit boards. Experience in performance testing and troubleshooting.

**286:310. ELECTROMECHANICAL DEVICES AND CIRCUITS.** *4 credits.*

Prerequisites, 202:336, 292:151, 152 and 153. Fundamentals of electrical circuits. Survey of electromechanical devices emphasizing electrical/mechanical interface. For non-Electronic Technology majors.

**286:311. ELECTRONIC DEVICES AND CIRCUITS.** *4 credits.*

Prerequisite, 310. Survey of electronic devices and their basic circuits. Applications in mechanical equipment and systems. For non-Electronic Technology majors.

**286:351. INDUSTRIAL ELECTRICAL SYSTEMS.** *4 credits.*

Prerequisites, 242 and 356. Characteristics of industrial electrical systems. Generation, transmission, distribution, and use of power in industrial plants. Fault study considerations and practical plant electrical problems.

**286:352. DIGITAL SYSTEMS.** *4 credits.*

Prerequisite, 226 and 356. Design and operation of digital control and measurement systems. Topics include development of input equations, reduction techniques, design considerations of the digital system, and survey of digital systems such as N/C and automatic inspection machines.

**286:353. INSTRUMENTATION AND CONTROL.** *4 credits.*

Prerequisites, 225 or 311 and 202:336. Measurement and control of pressure, temperature, flow, and liquid level. Automatic control of industrial processes using closed loop systems.

**286:356. CIRCUIT ANALYSIS.** *3 credits.*

Prerequisite, 353. Analysis of linear electric circuits in both frequency and time domains. Includes matrix methods of network analysis, Fourier analysis, and introduction to transform methods of analysis.

**286:410. TECHNOLOGY PROJECT.** *1 credit.*

Prerequisite, Senior standing. An in-depth study of a typical industrial problem using a team approach. Laboratory experimentation, simulation, and analysis will be used in developing a solution. Submission of final report.

## 288: INDUSTRIAL TECHNOLOGY

**288:120. WORK MEASUREMENT PROCEDURES.** *5 credits.*

Prerequisite, 242:104. A study of procedures for determining work methods. Develops proficiency in the use of the process chart, the operations chart, motion economy, and time study. Development and application of time standards. The analysis and appraisal of the value of work involving human activity in terms of time.

**288:141. SAFETY PROCEDURES.** *3 credits.*

Prerequisite, 242:104. Sources and causes of accidents. The philosophy of accident prevention. An appraisal of the cost of accidents. The elements of an effective safety program. The human factors in safety, safety promotion and enforcement.

**288:231. FACTORY PLANNING AND MATERIALS HANDLING.** *4 credits.*

Prerequisite, 242:104. In order to have the optimum operation facility we must have the best possible arrangement of the factors of production: manpower, materials and

equipment. This course is concerned with the selection and arrangement of the activities which constitutes the factory. The selection and implementation of the material handling system that will facilitate production.

**288:232. LABOR-MANAGEMENT RELATIONS.** *4 credits.*

Prerequisite, 242:104. A study of the historical background of the labor movement. A study of the management viewpoint, the legal framework within which the modern labor organization operates, and the collective bargaining process and its effect on current labor management relations.

**288:242. PRODUCTION AND QUALITY CONTROL PROCEDURES.** *6 credits.*

Prerequisites, 202:132, 242:104. A study of planning and control procedures for best productive efforts. Application of statistical methods to formulate control charts used in the control of the manufacturing process for quality manufacturing.

**288:245. PLANT AND EQUIPMENT MAINTENANCE.** *3 credits.*

Prerequisite, 242:104. The application of scientific management principles to the maintenance functions. Meaning and scope of maintenance control. The organization of maintenance. Preventive maintenance. Estimating and controlling maintenance costs.

## 290: INSTRUMENTATION TECHNOLOGY

**290:120. INSTRUMENTATION DRAFTING.** *2 credits.*

A study of the effective ways of presenting instrumentation information. Includes practice in the preparation of sketches, drawing, graphs and bills of materials according to industry standards.

**290:121. FUNDAMENTALS OF INSTRUMENTATION.** *5 credits.*

Prerequisite, 292:153. A study of the variables encountered in process instrumentation and the indicating and recording devices used to measure these variables. Includes measurement of flow, pressure, temperature and related phenomena in industrial processes.

**290:230. CONTROL PRINCIPLES.** *5 credits.*

Prerequisites, 121 and 202:234. General control principles with emphasis on the characteristics of the process being controlled. Includes typical hydraulic, pneumatic and electrical controllers.

**290:231. AUTOMATIC PROCESS CONTROL.** *4 credits.*

Prerequisites, 230, 232. Analysis and design of feedback control systems by means of frequency response methods.

**290:232. COMPUTER PRINCIPLES.** *5 credits.*

Prerequisite, 286:124 and 202:234. Fundamentals of analog and digital computers. Application of computers in process control.

**290:240. CALIBRATION AND STANDARDIZATION.** *2 credits.*

Corequisite, 230. A laboratory course to provide training in the calibration and standardization of various pneumatic, hydraulic and electrical instruments. Also includes methods of maintenance and troubleshooting.

**290:241. INSTRUMENTATION PROJECT.** *3 credits.*

Prerequisite, final quarter or permission. Design, construction and testing by individual student of a specific instrumentation project. Comprehensive use is made of previous courses of study.

## 292: MECHANICAL TECHNOLOGY

### 292:121. TECHNICAL DRAWING I. 3 credits.

Lettering and proper use of drawing instruments. Freehand sketching. Geometric drawing. Pictorials. Drawing technique and accuracy emphasized.

### 292:122. TECHNICAL DRAWING II. 3 credits.

Prerequisite, 121. Basic descriptive geometry is introduced to aid in projection of auxiliary views. Sections and conventions. Dimensioning to include basic principles. Allowances and tolerances. Threads and fasteners to encompass standard forms of representation. Graphical solutions of problems using vectors.

### 292:123. TECHNICAL DRAWING III. 3 credits.

Prerequisite, 122. Study of descriptive geometry with applicable problems. Intersections. Developments. Piping layout. Simplified drawing. A complete working drawing including details, assembly and parts list.

### 292:151. BASIC PHYSICS: MECHANICS. 4 credits.

Corequisite, 202:132. Principles of mechanics. Topics include force and motion, work and energy, properties of fluids and gases, and introduction to atomic physics.

### 292:152. BASIC PHYSICS: ELECTRICITY AND MAGNETISM. 3 credits.

Prerequisites, 151 and 202:132. Principles of electricity and magnetism. Topics include electrostatics, basic direct current circuits, magnetism and electro-magnetism, alternating currents, and basic a-c circuits.

### 292:153. BASIC PHYSICS: HEAT, LIGHT, AND SOUND. 3 credits.

Prerequisites, 151 and 202:132. Principles of sound and light. Topics include wave motion, sound waves, light and illumination, reflection and refraction, mirrors and lenses, interference and diffraction, and thermal behavior of matter.

### 292:242. DESIGN MATERIALS. 4 credits.

Prerequisites, 298:125, 298:241. Fundamental properties of materials. Testing of material properties. Applications of methods to control the properties of materials.

### 292:243. KINEMATICS. 3 credits.

Corequisite, 298:241. The study of rigid-body motions of simple linkage, cam driven mechanisms, and gear trains. Displacement, velocity, and acceleration analysis using graphical vector solutions wherever possible. Industrial applications of mechanisms used as examples.

### 292:244. MECHANICAL DESIGN I. 4 credits.

Prerequisites, 123, 243, 298:241 and corequisite 242. Design of simple machine elements: springs, shafting, threaded fasteners, columns and combined stress problems. Fatigue analysis of both single and combined stresses.

### 292:245. MECHANICAL DESIGN II. 5 credits.

Prerequisite, 244. Machine layouts. Dimension determination from graphical constructions. Limit dimensioning for mass production manufacture. Complete over-all design of a simple machine including detail and assembly drawings for each part or sub-assembly.

### 292:247. SHOP METHODS AND PRACTICES. 4 credits.

Study of machine operations and the set-up of various types of tool room machines. Uses and operating techniques of the lathe, drill press, shaper, milling machine, and tool grinder. Emphasis on the planning of machine operations and use of measuring and layout instruments. Project work to illustrate the particular problems associated with each machine.

### 292:249. APPLIED THERMAL ENERGY. 4 credits.

Prerequisites, 153 and 202:234. Thermodynamic principles. Study of power cycles, involving gases, vapors and mixtures. Applications in I. C. engines, compressors, steam power cycles and refrigeration systems.

### 292:251. ELEMENTARY FLUID MECHANICS. 4 credits.

Prerequisites, 298:125; corequisite, 202:133. Statics and dynamics of fluids. Viscosity, energy and momentum relationships. Applications to fluid machinery and measurement.

### 292:310. ECONOMICS OF TECHNOLOGY. 5 credits.

Prerequisite, Junior standing or permission. Principles of technology economy including equivalence, alternatives, costs, depreciation, valuation and selected project studies.

### 292:346. MECHANICAL DESIGN III. 5 credits.

Prerequisites, 245 and 202:336. Design of machine components and subsystems. Vibrations in machines, dynamic forces caused by rotating masses, and lubrication problems in machine. Analysis of stress and deflection in machine structures. Laboratory problem in machine design including all necessary drawings and layouts and specifying all components complete with cost estimate.

### 292:347. PRODUCTION MACHINERY AND PROCESSES. 5 credits.

Prerequisites, 247 and 202:336. A study of the theory of metal cutting, various manufacturing machines, and modern production processes and techniques. Casting, forging, rolling, welding, powder metallurgy, plastics molding, electronic machining and materials handling techniques and equipment. Numerical control of automatic machine tools introduced.

### 292:401. INSPECTION TRIPS. 1 credit.

Prerequisite, senior standing. Trips through area industrial plants and technical facilities. Written reports.

## 298: SURVEYING AND CONSTRUCTION TECHNOLOGY

### 298:122. BASIC SURVEYING. 4 credits.

Prerequisite, 202:132. Basic tools and computations for surveying, measurements of distances, elevations, and angles, traverse surveys. Field practice.

### 298:123. SURVEYING FIELD PRACTICE. 3 credits.

Prerequisite, 122. Practical experience in the use of surveying equipment and methods of surveying. Also provides student with responsibility for making decisions and planning and directing complete projects.

### 298:125. STATICS. 5 credits.

Prerequisite, 292:151 and 202:132. Forces, resultants and couples. Equilibrium of force systems. Trusses, frames, friction, first and second moment of areas. Shear and bending moment diagrams.

### 298:222. CONSTRUCTION SURVEYING. 4 credits.

Prerequisite, 122. Methods and procedures for establishing line and grade for construction. Circular, spiral, and parabolic curves. Cross-sectioning methods and earthwork. Laboratory problems involving calculations and field layout.

### 298:224. LAND SURVEYING. 4 credits.

Prerequisite, 122. Historical development of boundaries, rectangular system of public land surveys, systems used to describe property, working and interpretation of deed descriptions, surveyor's rights, duties and liabilities.

**298:225. ADVANCED SURVEYING. 4 credits.**

Prerequisite, 122. Introduction to theory of errors, precise leveling, baseline measurements, triangulation, trilateration, and bearings from celestial observations. Field practice.

**298:231. BUILDING CONSTRUCTION. 4 credits.**

Materials and types of construction used for the various parts of buildings. Encompasses buildings constructed with heavy timber, steel, concrete or a combination of these materials.

**298:232. CONSTRUCTION. 4 credits.**

Planning of construction operations. Construction equipment and selection for typical jobs. Emphasis on heavy construction.

**298:233. CONSTRUCTION ADMINISTRATION.**

*4 credits.*

Construction specifications. Office organization, preparation of construction documents. Bidding, bonds. Construction management and supervision. Agreements and contracts.

**298:234. ELEMENTS OF STRUCTURES. 4 credits.**

Prerequisite, 241. Principles of stress and structural analysis. Members in steel, timber, and concrete; connections.

**298:237. MATERIAL TESTING LABORATORY I.**

*3 credits.*

Emphasis is placed on soils and bituminous materials. Soil and bituminous identifications tests, strength test and subsurface exploration of soils.

**298:238. MATERIAL TESTING LABORATORY II.**

*3 credits.*

Corequisite, 241. Types, selection, properties and specifications of materials used in construction. General features of mechanical testing. Analysis and presentation in report form.

**298:241. STRENGTH OF MATERIALS. 5 credits.**

Prerequisite, 125. Stress, strain, and stress-strain relationships. Tension. Compression. Torsion. Beams. Columns. Mohr's stress circle.

**298:245. COST ANALYSIS AND ESTIMATING.**

*3 credits.*

Elements of cost in construction, determination of unit costs, analysis of cost records, quantity surveys.

**298:250. STRUCTURAL DRAFTING. 3 credits.**

Prerequisite, 292:122. Duties of the structural draftsman in the preparation of detailed working drawings for steel, concrete, and wood members. Emphasis placed upon the portrayal, dimensions, and notes on a working drawing.

## ***Buchtel College of Arts and Sciences***

### **310: BIOLOGY**

#### **310:121-122-123. PRINCIPLES OF BIOLOGY.**

*4 credits each.*

Sequential. An integrated course emphasizing cell structure and function, genetics, evolution, comparative morphology and physiology of living organisms and their developmental and ecological relationships. Laboratory.

#### **310:133. MICROBIOLOGY. 4 credits.**

Basic principles of microbiology; destruction, removal and inhibition of microorganisms, immunity and allergy; common pathogens. Laboratory. Not available for credit toward a degree in Biology.

#### **310:135. NATURE STUDY — PLANTS. 3 credits.\***

Common plants of this region, life habits. Recommended for teachers of nature study. Not available for credit towards a degree in biology.

#### **310:136. NATURE STUDY — ANIMALS. 3 credits.\***

Common animals of this region, life habits. Recommended for teachers of nature study. Not available for credit towards a degree in biology.

#### **310:147-148-149. ANATOMY AND PHYSIOLOGY.**

*3 credits each.*

Anatomy of the human body, chiefly gross study of all organ systems with emphasis on the physiological processes. Background of high school chemistry or equivalent strongly recommended. Not open to biology and pre-medical majors. Laboratory.

#### **310:177. INTRODUCTORY BACTERIOLOGY. 3 credits.**

Basic principles of morphology, growth and techniques. Offered as a course for engineers, others by permission. Laboratory. Not available for credit toward a degree in Biology.

#### **310:182. CONSERVATION OF NATURAL RESOURCES.**

*4 credits.\**

Principles and practice of conservation of mineral, plant and animal resources.

#### **310:191. INTRODUCTORY HUMAN PHYSIOLOGY.**

*4 credits.*

Physiology of human processes operating in organ systems. Not open to pre-medical majors. Laboratory.

#### **310:207. PRINCIPLES OF MICROBIOLOGY. 4 credits.**

Prerequisites, 315:129-131 or equivalent. Principles of Microbiology; cultivation and control of microorganisms; relationships of microorganisms to man and his environment; medical microbiology. Laboratory.

#### **310:228. TECHNIQUES IN BIOLOGY. 4 credits.**

Prerequisite, 123. Instruction in instrumentation used in biological laboratories. Recommended for all majors in biology laboratory.

#### **310:229. HISTOLOGICAL TECHNIQUE. 4 credits.**

Techniques for the preparation of plant and animal tissues for light and electron microscopy. Laboratory.

#### **310:246. GENERAL GENETICS. 4 credits.**

Prerequisite, 123. Principles of heredity, fundamental principles of genetics.

#### **310:247. GENETICS LABORATORY. 1 credit.**

Prerequisite or corequisite, 246. Fundamental principles of

genetics illustrated by experiments with *Drosophila* and other organisms.

#### **310:260. ANATOMY AND PHYSIOLOGY OF SPEECH AND HEARING. 4 credits.**

Prerequisite, 123 and 191 and 770:135. This course, designed for both biology and speech students, considers speech as a basic biological process. It briefly surveys anatomical concepts of bodily organizations, and studies in more detail the anatomy and physiology of body regions and organs, which are both directly and indirectly responsible for speech. Laboratory.

#### **310:271. GENERAL ECOLOGY. 4 credits.\***

Prerequisite, 123. A study of the interrelationships between organisms and environment.

#### **310:272. ORGANIC EVOLUTION. 4 credits.**

Prerequisite, 123. Early concepts of Evolution; Darwinian Theory and supporting evidence; the mechanism of evolution; molecular evolution; evolutionary trends in plants and animals.

#### **310:273. ORGANIC EVOLUTION DISCUSSION.**

*1 credit.*

Corequisite, 272. Informal discussions of various aspects of organic evolution of general or special interest.

#### **310:274. ECOLOGY LABORATORY. 1 credit.**

Prerequisite, 123, 271 to be taken concurrently, and permission. Methods of ecological observation and experimentation; analysis of data.

#### **310:301. CELL BIOLOGY. 4 credits.**

Prerequisite, 123; 315:201-203; or 315:263-268. A study of the structure and functions of cells using microbial, plant and animal cells for demonstration of common tenets. The laboratory is designed to introduce the student to techniques used in biological research as well as to demonstrate biological phenomena. Laboratory.

#### **310:307. MICROBIOLOGY. 4 credits.**

Prerequisite, one year of college chemistry. A general survey of microorganisms found in the Protista with emphasis on the bacteria — their physical and chemical characteristics. Relationships of microorganisms to man and his environment. Laboratory.

#### **310:308. MICROBIOLOGY. 4 credits.**

Prerequisite, 307. A detailed study of the cultivation and biology of bacteria — their growth, death, metabolism and genetics. Laboratory.

#### **310:309. MICROBIOLOGY. 4 credits.**

Prerequisite, 308. Determinative bacteriology. Classification and identification of major groups of bacteria. Laboratory.

#### **310:313. FALL FLORA. 4 credits.\***

Prerequisite, 123. Classification and recognition of autumn-flowering plants of the region. Laboratory.

#### **310:314. PLANT TAXONOMY. 4 credits.**

Prerequisite, 123. History of plant classification. Current theory and practice of taxonomy. Laboratory.

#### **310:315. SPRING FLORA. 4 credits.**

Prerequisite, 123. Classification and recognition of spring-flowering plants of region. Laboratory.

\*Courses so marked involve field trips and the student may be expected to defray minor transportation costs.

**310:328. HISTOLOGY. 4 credits.**

Prerequisite 123 and 301. Study of animal tissues. Laboratory.

**310:341. INVERTEBRATE ZOOLOGY. 4 credits.\***

Prerequisite, 123. Invertebrate groups, their classification, anatomy and life history of representative forms. Laboratory.

**310:343. PARASITOLOGY. 4 credits.**

Prerequisite, 123. Principles of parasitism; survey of the more important human and veterinary parasitic diseases. Laboratory.

**310:344. GENERAL ENTOMOLOGY. 4 credits.\***

Prerequisite, 123. Insects, their nature, structure, life history, and economic importance; insect orders, representative families and types. An insect collection is made (the department reserves the right to retain any specimens). Laboratory.

**310:355. ORNITHOLOGY. 4 credits.**

Prerequisites, 310:123 or permission. An introduction to the biology of birds: Classification, anatomy, physiology, behavior, ecology, natural history, and field identification.

**310:361-362. HUMAN ANATOMY AND PHYSIOLOGY. 4 credits each.**

Prerequisite, 123, College Chemistry. A study of structure and function of the human body. Laboratory.

**310:401. SEMINAR IN BIOLOGY. 1-2 credits.**

Prerequisite, permission. Selected topics or areas for discussion with background material from original sources.

**310:403. SPECIAL TOPICS IN BIOLOGY.**

1-3 credits (may be repeated for maximum of 6 credits).

Prerequisite, permission. To enable undergraduate students to acquire information in special areas in which no formal course is offered.

**310:410/510. PLANT DEVELOPMENT. 4 credits.**

Prerequisite, 301, one year Organic Chemistry. Embryology and morphogenesis of plants in relation to physical, chemical, genetic, and spatial factors. Laboratory.

**310:411-412/511-512. PLANT PHYSIOLOGY.**

4 credits each.

Prerequisite, 123 and Organic Chemistry. Water, soil and mineral requirements of plants, and their metabolism, growth, and response to stimuli. Laboratory.

**310:415/515. PLANT ANATOMY. 4 credits.**

Prerequisite, 123. Structure and development of cells, tissues, organs and organ systems of seed plants. Laboratory.

**310:416/516. MYCOLOGY. 4 credits.**

Prerequisite, 123. A study of the characteristics and life cycles of representative fungi with emphasis on plant pathogens. Laboratory.

**310:417/517. PHYCOLOGY. 4 credits.**

Prerequisite, 123. Examination of the major groups of algae with emphasis on life cycles and economic importance. Laboratory.

**310:418/518. PLANT MORPHOLOGY. 4 credits.**

Prerequisite, 123. The structure, reproduction, evolution and economic significance of liverworts, mosses, clubmosses, horsetails and ferns. Laboratory.

**310:419/519. PLANT MORPHOLOGY. 4 credits.**

Prerequisite, 123. The structure, reproduction, evolution and economic significance of flowering and non-flowering seed plants. Laboratory.

**310:421. ENVIRONMENTAL CONSERVATION.**

4 credits.

Prerequisite, 271. The biological, political, and economic basis for managing the earth as a livable environment. The course covers natural resources, pollution, human population problems.

**310:425/525. POPULATION ECOLOGY. 4 credits.**

Prerequisite, 271. A study of the factors determining the size and structure of populations of microorganisms, plants, animals, and man. Field and laboratory work will emphasize census and experimental design. Laboratory.

**310:427/527. LIMNOLOGY. 4 credits.**

Prerequisite, 271. Field and laboratory study of ponds, lakes, streams, and rivers. Dynamics of aquatic communities. Laboratory.

**310:428/528. APPLIED AQUATIC ECOLOGY. 4 credits.**

Prerequisite, permission. Methods and techniques for assessing the quality of natural water. Emphasis will be given to biological methods of evaluating water quality. Laboratory.

**310:431/531. PHYSIOLOGY OF THE FUNGI. 4 credits.**

Prerequisite, Mycology 416, and Organic Chemistry. The cultivation, growth, nutrition, metabolism, respiration, composition, and reproduction of fungi. Laboratory.

**310:436/536. COMPARATIVE PHYSIOLOGY. 4 credits.**

Prerequisite, 191 or 491-2 and 315:265, 268. A comparison of osmoregulatory, digestive, respiratory, cardiovascular, endocrine, neural and other physiological mechanisms in a wide variety of invertebrate and vertebrate animals. Emphasis is placed on evolutionary relationships in ecological adaptations. Laboratory.

**310:437-438. CELLULAR MICROBIOLOGY.**

4 credits each.

Prerequisite, 123, and Organic Chemistry. Characteristics of cellular and subcellular systems; main emphasis on characteristics common to all living things, most examples from microorganisms. Laboratory.

**310:440-441/540-541. BACTERIAL PHYSIOLOGY.**

3 credits each.

Prerequisites, 307, 308, 309, also Organic Chemistry, General Biochemistry. Biochemical activities of the bacterial cell with emphasis on metabolic transformations, catabolic pathways, biosynthesis, electron transport and energy relationships are stressed.

**310:443/543. PATHOGENIC BACTERIOLOGY.**

4 credits.

Prerequisites 307, 308, 309. Study of the major groups of bacteria which produce infections in man. The biochemical properties of microorganisms which engender virulence, and the nature of host resistance. Laboratory.

**310:444/544. IMMUNOLOGY. 4 credits.**

Prerequisites 307, 308, 309; 443 recommended. The nature of antigens, the antibody response, and antigen-antibody reactions. The site and mechanism of antibody formations, hypersensitivity, immunologic tolerance, and the immune diseases will also be considered. Laboratory.

**310:446/546. VIROLOGY. 4 credits.**

Prerequisite, 309. Physical, chemical and biological properties of viruses including mechanisms of infection, genetics and tumor formation; methods of cultivation and identification. Laboratory.

**310:448. HUMAN GENETICS. 3 credits.**

Prerequisite, 123. Principles of genetics in the human, im-

muno-genetics, mutation, genetics of population, selection and eugenics.

**310:453-454-455/553-554-555. DEVELOPMENTAL ANATOMY.** *4 credits each.*

Prerequisite, 123. A sequence designed to introduce the process of vertebrate development. Lecture and laboratory work include descriptive and experimental embryology, phylogenetic development of the major vertebrate orders, and individual student research in developmental anatomy.

**310:458/558. VERTEBRATE ZOOLOGY.** *4 credits.\**

Prerequisite, 123. Biology of vertebrates — evolution, ecology, behavior, systematics, anatomy. Laboratory.

**310:461/561. ADVANCED GENETICS.** *4 credits.*

Prerequisites, 246, 345:115-116 and 315:265, 268. The nature of the gene; genetic codes; hereditary determinants; mutagenesis and genes in populations. Lecture and seminar.

**310:467-468-469/567-568-569 BIOLOGICAL PROBLEMS.** *1-3 credits each.*

Prerequisites, permission. Honors work, usually of laboratory investigations. Open to Seniors.

**310:470/570. BIOLOGY OF BEHAVIOR.**

*3 credits each.*

Prerequisites, 14 credit hours in Biology and/or Psychology and senior or graduate standing. The biological basis of behavior; ethological theory; the function, causation, significance, evolution, and adaptiveness of behavior.

**310:480/580. RADIATION BIOLOGY.** *4 credits.*

Prerequisite, permission. This presents basic information in the applications of radio-isotopes and high energy sources to biology. Radiation safety and dosimetry will be included as well as selected practical applications of radio-labeled compounds. Laboratory.

**310:481/581. PLANT BIOSYSTEMATICS.** *3 credits.*

Prerequisites, 415, 417, 418, 419 or permission. A survey of current research methods and thinking in plant phylogenetic and taxonomic work. Includes study of original publications, discussion of experimental methods and the use of the herbarium in research.

**310:491-492/591-592. HUMAN PHYSIOLOGY.**

*4 credits each.*

Prerequisites, Organic chemistry and senior or graduate standing. A detailed study of function of the human body with special emphasis on neuro-muscular, cardiovascular, and respiratory physiology. Laboratory.

**310:493/593. ENDOCRINOLOGY.** *4 credits.*

Prerequisites, 191 and one year of chemistry. A detailed study of the endocrine system including its historical development, the chemical nature of hormones, their mode of action and regulatory mechanisms.

**310:499/599. LABORATORY ANIMAL MANAGEMENT.** *4 credits.*

Prerequisite, 123 and permission. The principles involved in maintaining laboratory animals. Emphasis is placed on selection, management, preventative medicine and surgical procedures used in laboratory animal colonies.

### GRADUATE COURSES

**310:601-602. SEMINAR IN BIOLOGY.** *1 credit each.*

Discussion of students' research and papers from the current literature in biology.

**310:603. SPECIAL TOPICS IN BIOLOGY.**

*1-3 credits. (May be repeated for maximum of 6 credits.)*

\*Courses so marked involve field trips and the student may be expected to defray minor transportation costs.

Prerequisite, permission. To enable students to acquire information in special areas in which no formal course is offered.

**310:641-642. EXPERIMENTAL MICROBIAL PHYSIOLOGY.** *4 credits each.*

Prerequisite, 540, 541, 315:401. Primarily a laboratory course concerned with the basic techniques peculiar to the study of microbial physiology and modification of selected biochemical techniques for application to microbial systems. The relative merits of various techniques using microbial systems, methods of reporting and interpretation of data will be stressed.

**310:647. CYTOLOGY.** *4 credits.*

Study of cells, main emphasis will be placed on the characteristics common to all cells and on investigative techniques used to determine these characteristics. Specialized cells will be considered mainly as they demonstrate general cellular principles.

**310:657. EXPERIMENTAL EMBRYOLOGY.**

*4 credits.*

Prerequisite, permission. A survey of the field of Experimental Embryology emphasizing basic terminology, definitions, and the principles and experimental methods of investigating basic processes in the various phases of vertebrate embryology. Laboratory.

**310:667-668-669. MASTERS RESEARCH.**

*3 credits each.*

**310:691. ENVIRONMENTAL PHYSIOLOGY.**

*4 credits.*

Prerequisites, 591-592. A study of the physiological reactions of healthy mammals to natural changes or extremes of the physical environment. Laboratory.

## 315: CHEMISTRY

**315:111-112. INTRODUCTORY CHEMISTRY FOR ENGINEERS.** *3 credits each.*

Sequential. Introduction to basic facts and principles of chemistry, particularly as they apply to civil and mechanical engineering students.

**315:121-122-123. INORGANIC CHEMISTRY.**

*3 credits each.*

Sequential. Designed primarily for students in Home Economics and for laboratory technicians. Fundamental laws and theories of chemistry; the more important elements and their compounds. Laboratory.

**315:124. CHEMISTRY.** *4 credits.*

Fundamentals of organic, inorganic and physiological chemistry. Filmed Laboratory.

**315:126-127-128. GENERAL INORGANIC CHEMISTRY FOR ENGINEERS.** *4 credits each.*

Sequential. Introduction to basic facts and principles of chemistry, particularly in relation to atomic structure and the periodic table. Laboratory.

**315:129-130-131. GENERAL CHEMISTRY.**

*4 credits each.*

Sequential. Introduction to basic facts and principles of chemistry. Laboratory.

**315:132-133. PRINCIPLES OF CHEMISTRY.**

*4 credits each.*

Sequential. Introduction to basic facts and principles of chemistry. Structure of the atom and the periodic table. The chemical bond, chemical reactivity and oxidation-reduction

relations. The states of matter. For chemistry majors and pre-medical students. Laboratory.

**315:134. PRINCIPLES OF CHEMISTRY AND QUALITATIVE ANALYSIS.** *5 credits.*

Prerequisite, 133. The general theory of aqueous solutions, including acid-base behavior. Electrochemistry and chemical kinetics. The general laws of equilibria in chemical reactions, especially as they apply to qualitative analysis. For chemistry majors and pre-medical students. Laboratory.

**315:201-202-203. ORGANIC CHEMISTRY AND BIOCHEMISTRY.** *3 credits each.*

Sequential. Prerequisite, 123. Designed especially for students in Medical Technology and Home Economics. Principles of organic chemistry with emphasis on biological systems. Laboratory.

**315:263-264-265. ORGANIC CHEMISTRY, LECTURE.**

*3 credits each.*

Sequential. Prerequisite, 134 or 128 and permission. Covalent bond; structure of organic molecules; aliphatic and aromatic compounds; functional groups, polynuclear hydrocarbons and heterocyclic compounds; mechanisms of simple organic reactions.

**315:266-267-268. ORGANIC CHEMISTRY, LABORATORY.** *2 credits each.*

Sequential. Corequisite, 263, 264, 265. Laboratory experiments to develop techniques in organic chemistry and to illustrate principles.

**315:313-314-315. PHYSICAL CHEMISTRY, LECTURE.**

*3 credits each.*

Sequential. Prerequisite, 265 and 345:235 or permission. Gases, thermo-dynamics, thermo-chemistry, solutions, dilute solutions, chemical equilibrium, phase rule, chemical kinetics, electrochemistry, electrolytic equilibria, and atomic and molecular structure.

**315:316-317-318. PHYSICAL CHEMISTRY, LABORATORY.** *2 credits each.*

Sequential. Corequisites, 313, 314, 315. Laboratory designed for illustrating techniques and equipment used in physical chemical investigations.

**315:335-336-337. ANALYTICAL CHEMISTRY FOR LABORATORY TECHNICIANS.** *4 credits each.*

Sequential. Prerequisite, 134 or 123. Intended primarily for students preparing to become laboratory or hospital technicians. Elementary theory and calculations in qualitative and quantitative analysis, laboratory exercises, methods and instruments used in hospital laboratories.

**315:401/501. BIOCHEMISTRY.** *4 credits.*

Sequential. Prerequisite, 265. An intensive study of modern Biochemistry. Topics covered include the biochemistry of amino acids and proteins, the study of enzymes and their role as biocatalysts, the structure and biochemistry of nucleotides, nucleic acids, carbohydrates, liquids and the biochemistry of energy storage and utilization.

**315:402. BIOCHEMISTRY II LECTURE.**

*4 credits.*

Sequential. Prerequisite 401/501. Topics covered in this second quarter of biochemistry include the carbohydrate metabolism, the citric acid cycle, oxidative phosphorylation, lipid and amino acid metabolism nucleotide and nucleic acid biosynthesis, the biosynthesis of proteins and the regulation of gene function.

**315:404/504. BIOCHEMISTRY LABORATORY.**

*1 credit.*

Corequisite, 401/501. Topics include the chemical investiga-

tion of constituents of living matter such as amino acids, proteins, carbohydrates, lipids, and nucleic acids. The student will be exposed to modern biochemical laboratory techniques, such as the various types of chromatography, oxygen measurements, spectrophotometry and the use of radioisotopes.

**315:405. BIOCHEMISTRY II LABORATORY**

*1 credit.*

Sequential. Corequisite, 402. In this second quarter course the student will be exposed to the biological synthesis and degradation of the biochemicals which he investigated in the previous quarter. Experiments will furthermore deal with the role of enzymes as biological catalysts, their characteristics and the utilization of energy released during the oxidation of biological compounds.

**315:408/508. THE PROFESSIONAL CHEMIST IN INDUSTRY.** *2 credits.*

Prerequisite, Senior Year or degree in Chemistry or Chemical Engineering or Permission. The business, legal, societal, economic, and other non-chemical aspects of a chemist's profession. The course is designed toward career education in the chemical industry by widening the professional chemist's horizons and broadening his interest.

**315:411/511. PHYSICAL CHEMISTRY FOR BIOLOGY MAJORS.** *5 credits.*

Prerequisites, 268 and 345:116 and permission. Gases, thermodynamics, electrochemistry, chemical kinetics, macromolecules and colloids, special topics in biochemistry, biophysics and molecular biology.

**315:415/515. CHEMICAL INSTRUMENTATION I.**

*3 credits.*

Prerequisites, 425, 428 or permission. Principles and applications of electrical and electronic devices for chemical analysis. Laboratory.

**315:416/516. CHEMICAL INSTRUMENTATION II.**

*3 credits.*

Prerequisite, 415. Principles and applications of various transducers for chemical analysis. Laboratory.

**315:417/517. INSTRUMENTAL METHODS OF ANALYSIS.** *3 credits.*

Prerequisite, 416. Principles and applications of analytical chemical techniques based on physical measurements. Laboratory.

**315:421-422/521-522. QUALITATIVE ORGANIC ANALYSIS.** *3 credits each.*

Sequential. Prerequisites 268 and 428 or permission. Characterization and identification of organic substances, separation and identification of components of organic mixtures. Laboratory.

**315:423. ANALYTICAL CHEMISTRY, LECTURE.**

*3 credits.*

Prerequisite, 265 or 134 and permission. Introduction to the theoretical principles of quantitative analysis. Techniques and calculations, gravimetric and volumetric methods.

**315:424. ANALYTICAL CHEMISTRY, LECTURE.**

*3 credits.*

Prerequisite, 423. More advanced treatment of theoretical principles of quantitative analysis and of experimental procedures and techniques. Introduction to instrumental analysis.

**315:425. ANALYTICAL CHEMISTRY, LECTURE.**

*3 credits.*

Prerequisite, 424; corequisite, 315. Continuation of instrumental analysis with emphasis on newer analytical tools and methods.

**315:426-427-428. ANALYTICAL CHEMISTRY, LABORATORY.** *2 credits each.*

Sequential. Corequisites, 423, 424, 425. Laboratory techniques employed in gravimetric, volumetric, and instrumental analysis.

**315:450. INDUSTRIAL CHEMISTRY.** *3 credits.*

Prerequisite, 268. Chemical engineering unit operations considered in non-mathematical language, basic principles of instrumentation, manufacture of various inorganic and organic chemicals.

**315:463/563. ADVANCED ORGANIC CHEMISTRY.** *2 credits.*

Prerequisite, 265. Introduction to the study of mechanisms of organic reactions.

**315:464/564. ADVANCED ORGANIC CHEMISTRY.** *3 credits.*

Prerequisite, 463. Continuation of 463.

**315:472/572. ADVANCED INORGANIC CHEMISTRY.** *3 credits.*

Corequisite, 315. Concepts of atomic structure integrated in systematic classification of elements. Periodic table. Study of the chemistry of the representative elements according to periodic grouping.

**315:473/573. ADVANCED INORGANIC CHEMISTRY.** *2 credits.*

Prerequisite, 472. Chemistry of the transition elements. Coordination compounds, organometallics and metal carbonyls.

**315:481-482-483. SENIOR PROBLEMS.** *2 credits each.*

Prerequisite, permission. An assignment of special problems to the student, designed as an introduction to research problems.

## GRADUATE COURSES

**315:601-602-603. CHEMISTRY OF POLYMERS.** *2 credits each.*

Sequential. Prerequisites, 265, 268. Definitions and classification of polymeric substances into fibers, plastics and rubbers. Sources, structures and properties of naturally occurring polymers. Survey of monomers. Methods of preparation, structure and properties of organic and inorganic polymers. Mechanism of condensation and addition polymerization reactions.

**315:604-605-606. CHEMISTRY OF POLYMERS LABORATORY.** *2 credits each.*

Sequential. Prerequisites, 265, 268. Preparation and identification of polymers to illustrate the method of polymerization discussed in 601, 602, 603, and 649.

**315:609. MICRO — QUANTITATIVE ORGANIC ANALYSIS.** *3 credits.*

Prerequisites, 268, 428 and permission. Micro-quantitative analytical methods for determination of carbon, hydrogen, nitrogen, sulfur, and halogens in organic substances. Laboratory.

**315:610. BASIC QUANTUM CHEMISTRY.** *2 credits.*

Prerequisite, 315. A study of the principles of quantum chemistry and their present applications. The emphasis is upon 1) understanding the principles behind the various approximate methods currently being used to describe molecular systems, 2) learning to perform the actual calculations with the use of a high-speed computer and programs supplied by the instructor, and 3) the interpretation and limitations of the results of the various methods.

**315:611. CHEMICAL BONDING.** *2 credits.*

Prerequisite, 610. Application of quantum chemistry to the elucidation of chemical bonding and the structure of molecules.

**315:612. SPECTROSCOPY.** *2 credits.*

Prerequisite, 611. Application of quantum mechanical principles to the interpretation of molecular spectra.

**315:613. SYNTHETIC METHODS OF ORGANIC CHEMISTRY.** *3 credits.*

Prerequisite, 265. A discussion of synthetic organic chemistry. Standard syntheses of organic compounds as well as newer techniques.

**315:621-622-623. ADVANCED PREPARATIONS.**

*1 or 2 credits each.*

Prerequisite, permission. Methods for preparing and purifying organic and inorganic compounds. Laboratory.

**315:625. COLLOID CHEMISTRY.** *2 credits.*

Prerequisites, 425, 428. A thermodynamic and kinetic approach to interfacial, electrokinetic, and colligative phenomena. Application of Schlieren optics to studies in diffusion, ultracentrifuge, and distributions. Debye double layer concept and colloid stability. Micelles. Adsorption and related phenomena.

**315:629-630-631. THEORETICAL INORGANIC CHEMISTRY.** *2 credits each.*

Sequential. Prerequisites, 315, 318 and 473 or permission. A detailed treatment of the chemistry of the transition elements. Ligand field theory, kinetics and mechanisms, magnetism, applications of group theory, electronic spectra, molecular orbital theory.

**315:635. BASIC THERMODYNAMICS.** *2 credits.*

Prerequisites, 315, 318. A rigorous treatment of the laws of thermodynamics and their application to chemical systems.

**315:636. STATISTICAL THERMODYNAMICS.**

*2 credits.*

Prerequisite, 635. Statistical thermodynamics systematically developed and applied to calculation of thermodynamics properties of various state of matter.

**315:637. KINETICS.** *2 credits.*

Prerequisites, 315, 318. Methods of investigation and theory of the rate of chemical reactions. The theory of rate processes and its application in chemistry.

**315:638-639-640. ADVANCED PHYSICAL CHEMISTRY LABORATORY.** *1 credit each.*

Prerequisite, permission. Laboratory experiments in physical chemistry.

**315:649. CHEMISTRY OF ELASTOMERS.** *2 credits.*

Prerequisites, 265, 268 or permission. A study of the molecular structure and chemical reaction and properties of natural and synthetic rubbers, as well as the polymerization processes involved in the formation of the synthetic elastomers.

**315:651-652-653. QUANTUM CHEMISTRY.**

*3 credits each.*

Sequential. Prerequisite, 345:236, or permission. Wave mechanics from a postulation basis; exactly soluble problems, angular momentum and spin. Approximation methods and many-particle systems. The structure of diatomic and polyatomic molecules, and their properties; symmetry and spectroscopy. Self-consistent field techniques.

**315:665. MASTER'S RESEARCH.** *1 to 9 credits.*

For properly qualified candidates for Master's degree. Supervised original research in inorganic, analytical,

physical, and organic chemistry.

**315:670. CHEMICAL MICROSCOPY AND MICRO-CHEMICAL ANALYSIS.** 3 credits.

Prerequisite, 427 and permission. Microscale titrations and physical measurements, phase studies, identifications, microchemical procedures.

**315:671. THERMOANALYTICAL TECHNIQUES.** 3 credits.

Prerequisite, 318 and permission. The methods of differential thermal analysis, thermogravimetric analysis and related techniques are discussed. The method of heating, programming, amplifying and recording and the effects of atmosphere, heat transfer, dilution, sample size and geometry are described. Applications to inorganic and organic reactions, reversible and irreversible, are discussed.

**315:672. ADVANCED ANALYTICAL CHEMISTRY.** 4 credits.

Prerequisite, 428 or equivalent. Two lectures, two laboratory periods. Advanced techniques for separation, determination and identification. Classical as well as recent techniques.

**315:673. STEREOCHEMISTRY OF ORGANIC COMPOUNDS.** 3 credits.

Prerequisite, 265. Modern theory of stereochemistry and its application to reactions of organic chemistry.

**315:674. KINETICS OF POLYMERIZATION.** 2 credits.

Prerequisite, 315. Mechanism and kinetics of condensation polymerization, including molecular weight distribution and network formation. Kinetics of addition polymerization and copolymerization, including molecular weight distribution, three-dimensional polymerization and emulsion polymerization.

**315:675. CHARACTERIZATION OF MACROMOLECULES.** 2 credits.

Prerequisite, 315. Methods of determination of molecular weights, including osmotic pressure, light scattering, sedimentation and viscosity. Dimensions of macromolecules in solution, and network theory of rubber elasticity.

**315:676. MACROMOLECULAR SOLUTIONS.** 2 credits.

Prerequisite, 675 or permission. Theoretical and experimental determination of macromolecular conformation in solution. Thermodynamic properties of polymer liquids and liquid mixtures. Solution properties of polyelectrolytes. Macromolecular association; liquid crystals.

**315:680. SPECIAL TOPICS IN ORGANIC CHEMISTRY.** 1, 2 or 3 credits. (May be repeated).

Prerequisite, permission. Topics in advanced organic chemistry such as natural products, heterocyclic compounds, photochemistry.

**315:681. SPECIAL TOPICS IN ANALYTICAL CHEMISTRY.** 1, 2 or 3 credits. (May be repeated).

Prerequisite, permission. Topics in advanced analytical chemistry such as electronanalysis, activation analysis, atomic absorption spectrometry, mass spectrometry, liquid-liquid and liquid-solid chromatography, gas chromatography, ion exchange, thermoanalytical methods, separation, standards, sampling, recent developments.

**315:682. SPECIAL TOPICS IN INORGANIC CHEMISTRY.** 1, 2 or 3 credits. (May be repeated).

Prerequisite, permission. A consideration of topics in

modern inorganic chemistry, such as: coordination compounds, the chemistry of the solid state, representative elements, nuclear chemistry, nonaqueous solvents, organo-metallic compounds.

**315:683. SPECIAL TOPICS IN PHYSICAL CHEMISTRY.** 1, 2 or 3 credits. (May be repeated).

Prerequisite, permission. Subject matter from the areas of modern physical chemistry.

**315:684. SPECIAL TOPICS IN POLYMER CHEMISTRY.** (Lectures and/or laboratory). 1, 2 or 3 credits.

Prerequisites, 265, 268, 315, 318 or permission. Study of topical subjects of current interest in the chemistry of macromolecules, encompassing organic, inorganic or physical chemistry aspects, and including laboratory work where applicable.

**315:685-686-687. EXPERIMENTAL PHYSICAL CHEMISTRY OF POLYMERS.**

2 credits each for 685 and 686; 2-4 credits for 687.

Sequential. Prerequisite or corequisite, 674, 675, 676 respectively. Laboratory experiments to illustrate methods and principles discussed in 674, 675, 676, respectively.

**315:688. ADVANCED CHEMICAL THERMODYNAMICS.** 3 credits.

Prerequisite, 636. Thermodynamics of solutions, fluctuation theory, generalized thermodynamic potential, irreversible thermodynamics.

**315:691. ADVANCED INSTRUMENTAL ANALYSIS.** 2 credits.

Prerequisite, 417. Modern Instruments.

**315:692. ADVANCED INSTRUMENTATION.** 3 credits.

Prerequisites, 318, 428. Theory and application of instrumental measurements. Interpretation of data.

**315:793. PHYSICAL ORGANIC CHEMISTRY I.** 3 credits.

Prerequisite, undergraduate Organic and Physical Chemistry, no more than 4 years previously, or instructor's permission. Corequisite, 315:610. A consideration of the physical-chemical principles that determine the course of a chemical reaction, and initiation of discussion of reactive intermediates.

**315:794. PHYSICAL ORGANIC CHEMISTRY II.** 3 credits.

Prerequisite, 793 or instructor's permission. Further consideration of reactive intermediates; discussion of solvent effects; substitution, additions and elimination reactions.

**315:795. PHYSICAL ORGANIC CHEMISTRY III.** 3 credits.

Prerequisite, 794 or instructor's permission. Further consideration of reactive intermediates. Carbonyl reactions, heterocycle reactions, molecular rearrangements, photochemistry.

**315:796. THEORETICAL ORGANIC CHEMISTRY.** 3 credits.

Prerequisite, 794. The application of modern quantum chemistry and thermodynamics to problems of organic chemistry.

**315:865. DOCTORAL RESEARCH.** 1 to 24 credits each.

Open to properly qualified students accepted as candidates for the degree of Doctor of Philosophy in Chemistry. Supervised original research may be undertaken in organic, inorganic, physical, or analytical chemistry.

**320: CLASSICS****320:161-162-163. COMPARATIVE LITERATURE.***3 credits each.*

Major writers of Greece and Rome; their influence on later European literature. No foreign language necessary. Required of majors.

**320:199. CLASSICAL MYTHOLOGY. 4 credits.**

Myths, legends and folklore of Greece and Rome; some attention to the history of religion. No foreign language necessary.

**320:313-314-315. CLASSICAL ARCHAEOLOGY.***3 credits each.*

The ruins and monuments of Greece and Rome; history reconstructed by examination of the material remains. No foreign language necessary. Required of majors.

**320:401-402-403/501-502-503. EGYPTOLOGY.***3 credits each.*

Prerequisite, permission of instructor. Classical Egyptian (standard hieroglyphic of the 18th Dynasty); the history and antiquities of Egypt as far as the Roman occupation.

**320:404-405-406/504-505-506. ASSYRIOLOGY.***3 credits each.*

Prerequisite, permission of Instructor. The Akkadian language; history and antiquities of Mesopotamia. May be repeated for credit with another cuneiform language.

**320:407-408-409/507-508-509. ANCIENT NEAR EASTERN ARCHAEOLOGY. 3 credits each.**

Palestine, Mesopotamia, Asia Minor and adjacent lands; the Old Testament reviewed in the light of material evidence.

**321: GREEK****321:121-122-123. ELEMENTARY GREEK.***4 credits each.*

The standard language of Hellenistic times with some attention to Modern Greek.

**321:431-432-433/531-532-533. GREEK READING AND RESEARCH. 3 credits each.**

Prerequisites, 121-122-123 or equivalent, Second-year Greek of any Advanced Greek may be taken under these numbers. Homer, Sophocles, Plato, or the like; the New Testament is commonly offered. May be repeated for credit with a change of authors.

**322: LATIN****322:121-122-123. ELEMENTARY LATIN. 4 credits each.**

Sequential. Some attention to the development of the Romance languages, especially Italian.

**322:243-244-245. SECOND YEAR LATIN. 3 credits each.**

Selections from Virgil or Pliny; other material may be offered.

**322:303. ROMAN SATIRISTS. 3 credits.**

Horace, Persius, Juvenal and Martial. History of satire, ancient and modern.

**322:304. ROMAN DRAMATISTS. 3 credits.**

Plautus, Terence and Seneca. History of the drama and theatre.

**322:305. ROMAN HISTORIANS. 3 credits.**

Sallust, Livy, Tacitus and Suetonius. Historiography; philosophy of history.

**322:306. ROMAN PHILOSOPHICAL AND RELIGIOUS WRITERS. 3 credits.**

Lucretius, Cicero, Seneca and Boethius. The conflict of religions in the Roman Empire.

**322:307. MEDIEVAL LATIN WRITERS. 3 credits.**

The Vulgate, the liturgy and hymns; St. Augustine or the other Fathers; monastic chronicles and Goliardic verse.

**322:308. ROMAN LYRIC AND ELEGIAC POETS.***3 credits.*

Catullus, Horace, Ovid, Propertius and Tibullus.

**322:311. ROMAN NOVELISTS. 3 credits.**

Petronius and Apuleius. Milesian tale and Alexandrian romance.

**322:431-432-433/531-532-533. LATIN READING AND RESEARCH. 3 credits each.**

Generally Latin Epigraphy, but certain subjects in the literature or archaeology of Rome may be offered. May be repeated for credit with a change of subject.

**325: ECONOMICS****325:100. INTRODUCTION TO ECONOMICS. 5 credits.**

May not be substituted for 201, 202, 243, 244. In this course economics will be primarily considered in a broad social science context. Adequate amount of basic theory will be introduced with the main emphasis placed on the theory of price formation and income determination. There will be a balance between the emphasis on institutional aspects and formal analysis. Other topics to be discussed include: competition, monopoly, oligopoly and their effects on production and distribution; saving, investment and growth; the money mechanism, the Federal Reserve System and the economic role of modern governments and related matters.

**325:201-202. PRINCIPLES OF ECONOMICS.***4 credits.*

Sequential. Economic activity in modern industrial society, preparation for responsible participation in process of shaping public policy. No credit to students who have received credit in 243.

**325:243. SURVEY OF ECONOMIC ANALYSIS.***4 credits. (For M.B.A. Candidates.)*

An introductory survey of modern economic theory as well as of the formulation of economic policy. For post-bac. M.B.A. candidates. (No credit for persons having completed 201, 202.)

**325:244. INTRODUCTION TO ECONOMIC ANALYSIS.***4 credits.*

For engineering majors. Intensive introduction to the analysis of modern industrial society as well as of the formulation of economic policy. The structure of economic theory and its relation to economic reality. (No credit for persons having completed 201, 202.)

**325:248. CONSUMER ECONOMICS. 4 credits.**

Spending habits of American consumers, influences affecting their spending decisions, personal finance, budget planning, saving programs, installment buying, insurance, investments, housing finance.

**325:330. LABOR PROBLEMS. 4 credits.**

Prerequisite, 202 or 247. Labor economics, principles, and public policy. Development of structure, objectives and policies of unions in the United States. Labor-management relations negotiations of collective bargaining agreements, administration of grievance procedures, economic effects of union activities, problems of public control.

**325:333. LABOR ECONOMICS. 4 credits.**

Prerequisite, 330. This course deals with the basic theoretical tools used in the analysis of the problems of labor in any modern economic system. Emphasis is given to the examination of the determinants of the demand for and the supply of labor.

**325:360. INDUSTRIAL ORGANIZATION AND PUBLIC POLICY. 4 credits.**

Prerequisite, 325:201-202. The role of industrial structure and firm conduct in the performance of industry and the way in which antitrust policy is designed to provide remedies where performance is unsatisfactory.

**325:371. DEVELOPMENT OF ECONOMIC INSTITUTIONS. 4 credits.**

Prerequisite, 201 and 202. Analytical survey of the origins and growth of the institutional frame of contemporary economic life in all its forms.

**325:380. MONEY AND BANKING. 4 credits.**

Prerequisite, 201 or 202. Institutions of money, banking, and credit, monetary expansion and contraction, public policies affecting this process, development of our money and banking system.

**325:400. MACRO-ECONOMICS. 4 credits.**

Prerequisite, 201, 202; recommended 650:348-49. Changes in the national income, production, employment, price levels, long-range economic growth, short-term fluctuations of economic activity.

**325:405. PUBLIC FINANCE. 4 credits.**

Prerequisite, 201 and 202. Tax systems and other sources of revenue of federal, state, and local governments; changing patterns of public expenditures; fiscal policy and debt management; economic effects of public policy.

**325:410. MICRO-ECONOMICS. 4 credits.**

Prerequisite, 201 and 202. Advanced analysis of consumer demand, production costs, market structures, determinants of factor income.

**325:420/520. MATHEMATICAL ECONOMICS I.**

4 credits.

Prerequisites, 201, 202, 345:140-195. Mathematical treatment of economic statics and comparative statics. Single and multi-market equilibrium; comparative statics stability conditions. Theory of the firm and theory of consumer behavior. General equilibrium analysis; welfare analysis.

**325:421/521. MATHEMATICAL ECONOMICS II.**

4 credits.

Prerequisites, 420 or permission. A continuation of Mathematical Economics I. Input-output analysis, static and dynamic versions. Linear programming and activity analysis; application to theory of the firm. Elements of game theory. Dynamic economic analysis; solution techniques; some significant dynamic models from the literature.

**325:425. QUANTITATIVE ECONOMICS. 4 credits.**

Prerequisites, 201, 202, 650:348-49. or equivalent. Quantitative relationships. Construction of static and dynamic models and their use in explanation, forecasting and decision-making. Elements of Linear-programming, activity analysis, game-theory.

**325:426/526. STATISTICAL APPLICATIONS IN ECONOMICS. 4 credits.**

Prerequisites, 201, 202, 650:348-49. Relationship between facts and explanation. The techniques of making forecasts as basis for decisions in business and government as well as for the verification of hypotheses.

**325:431/531. LABOR AND THE GOVERNMENT.**

4 credits.

Prerequisites, 201, 202, 330. Development of public policy for control of industrial relations, from judicial control of 19th century to statutory and administrative controls of World War II and post-war periods. Economic effects of public control.

**325:432. THE ECONOMICS AND PRACTICE OF COLLECTIVE BARGAINING. 4 credits.**

Prerequisites, 201, 202, 330. Principles and organization of collective bargaining, collective bargaining agreements, issues presented in labor disputes and settlements, union status and security, wage scales, technological change, production standards, etc.

**325:450. COMPARATIVE ECONOMIC SYSTEMS.**

4 credits.

Prerequisite, 201-202. Systems of economic organization, ranging from the theoretical extreme of unregulated private enterprise to that of Marxian communism. Comparison of actual system of mixed public and private enterprise of contemporary United States with the state socialism of the Soviet Union.

**325:460/560. ECONOMIC DEVELOPMENT AND PLANNING FOR UNDERDEVELOPED COUNTRIES.**

4 credits.

Prerequisite, 201, 202, 650:348-49. Basic problems in economic development. Theories of development. The issues of industrialization and investment. Government planning for development and international efforts for economic development of underdeveloped countries. No credit for graduate majors in economics.

**325:461. PRINCIPLES OF INTERNATIONAL ECONOMICS. 4 credits.**

Prerequisite, 201 and 202. Theory of international trade and foreign exchange, policies of free and controlled trade, international monetary problems, world economic planning.

**325:472/572. STRUCTURE OF ECONOMIC THEORY.**

4 credits.

Prerequisite, 400, 410 or permission. This course deals with the logical structure of economic theory. The relationship between formal theory and empirical data, and the testing of macro- and micro-economic hypotheses.

**325:475/575. DEVELOPMENT OF ECONOMIC THOUGHT. 4 credits.**

Prerequisite, 201 and 202. Evolution of theory and method, relation of ideas of economists to contemporary conditions.

**325:481/581. MONETARY AND BANKING POLICY.**

4 credits.

Prerequisites, 380 and 400. Control over currency and credit, policies of control by central banks and governments, U. S. Treasury and Federal Reserve System.

**325:486. GHETTO ECONOMIC DEVELOPMENT.**

4 credits.

Prerequisite, 201 and 202. This course will stress careful study of the question of economic planning and development at the urban level, in response to the persuasive phenomena urban ghetto structures.

**325:487. URBAN ECONOMICS: THEORY AND POLICY. 4 credits.**

Prerequisite, 410. This course is concerned with theoretical and empirical analyses of allocation, growth, and structure in the urban economy. Some attention will be paid to the spatial dimension in economic analysis along with discussions of metropolitan land markets and urban growth models. Attention is also focused on specific urban problems

like housing, urban transportation, education and manpower policy and the evaluation of public programs. Special attention will be given to resource allocation in the urban public sector.

**325:490/590. SEMINAR IN ECONOMICS. 4 credits.**

Prerequisite, permission. Opportunity for advanced students to study special fields of Economics.

## GRADUATE COURSES

**325:601. MACRO-ECONOMIC THEORY. 4 credits.**

Advanced analysis of national income, the level of employment, and economic long-term growth.

**325:602. MACRO-ECONOMIC ANALYSIS I. 4 credits.**

Prerequisite, graduate standing. The construction of static equilibrium models. Emphasis is on the explanatory value. The analysis throughout is predominantly in terms of comparative statics with only relatively brief mention of dynamic models. The presentation of the macro-models is in graphical and algebraic terms.

**325:603. MACRO-ECONOMIC ANALYSIS II. 4 credits.**

Prerequisite, 602. Macrodynamics and stability analysis of the closed and open Keynesian system. Inclusive coverage of the post-Keynesian theories of production and growth from the Harrod-Domar Model to the more contemporary neoclassical growth economics. Technological improvement, capital accumulation, and stability of long run equilibrium are among the subjects stressed.

**325:606. FISCAL THEORY AND POLICY. 4 credits.**

Economic theory of fiscal policy, government and income determination in the framework of the theory of general equilibrium. Background and goals of fiscal policy; problems and conflicts inherent in the attainment of these goals. Impact of fiscal policy upon the level of economic activity.

**325:611. MICRO-ECONOMIC THEORY. 4 credits.**

Prerequisites, 650:346, 347. Recent developments in partial and general equilibrium theory. Statistics and Dynamics. Review of mathematical programming, input-output analysis, activity analysis, game-theory. Decision and control processes in the allocation of resources and the distribution of income.

**325:615. INDUSTRIAL ORGANIZATION. 4 credits.**

This course deals with the various forms of market structures. It is designed, however, not as a descriptive course, but primarily as analytical study of these observable market structures and of the dynamic determinants which shape and change them.

**325:616. ANTITRUST AND REGULATION. 4 credits.**

Prerequisite, 325:611 and 615 recommended or consent of instructor. Antitrust policy and the regulation of industry. Focus on the economics of precedent-setting judicial decisions, and also on government policies in context of existing knowledge in areas of industrial organization and price theory. Alternative policies are examined.

**325:627. ECONOMETRICS. 4 credits.**

Relationship of econometrics to economic analysis. Formulation of functional relations among economic variables in form suitable for statistical estimation from observational data. Construction of multiequation econometric models and methods of estimation.

**325:628. LINEAR PROGRAMMING AND ACTIVITY ANALYSIS. 4 credits.**

A study of the methods of linear programming, including a

presentation of the special cases of the transportation problem and input-output analysis. A comparison is also made between conventional marginal analysis and the linear programming formulation of the theory of the firm.

**325:633. THEORY OF WAGES AND EMPLOYMENT. 4 credits.**

Prerequisite, 410 or consent of instructor. An analytical approach to the integration of economic theory with observed labor market phenomena. Discussion of wage and employment theories and their evolution, the effects of unions on wage differentials, collective bargaining theories, and the effects of government regulation of the labor market.

**325:634. LABOR ECONOMICS. 4 credits.**

The economic issues and implications involved in hours of work, employment and unemployment, and the impact of trade unions upon the basic institutions of a free private enterprise economy.

**325:635. COMPARATIVE LABOR ECONOMICS. 4 credits.**

A comparison of the structure and function of labor organizations in the United States, Western Europe, and some of the emerging underdeveloped countries. Emphasis is on the analytical explanation of the differences as well as of the common features of these organizations and on the social and legal framework within which they function.

**325:642. THE ECONOMIC THEORY OF PUBLIC CHOICE. 4 credits.**

Course concerns both positive and normative issues. Attention on criteria for public decision-making on the normative side, and on the analysis of institutional behavior (form and change) in the area of collective choice on the positive side. Discussion of real issues in at least our own urban and regional area.

**325:655-656-657. READING IN ADVANCED ECONOMICS. 1-4 credits each. (A maximum of 8 credits may be applied toward the master's degree in economics.)**

Intensive investigation of selected problem area in advanced Economics under supervision of the instructor. Since the subject matter is decided upon in each case, the course may be taken repeatedly for credit.

**325:664. SEMINAR ON ECONOMIC GROWTH AND DEVELOPMENT. 4 credits.**

Main theories of economic growth since the age of classical economics are reviewed. This seminar deals with the major factors and problems in the development of emerging countries. Aggregative macro models of capital formation, investment, technology and external trade are discussed.

**325:665. SEMINAR ON ECONOMIC PLANNING. 4 credits.**

Types, methods and applications of planning. Planning for growth. Application of Input-Output, linear programming, computer simulations, and other statistical and mathematical methods in planometrics.

**325:666. SEMINAR ON REGIONAL ECONOMIC ANALYSIS AND DEVELOPMENT. 4 credits.**

The study of a particular national or international regional development. Any one or a combination of the following regions may be considered. The Middle East, North Africa, areas within Latin America such as the Brazilian North-East or Caribbean, Southern Europe, South East Asia or Eastern Europe.

**325:670. INTERNATIONAL ECONOMICS. 4 credits.**

Historical development of international trade theory is surveyed and brought up to date. Equilibrium in the bal-

ance of payments through various mechanisms is discussed. The international monetary problems and reform proposals are examined. The European Economic Community and other regional integration attempts and their possible effects on the U. S. Balance of Payments and the evolution of the international economy are studied.

**325:671. SEMINAR IN THE THEORY OF INTERNATIONAL TRADE.** 4 credits.

Classical International Trade theory displayed by means of current geometric — algebraic methods. Major recent developments in international trade theory and their applications to current issues, such as trade liberalization, economic development and regional economic integration.

**325:683. MONETARY THEORY AND POLICY.**

4 credits.

An intensive study of some important areas of Monetary Theory including the more significant modern developments. Emphasis will be placed on the integration of money and value theory among other areas, plus some pressing policy issues.

**325:695-696. RESEARCH AND THESIS.** 4 credits each.

### 330: ENGLISH

**330:237. REPRESENTATIVE AMERICAN WRITERS BEFORE 1865.** 4 credits.

**330:239. REPRESENTATIVE AMERICAN WRITERS, 1865 TO PRESENT.** 4 credits.

**330:240. SHAKESPEARE.** 5 credits.

Reading of 15 or more plays, with explanatory lectures and discussions.

**330:242-243. INTRODUCTION TO LINGUISTICS.**

3 credits each.

Sequential. Review of parts-of-speech grammar, strengths and weaknesses. Introduction to modern linguistic theory, descriptive and generative techniques.

**330:244. APPRECIATION OF DRAMA.** 3 credits.

**330:245. APPRECIATION OF FICTION.** 3 credits.

**330:246. APPRECIATION OF POETRY.** 4 credits.

Courses 244, 245, and 246 constitute an approach to critical reading.

**330:265-266-267. ENGLISH LITERATURE.**

4 credits each.

English Literature from Anglo-Saxon to modern times.

**330:271. EUROPEAN BACKGROUNDS OF ENGLISH LITERATURE.** 5 credits.

Representative French, German, Italian, and Spanish works, medieval to nineteenth century, in translation.

**330:272. MODERN EUROPEAN LITERATURE.**

5 credits.

Representative European writers from about 1850 to the present in translation.

**330:275. THE OLD TESTAMENT AS LITERATURE.**

4 credits.

The history of the Hebrews to 586 B.C., with related prophecy, fiction and poetry.

**330:277. THE APOCRYPHA AND THE NEW TESTAMENT AS LITERATURE.** 4 credits.

Messianic literature, Wisdom literature, Apocalyptic literature, the Apocrypha, selections from the Gospels, and the Pauline letters.

**330:321. THE ENGLISH NOVEL BEFORE 1830.**

5 credits.

The development of the English novel from Defoe to Scott.

**330:323. THE ENGLISH NOVEL: 1830-1900.** 5 credits.

The development of the English novel from Dickens to Hardy.

**330:338. BLACK AMERICAN LITERATURE.**

4 credits.

A study of the representative writings of Black America authors from the eighteenth century to the present.

**330:343. ADVANCED EXPOSITORY WRITING.**

4 credits.

Prerequisite, 243 or permission. Writing of a variety of expository papers; study of style through literary criticism and imitation; examination and grading of student themes.

**330:350. CREATIVE WRITING.** 3 credits.

Practice in forms of creative writing.

**330:355. CONTINENTAL DRAMA.** 5 credits.

Masterpieces of the drama from the Greeks to the present.

**330:363. ENGLISH DRAMA OF THE PRE-ELIZABETHAN AND ELIZABETHAN PERIOD.** 4 credits.

The development of English non-Shakespearean drama from the *Quem Quaeritis Trope* to the death of Elizabeth, 1603.

**330:364. ENGLISH DRAMA OF THE JACOBEAN AND CAROLINE PERIOD.** 4 credits.

The development of English non-Shakespearean drama from the end of the sixteenth century to the closing of the theatres in 1642.

**330:365. ENGLISH DRAMA OF THE RESTORATION AND EIGHTEENTH CENTURY.** 4 credits.

Development of the British drama from the reopening of the theatres in 1660 to 1800.

**330:401/501. CHAUCER.** 5 credits.

The *Canterbury Tales* and other literary works in Middle English.

**330:403/503. MIDDLE ENGLISH LITERATURE.**

4 credits.

Middle English literary works from the 12th to the 15th century.

**330:404/504. SIXTEENTH-CENTURY LITERATURE.**

5 credits.

Prose and poetry from early Tudor period to later Elizabethan period, excluding drama.

**330:406-407/506-507. ANGLO SAXON.** 3 credits each.

Sequential. From studies in Old English language and Old English prose to selections from old English poetry, including *Beowulf*.

**330:412/512. SEVENTEENTH-CENTURY LITERATURE.** 4 credits.

Non-dramatic literature from Bacon to Dryden.

**330:413/513. MILTON.** 4 credits.

Concentrated study of selected prose and major poems of Milton.

**330:415/515. THE EARLY EIGHTEENTH CENTURY.***3 credits.*

Pope, Swift and others.

**330:416/516. THE LATER EIGHTEENTH CENTURY.***3 credits.*

Johnson, Gray and others.

**330:419/519. LITERATURE OF THE ROMANTIC PERIOD. 4 credits.**

Poetry and prose of the early nineteenth century.

**330:420/520. LITERATURE OF THE VICTORIAN PERIOD. 4 credits.**

Poetry and prose of the later nineteenth century.

**330:426/526. AMERICAN FICTION: BEGINNINGS TO 1885. 4 credits.**

A survey of the development of American fiction from its beginnings in the late eighteenth century to the writings of Mark Twain.

**330:427/527. AMERICAN FICTION: 1885-1918. 4 credits.**

A continuation of the first quarter concluding with the close of World War I.

**330:428/528. AMERICAN FICTION: 1918 TO PRESENT. 4 credits.**

A continuation of the second quarter concluding with recent examples of American fiction.

**330:429/529. AMERICAN POETRY. 5 credits.**

A survey of American poetry from the beginning to the present time.

**330:430/530. AMERICAN NON-FICTION. 4 credits.**

A study of major or representative contributions to non-fictional prose including the journals, notebooks, autobiographies, biographies and essays of those writers important in the history of American literature.

**330:432/532. TWENTIETH-CENTURY AMERICAN DRAMA. 4 credits.**

Development of American drama from the end of World War I to the present.

**330:440/540. TWENTIETH CENTURY BRITISH LITERATURE. 5 credits.**

A study of representative works of major British and Irish writers from 1900 to the present.

**330:442/542. MODERN BRITISH AND IRISH DRAMA. 4 credits.**

Development of British and Irish drama from the late nineteenth century to the present.

**330:443/543. BRITISH FICTION SINCE 1925. 4 credits.**

A study of important British novelists since 1925, excluding Lawrence, Joyce and Woolf.

**330:450-451-452. HONORS IN ENGLISH.***3 credits each.*

Prerequisite, Senior standing and permission. Directed studies both in individual and group sessions designed to encourage independent reading and thought — based on a related series of readings to be arranged with the instructor.

**330:460/560. THEORY OF RHETORIC. 3 credits.**

Ancient and modern theories of rhetoric, with attention to the classical oration, the "topics" of rhetoric, and their application to the teaching of English.

**330:462/562. HISTORY OF THE ENGLISH LANGUAGE. 5 credits.**

From Proto-Old English to the present.

**330:490/590. SEMINAR: ENGLISH. 3-5 credits.****330:491/591. SEMINAR: ENGLISH. 3-5 credits.****330:492/592. SEMINAR: ENGLISH. 3-5 credits.**

Special studies, methods of literary research, special concentration in English and American literature.

## GRADUATE COURSES

**330:619. SHAKESPEAREAN DRAMA. 5 credits.**

Concentrated study of several Shakespearean plays with emphasis on historical, critical and dramatic documents pertinent to the development of Shakespeare's art.

**330:622. SHAKESPEARE'S CONTEMPORARIES IN ENGLISH DRAMA. 5 credits.**

Readings in such playwrights as Lyly, Marlowe, Jonson, Beaumont, Fletcher, Middleton, and Ford and in contemporary writings pertinent to the theatrical scene.

**330:643. KEATS AND HIS CONTEMPORARIES. 5 credits.**

The poetry of John Keats studied against the background of romantic poetic theory and the poetry of Keats' contemporaries.

**330:647. VICTORIAN POETS. 5 credits.**

Major verse of Tennyson, Browning, and Arnold, related poetry and critical studies.

**330:659. THEORY AND PRACTICE OF MODERN POETRY. 5 credits.**

A study of modern prosody, critical theories of modern poetry, and the relation between a writer's theory and his practice, with particular attention to Frost, Stevens, Yeats, and Eliot.

**330:675. AMERICAN ROMANTIC FICTION. 5 credits.**

The meaning of American Romanticism applied to the study of Poe, Hawthorne, and Melville.

**330:679. REALISM AND NATURALISM IN AMERICAN FICTION. 5 credits.**

The meanings of American Realism and Naturalism applied to the study of such writers as Twain, Howells, James, Crane, Dreiser, London, and Norris.

**330:689. MODERN LINGUISTICS. 5 credits.**

Modern synchronic linguistics; studies in applied linguistics.

**330:690. SEMINAR IN ENGLISH. 3-5 credits.****330:691. SEMINAR IN ENGLISH. 3-5 credits.****330:692. SEMINAR IN ENGLISH. 3-5 credits.**

Special studies offered in the specialties of the members of the Graduate Faculty as needed.

**330:693. LITERARY CRITICISM. 5 credits.**

The development of European literary criticism from classical times to the present.

**330:697. BIBLIOGRAPHY AND LITERARY RESEARCH. 3 credits.**

Sources and methods of research in English and American literature and language.

**330:698. INDIVIDUAL READING IN ENGLISH. 1-3 credits.**

Study under the direction of a professor guiding the student's individual reading and research.

**330:699. RESEARCH ENGLISH: THESIS. 4 credits.**

**335: GEOGRAPHY****335:100. INTRODUCTION TO GEOGRAPHY.***4 credits.*

An introduction to the geography of the world. Investigates principles of cultural geography by introducing basic physical, economic, and settlement patterns and by utilizing maps as research devices.

**335:210. PHYSICAL GEOGRAPHY. 3 credits.**

Landforms, weather and climate, soils and vegetation. The nature and distribution of these physical elements and their significance for man. Laboratory.

**335:220. ECONOMIC GEOGRAPHY. 3-4 credits.**

The geographical basis for production, exchange and consumption of goods. The effect which economic patterns have on man's culture and on the adjustment of man to his environment.

**335:230. RURAL AND URBAN SETTLEMENT.***3 credits.*

Study of the origin, function and rationale of settlement patterns which man has evolved in the process of occupying various areas.

**335:240. MAPS AND MAP READING. 3 credits.**

Designed to develop competence in map use and evaluation, use and interpretation of globes, cartograms, block diagrams, topographic sheets and thematic maps. Laboratory.

**335:285. THE GEOGRAPHY OF SOCIAL INSTITUTIONS IN THE UNITED STATES.***4 credits.*

The course will be devoted primarily to the geographical variations in social institutions and social well-being within the United States. Some time will be spent also on the development of territorial social indicators and their possible use in city, regional and social policies.

**335:314. CLIMATOLOGY. 3 credits.**

Prerequisite, 335:210 or permission. A study of the controls of weather and climate. Acquaints the student with the types of climates, their world pattern of distribution, and the problems involved as man attempts to control and modify weather and climate.

**335:326. MINERALS, ENERGY & ECOLOGY.***3 credits.*

Prerequisite, 335:220 or permission. An analysis of the influence of minerals on human activities.

**335:336. URBAN LAND USE ANALYSIS. 3 credits.**

Prerequisite, 335:230 or permission. A study of the internal structure of the city with particular emphasis on the methods of defining and mapping the various parts.

**335:346. GEOGRAPHIC ASPECTS OF AIR PHOTO INTERPRETATION. 3 credits.**

Prerequisite, 335:240 or permission. A study of the basic principles of aerial photography and its utilization. The interpretation of aerial photography and application to map making and geographic research.

**335:350. ANGLO-AMERICA. 4 credits.**

Prerequisite, 335:100 or permission. Regional and systematic geography of the U. S. and Canada, relating cultural and economic patterns to physical environment.

**335:353. NORTHERN LATIN AMERICA. 3 credits.**

Prerequisite, 335:100 or permission. An analysis of the relationship of cultural and economic patterns to physical environment in Mexico, Central America, northern South America, and the Caribbean.

**335:354. SOUTHERN LATIN AMERICA. 3 credits.**

Prerequisite, 335:100 or permission. Regional and topical analysis of geographic relationships in Latin America, south of the equator.

**335:356. EUROPE. 3 credits.**

Prerequisite, 335:100 or permission. Regional and systematic analysis of cultural, economic and physical patterns of the continent, excluding the USSR.

**335:358. USSR. 3 credits.**

Prerequisite, 335:100 or permission. Regional and topical analysis of the Soviet Union considering how the Russian culture and economic patterns relate to the physical environment of northern Eurasia.

**335:360. EAST ASIA. 3 credits.**

Prerequisite, 335:100 or permission. Regional and systematic geography of China, Japan, and adjacent areas, with emphasis on cultural, economic and physical patterns and relationships.

**335:361. SOUTH AND SOUTHEAST ASIA.***3 credits.*

Prerequisite, 335:100 or permission. Analysis of the relationship of cultural and economic patterns to physical environment in the Indian subcontinent and southeast Asia.

**335:362. MIDDLE EAST. 3 credits.**

Prerequisite, 335:100 or permission. Regional and systematic geography of that part of the world united by a desert environment and Muslim culture.

**335:363. AFRICA SOUTH OF THE SAHARA.***3 credits.*

Prerequisite, 335:100 or permission. Topical and regional analysis of the relationship between cultural, economic and physical environment patterns.

**335:380. CARTOGRAPHY. 3 credits.**

Use of cartographic principles and techniques as well as other forms of graphic representation, as a means of recording information. Emphasis is placed on use of cartographic tools and equipment. (no special drafting ability required)

**335:389. READING AND INDIVIDUAL RESEARCH.***3 credits.*

Prerequisite, permission of instructor. Directed reading and research in special field of interest chosen by student in consultation with the instructor.

**335:415/515. GEOGRAPHY OF WATER RESOURCES.***3 credits.*

Prerequisite, 335:210 or permission. Discusses the occurrence of water in nature and the influence of water on human activities.

**335:418/518. GEOGRAPHY OF VEGETATION AND SOILS. 3 credits.**

Prerequisite, 335:210 and permission. Examination of natural vegetation and soil types found over the surface of the earth. Discussion of the geographic relationships of soils and vegetation to climate and landforms, and to man's activities.

**335:422/522. GEOGRAPHIC ASPECTS OF TRANSPORTATION. 3 credits.**

Prerequisite, 335:200 or permission. Discusses the geographic patterns of the various transportation systems, explains their rationale and investigates the influence of transportation patterns on man's activities.

**335:428/528. INDUSTRIAL AND COMMERCIAL SITE SELECTION. 3 credits.**

Prerequisite, 335:220 or permission. Relationship between relief, climate, resources, population, transportation and the

industrial and commercial location process. Case studies in the effects of transportation networks, rates, sources of materials, labor supply, location of markets, etc., on selection and evaluation of potential sites.

**335:433/533. GEOGRAPHIC ASPECTS OF PLANNING.** *3 credits.*

Prerequisite, 335:230 or permission. The role of geographic investigation in city, regional and resource planning.

**335:435/535. GEOGRAPHY OF RECREATION RESOURCES.** *3 credits.*

Prerequisite, 335:230 or permission. The effect of the physical and economic environment on recreational patterns. Discussion of seasonality and tourism patterns. Case studies of important recreational activities and areas in which tourism contributes significantly to the area economy.

**335:438/538. COMPARATIVE GEOGRAPHY OF WORLD METROPOLITAN AREAS.** *3 credits.*

Prerequisite, 335:230 or permission. Association of phenomena within the metropolitan area expressed in land use and occupance features. The changing function of the urban area; relationships between urban centers.

**335:444/544. MAP COMPILATION AND REPRODUCTION.** *3 credits.*

Prerequisite, 335:240 or permission. The non-drafting techniques involved in producing modern maps.

**335:447/547. REMOTE SENSING OF THE ENVIRONMENT.** *3 credits.*

Prerequisite, 335:240 or permission. The study of advanced methods of aerial "photography" including satellite, radar and infra-red imagery and their applications to geographical research.

**335:448/548. STATISTICAL MAPPING.** *3 credits.*

Prerequisite, 335:240 or permission. Problems of cartographic statistical representation. Methods of data manipulation and problems of symbolization are stressed as well as techniques of presentation.

**335:451. REGIONAL PROBLEMS IN CANADIAN GEOGRAPHY.** *3 credits.*

Prerequisite, 335:350 or permission. A comprehensive analysis of the main regional problems facing Canada, not only internally but also internationally. The emphasis will be placed on the current political, economic, and social environments, their interrelationships and the inter-regional relationships which exist throughout the country.

**335:481/581. INTRODUCTION TO GEOGRAPHIC RESEARCH.** *3 credits.*

Prerequisite, 18 credits of geography courses. Introduction to the techniques and source materials of geographic research. Statistical measurements and library resources will be stressed. Research papers will be required.

**335:483/583. INTRODUCTION TO SPATIAL ANALYSIS.** *3 credits.*

Prerequisite, 481 or permission. The conceptual basis for spatial analysis including the methodological innovations leading to modern geographic research. Beginning use of the computer is emphasized.

**335:484/584. FIELD RESEARCH METHODS.** *3 credits.*

Prerequisite, 335:481 or permission. Field work enabling the student to familiarize himself with the proper approach to collecting, organizing and analyzing data while carrying out field research projects.

## GRADUATE COURSES

**335:610. SEMINAR IN PHYSICAL GEOGRAPHY.**

*4 credits.*

Prerequisite, 335:210 or permission. Investigation and analysis of selected topics in physical geography.

**335:615. ADVANCED CLIMATOLOGY.** *4 credits.*

Prerequisite, 335:314 or permission. The statistical and cartographical formulation of patterns of atmospheric variables upon various scales and depths in the atmosphere; emphasis upon relationships to causal factors or controls; methods of data acquisition, processing, and presentation; typical analytical relationships employed in analysis, presentation, and interpretation of large-scale weather systems.

**335:620. SEMINAR IN ECONOMIC GEOGRAPHY.**

*4 credits.*

Prerequisite, 335:220 or permission. Investigation and analysis of selected topics in economic geography.

**335:630. SEMINAR IN URBAN GEOGRAPHY.**

*4 credits.*

Prerequisite, 335:230 or permission. An intensive study of the development of theories and techniques in urban geography and their application to selected problems.

**335:635. PLANNING — FIELD EXPERIENCE.**

*3 credits.*

Prerequisite, permission of department head. Individual experience in selected planning agencies for supervised performance in professional planning work. Twenty hours per week in the agency and eight weeks full time experience in summer.

**335:640. ADVANCED CARTOGRAPHY.** *4 credits.*

Prerequisite, 335:380 or permission. Advanced techniques in cartography, with emphasis on the solving of special cartographic problems and on the philosophy of cartography.

**335:660. SEMINAR IN CULTURAL AND POLITICAL GEOGRAPHY.** *4 credits.*

Prerequisite, 335:374. Investigation and analysis of selected topics in cultural and political geography.

**335:680. SPATIAL ANALYSIS.** *4 credits.*

Prerequisite, 483 or permission. The application of quantitative measures in geographic research. Consideration of the problems of sampling design, spatial statistics measurement and evaluation of data, and simulation techniques.

**335:682. SEMINAR IN REGIONAL METHODOLOGY.**

*4 credits.*

Prerequisite, 335:481/581. A critical study of the methodology applied in the investigation of geographic regions.

**335:685. ADVANCED SPATIAL ANALYSIS.**

*4 credits.*

Prerequisite, 680 or permission. Discussion of current trends in spatial analysis and the methodology underlying them. A seminar format is used.

**335:687. HISTORY OF GEOGRAPHIC THOUGHT.**

*4 credits.*

Prerequisite, 335:481/581. A critical review of the major developments in geographic thought from the Greek period to modern times.

**335:690. INDIVIDUAL READING AND RESEARCH.**

*4 credits.*

Prerequisite, permission of the instructor and the depart-

ment head. Intensive investigation of selected topics, under guidance of a faculty member.

**335:695. THESIS RESEARCH.**

3 credits. (May be repeated twice for credit.)

Prerequisite, permission of department head. Supervised original research.

## 337: GEOLOGY

**337:100. EARTH SCIENCE. 4 credits.**

An elementary introduction to earth science designed primarily for non-science majors. A survey of the earth in relation to the physical composition and structure of its solid part; its development and history; its atmosphere and oceans; and its relation to the solar system and universe. Laboratory.

**337:101. INTRODUCTORY PHYSICAL GEOLOGY. 5 credits.**

The materials, structures, surface features of the earth and processes which have produced them. Laboratory.

**337:102. INTRODUCTORY HISTORICAL GEOLOGY. 5 credits.**

Prerequisite, 101. The geologic history of the earth and the succession of the major groups of plants and animals as based on the geologic interpretation of rock formations and fossils. Laboratory.

**337:200. GEOLOGY AND THE ENVIRONMENT. 3 credits.**

Land, air and waters of the earth as the framework of man's environment. Natural environmental hazards. Action and reaction of man and the geologic environment in the use of energy, minerals, water, air and food in the release of waste products. This course not available for the major.

**337:210. GEOMORPHOLOGY. 4 credits.**

Prerequisite, 101. The landforms of the earth. Description of the various types, their geographical distribution, and an explanation of the geological processes which have produced them. Laboratory.

**337:211. OCEANOGRAPHY. 4 credits.**

Prerequisites, 101 and 102. An introduction to the physical processes, geologic history and development of marine areas. Laboratory.

**337:215. STRUCTURAL GEOLOGY. 5 credits.**

Prerequisite, 101 or permission. Identification and interpretation of common and important structural geologic features including the construction and use of structural maps and cross sections. Laboratory.

**337:216-217. CRYSTALLOGRAPHY AND MINERALOGY. 4 credits each.**

Prerequisite, 101 or permission. Study of morphological crystallography and general mineralogy. Laboratory emphasis on mineral recognition. Laboratory.

**337:260. INTRODUCTORY INVERTEBRATE PALEONTOLOGY. 5 credits.**

Prerequisite, 102 or permission. An introductory course emphasizing morphology and evolution of the major invertebrate groups with a consideration of the practical applications of paleontology. Laboratory.

**337:313. FIELD METHODS IN GEOLOGY. 3 credits.**

Prerequisites, 101 and 102 or permission. Introduction of the use of geologic field equipment including Brunton compasses, alidades and plane table surveying, and stereoscopes and aerial photography interpretation.

**337:324. SEDIMENTATION. 4 credits.**

Prerequisite, 102. An introduction to the processes and environments of sedimentation and the principles employed in the examination of sediments and sedimentary rocks. Hand specimens and sequences of sedimentary rocks will be studied noting their characteristics and interpreting their origin.

**337:404/504. ASTROGEOLOGY. 4 credits.**

Prerequisites, 418 or 431/531; 315:134; 365:103; or permission. Study of the relations of planet earth to the solar system and universe. Analysis and implications of the data from the lunar and space probes.

**337:410. REGIONAL GEOMORPHOLOGY OF NORTH AMERICA. 4 credits.**

Prerequisites, 101, 102, 210 or permission. Recommended, 215. Examination of physiographic provinces of North America emphasizing structure, tectonic setting, stratigraphy and processes responsible for landforms in each province.

**337:411/511. PLEISTOCENE GEOLOGY. 4 credits.**

Prerequisite, 210 or permission. An examination of the causes and effects of the Pleistocene expansions of polar ice masses with particular emphasis on glacial deposits and world climatic changes.

**337:412. FIELD STUDIES IN GEOLOGICAL STRUCTURES AND PROCESSES. 2 credits.** (May be repeated for a total of 6 credits).

Prerequisite, permission. A field trip course emphasizing phases of geology not readily studied in Ohio and including individual pretrip preparation and a written report on field problems studied. Students will be expected to bear the actual costs involved in operating the trip.

**337:413/513. GEOLOGY FIELD CAMP. 9 credits.**

Prerequisites 215 and permission, recommended 313 and 323. Instruction as a working field geologist with emphasis on collection, recording, and interpretation of field data; detailed structural and stratigraphic field study. Five week camp, work 6 days per week.

**337:415/515. ECONOMIC GEOLOGY. 4 credits.**

Prerequisites, 215 and 418. A study of metallic mineral assemblages and non-metallic mineral deposits, emphasizing factors controlling deposition and exploration techniques. Laboratory.

**337:416/516. ADVANCED STRUCTURAL GEOLOGY. 4 credits.**

Prerequisite, 215 or permission. Detailed examination of fundamental and advanced concepts of structural geology with stress upon current and developing concepts.

**337:417/517. OPTICAL MINERALOGY. 4 credits.**

Prerequisite, 217 or equivalent. An introduction to the petrographic microscope and its use in the identification of minerals in this section. The optical properties and occurrence of common igneous, metamorphic, and sedimentary minerals will be studied in detail. Laboratory.

**337:418/518. PETROGRAPHY. 4 credits.**

Prerequisite, 417/517 or equivalent. The classification and description of igneous, metamorphic, and sedimentary rocks using the polarizing microscope. Lecture will also deal with the mode or origin of igneous, metamorphic and sedimentary rocks as inferred from microscopic studies of texture and mineral assemblages. Laboratory.

**337:425/525. STRATIGRAPHY. 4 credits.**

Prerequisites or corequisites, 260 and 324, or permission of the department. A first course in stratigraphy for beginning graduate students and qualified seniors in the earth

\*To be offered alternate years.

sciences. Important topics include modern sedimentary environments as a means for treating the rock record; principles of stratigraphy nomenclature; sedimentary facies; the use of fossils in subdivision of the rock record and correlation; geologic time units, time-rock units, and rock units; boundary problems in the stratigraphic record. Field studies of selected stratigraphic units in eastern Ohio will permit practical application of theory and principles.

**337:434/534. GROUND WATER HYDROLOGY.** 4 credits.

Prerequisite, 101. Study of the origin, occurrence, regimen and utilization of the ground water sector of the hydrological cycle. Qualitative and quantitative presentation of the geological and geochemical aspects of ground water hydrology. Location and evaluation of ground water. The influences of man and the aquifer upon the composition of ground water. Field and laboratory.

**\*337:435. PETROLEUM GEOLOGY.** 4 credits.

Prerequisite, 215 or permission, 324 and 325 recommended. A study of the natural occurrences of petroleum including origin, entrapment, and exploration methods.

**\*337:462. PALEOECOLOGY.** 4 credits.

Prerequisites, 260 and 463 or permission. A study of the interaction between ancient organisms and their environments with the emphasis on methods of environmental interpretation.

**337:463/563. MICROPALAEONTOLOGY.** 5 credits.

Prerequisite, 260 or permission. An introduction to the techniques, systematics and application of micropaleontology. Laboratory.

**337:470/570. GEOCHEMISTRY.** 5 credits.

Prerequisites, minimum 20 credits in chemistry or geology or permission. Chemical systems of the earth, both open and closed, under the extremes of temperatures and pressures found naturally. Laboratory.

**337:482. RESEARCH PROBLEMS.**

1-3 credits. (May be repeated to a total of 6 credits.)

Prerequisite, departmental approval. Directed reading and research in special field of interest chosen by student in consultation with the instructor.

## GRADUATE COURSES

**337:612. ADVANCED FIELD STUDIES.**

2 credits. (May be repeated for a total of 4 credits.)

Prerequisite, permission of instructor. A field trip course to areas displaying geology, not available locally. Course involves pretrip preparation, field observations and data gathering and written reports or examinations at conclusion of trip. Students will bear the actual expenses of trip.

**337:619. CLAY MINERALOGY\*.** 4 credits.

Prerequisite 417/517. The classification, identification, and genesis of clay minerals and clay rocks, their use and exploitation. Laboratory will stress methods of identification of clay minerals and the analysis and petrogenetic interpretation of clay materials in suites of samples from the rock record.

**337:621. IGNEOUS PETROLOGY\*.** 4 credits.

Prerequisite, 418/518 and 417/517. A study of the origin and paragenesis of igneous rocks. Lecture will stress the petrochemistry and occurrence of major families of igneous rocks. The laboratory will be devoted to petrographic study of selected rock suites.

**337:622. METAMORPHIC PETROLOGY\*.** 4 credits.

Prerequisite, 418/518. A study of the origin and paragenesis of metamorphic rocks. Lecture will stress the chemistry of metamorphic reactions, the textures fabrics induced by metamorphism, and the occurrence of metamorphic rocks. The laboratory will be devoted to petrographic study of selected rock suites.

**337:623. SEDIMENTARY PETROLOGY.** 4 credits.

Prerequisite, 323 and 417/517 or permission. Detailed hand sample and their section examination of selected sedimentary suites, particularly with respect to mineralogy and texture. Laboratory.

**337:625. ADVANCED STRATIGRAPHY.** 4 credits.

Prerequisite, 323 or permission. Examination and interpretation of distribution patterns of sediments through geologic time in North America. Emphasis on shifting environments and sedimentary facies and interpreted history of the area.

**337:631. ROCKS AND MINERALS.** 5 credits.

Prerequisite, 101 and permission. An intensive course for graduate students in the earth sciences who come into the field from disciplines other than geology. Lecture will stress those processes that give rise to minerals and rocks and some aspects of crystallography. Laboratories will stress methods of identification and analysis of minerals and rocks. For science teachers.

**337:660. EVOLUTION AND THE FOSSIL RECORD\*.** 3 credits.

Prerequisite, 260. The major features of evolution including rates of evolution and extinction, using selected fossil groups as examples.

**337:665. URBAN GEOLOGY.** 4 credits.

Prerequisites, 210, 215, 217, 415/515 or permission. Problems of urbanization as related to the consumption of our finite resources and the creation of wastes. Geologic hazards. Case histories which demonstrate the application of geologic data to management and conservation.

**337:682. GRADUATE RESEARCH PROBLEMS.**

1-3 credits. (May be repeated to a total of 6 credits.)

Prerequisite, Departmental approval. Directed reading and research in special field of interest chosen by student in consultation with the instructor.

**337:684. SELECTED TOPICS IN GEOLOGY.**

1-4 credits. (May be repeated for a total of 8 credits.)

Prerequisite, permission of Instructor. Study of selected topics in geology not regularly offered as formal courses, generally of classic or current importance. Entails lectures, readings, discussions, and/or guided laboratory work.

**337:690. SEMINAR IN GEOLOGY.**

3 credits. (May be repeated for a total of 9 credits.)

Selected topics or areas for discussion with background material from original published material.

**337:692. THESIS RESEARCH.** 1-8 credits.

Embodies an independent and original investigation. Must be successfully completed, report written and defended before a thesis committee.

## 340: HISTORY

**340:201. UNITED STATES HISTORY TO 1815.**

4 credits.

From the period of exploration and discovery through the War of 1812.

**340:202. UNITED STATES, 1815-1898.** 4 credits.

The emergence of nationalism and sectionalism, the Civil War, Reconstruction, and the new industrial society.

\* To be offered alternate years.

**340:203. UNITED STATES, 1898-PRESENT.***4 credits.*

From the Spanish-American War to the present.

**340:204. THE ANCIENT NEAR EAST. 3 credits.**

Mesopotamia and Egypt; Israel and her neighbors to the time of the Persian Empire.

**340:205. GREECE. 3 credits.**

The Minoans and Mycenaeans; Classical Greece to the triumph of Macedon.

**340:206. ROME. 3 credits.**

Rome and the Hellenistic East to the end of Classical times.

**340:207. MODERN EUROPE, 1500-1715.***4 credits.*

The Renaissance and Reformation, development of the nation states, religious wars, and the Age of Louis XIV.

**340:208. MODERN EUROPE, 1750-1870. 4 credits.**

The French Revolution and Napoleon, a study of nineteenth century "isms", and the formation of Germany and Italy.

**340:209. MODERN EUROPE, 1870-PRESENT.***4 credits.*

The modern world: World Wars I and II. Nazism, Communism, Fascism, and postwar Europe.

**340:220. HISTORY OF THE BLACK PEOPLE OF THE UNITED STATES. 4 credits.**

A survey of the social, economic and cultural history of Afro-Americans from the 17th century to the present.

**340:311. INDIVIDUAL STUDY OR RESEARCH IN HISTORY. 1-4 credits. (May be repeated for a maximum of 6 credits.)**

For individual Study or Research in history, including special projects, such as workshops, summer study tours, or specialized training. Permission required.

**340:334. A SOCIAL AND CULTURAL HISTORY OF THE UNITED STATES, 1607-1840.***3 credits.*

A study of select concepts and attitudes in their social and cultural framework with emphasis on growth of population, rural and urban life, religion, education and learning, literature and the arts, the new man.

**340:335. A SOCIAL AND CULTURAL HISTORY OF THE UNITED STATES, 1840-1910.***3 credits.*

A study of select concepts and attitudes with emphasis on reforms, the impact of the Civil War and the rise of business, agrarianism, cult of the self-made man, urbanism, muckrakers, religion, literature and the arts, education, and learning.

**340:336. A SOCIAL AND CULTURAL HISTORY OF THE UNITED STATES, 1910-PRESENT.***3 credits.*

A study of select concepts and attitudes with emphasis on the revolt against formalism, progressivism, impact of two wars, social and economic planning, trends in religion, literature and the arts, education, and learning.

**340:337. THE WEST IN THE DEVELOPMENT OF THE UNITED STATES. 4 credits.**

An examination of the Westward Movement in the United States from Revolutionary times to the closing of the frontier in 1890, including a study of various types of frontiers and the impact of the West as a section on the history of the nation.

**340:338. THE HISTORY OF WOMEN IN THE UNITED STATES. 3 credits.**

An examination in historical perspective of the history of women in the United States. The course will explore the

roles, status, and self-image of women within the broad cultural context of American social, political, economic, and intellectual movements.

**340:339. A HISTORY OF AMERICAN IMMIGRATION. 4 credits.**

An examination of European migrants to the American colonies and the United States, their reasons for leaving Europe and coming to America, and their experience after arrival.

**340:340. PEACE, WAR AND MANKIND. 3 credits.**

An historical examination of peace movements, including a study of leaders, groups and ideas for peace.

**340:350. SELECTED TOPICS IN HISTORY.***4 credits.*

Selected topics may include experimental departmental offerings such as those which cross subject or chronological lines within history or those which are not presently offered by the department and listed in the catalogue. See the departmental office for current subject.

**340:401-402. HONORS SEMINAR IN HISTORY.***3 credits each.*

Selected readings; the writing of a research paper in proper scholarly form. Permission of the department head and/or the instructor required. Normally a student will take both 401 and 402, but under special circumstances he may be permitted to take 401 only.

**340:407/507. DIPLOMATIC HISTORY OF THE UNITED STATES 1776-1919. 4 credits.**

Establishment of basic policies, diplomacy of expansion, and emergence of a world power.

**340:408/508. DIPLOMATIC HISTORY OF THE UNITED STATES 1914-PRESENT. 4 credits.**

Responses of government and public to the challenges of war, peace-making, and power politics.

**340:412/512. HISTORY OF INTERNATIONAL ORGANIZATION. 3 credits.**

An examination of ideas and plans for world organization from ancient times to the present, including a study of regional bodies and the history of the League of Nations and the United Nations and their quest for peace.

**340:413. A HISTORY OF BLACK SOCIAL AND INTELLECTUAL THOUGHT. 4 credits.**

An examination in historical perspective of the nature of and changes in Black social and intellectual thought and activities, as they reflect (1) the internal culture of the Black community, (2) conditions of Black people within the United States, and (3) efforts toward coordinated Black group activity.

**340:420/520. COLONIAL AMERICA. 3 credits.**

The establishment of European colonies in North America to 1689 with special emphasis on English settlements.

**340:421/521. THE AMERICAN COLONIES AND THE BRITISH EMPIRE. 3 credits.**

Colonial life from 1689 to 1754, struggle for control of North America, and the development of British colonial institutions.

**340:422/522. THE AMERICAN REVOLUTION, 1754-1783. 3 credits.**

The Revolution and the War of Independence.

**340:423/523. FOUNDING OF THE UNITED STATES TO 1801. 3 credits.**

The Confederation, the Constitution, and the Federalist Era.

**340:424/524. NEW NATION. 3 credits.**

Formation of political parties; Jeffersonian politics; the

War of 1812; Era of Good Feelings.

**340:425/525. AGE OF JACKSON.** *3 credits.*

The roots of Jacksonian Democracy; the Age of Jackson; the Whig party; Age of Reform.

**340:426/526. CIVIL WAR.** *3 credits.*

Slavery controversy; causes of American Civil War; politics and conduct of the war of 1863.

**340:427/527. CIVIL WAR AND RECONSTRUCTION.**

*3 credits.*

Politics and conduct of war to 1865; Reconstruction; roots of Jim Crow mentality.

**340:428/528. THE UNITED STATES IN THE LATE NINETEENTH CENTURY.** *3 credits.*

The emergence of modern America with emphasis on economic, social, political, and intellectual developments, 1877-1898.

**340:429/529. THE UNITED STATES IN THE TWENTIETH CENTURY, 1898-1920.** *3 credits.*

The Progressive era and World War I.

**340:430/530. THE UNITED STATES IN THE TWENTIETH CENTURY, 1920-1945.** *3 credits.*

Normalcy, the Great Depression, and World War II.

**340:431/531. THE UNITED STATES IN THE TWENTIETH CENTURY, 1945-PRESENT.**

*3 credits.*

Social, political, diplomatic, constitutional, and economic changes in postwar America.

**340:432/532. AMERICAN ECONOMIC HISTORY, 1607-1837.** *3 credits.*

A survey of economic developments from the Colonial background through the Jacksonian period, treating topically and historically such factors as agriculture, labor, commerce, politics and economic thought that influenced growth and change. Special emphasis on the economy and its relationship to public policy.

**340:433/533. AMERICAN ECONOMIC HISTORY, 1837-1917.** *3 credits.*

A survey of economic developments from the Colonial era to the First World War, treating topically and historically agriculture, labor, commerce, politics, economic thought, and industrial changes. Special emphasis on the economy and its relationship to public policy.

**340:434/534. AMERICAN ECONOMIC HISTORY, 1917-PRESENT.** *3 credits.*

A survey of economic developments since 1917, treating topically and historically the factors that lead to the American Free enterprise system. Special emphasis on the rise of modern industry and its relationship to public policy.

**340:435/535. OHIO HISTORY.** *4 credits.*

The political, social, economic and intellectual history of Ohio, with special emphasis upon Ohio's relationship to the Old Northwest and to the nation.

**340:436/536. HISTORY OF THE AMERICAN CITY.**

*5 credits.*

An examination of urbanization and its consequences from the colonial period to the present.

**340:442/542. THE CLASSIC ERA, 1610-1715.**

*3 credits.*

The Constitutional, diplomatic, cultural, intellectual and social developments of 17th century Europe.

**340:443/543. THE ERA OF ENLIGHTMENT, 1715-1783.**

*3 credits.*

Intellectual, social, political, economic and diplomatic developments of 18th century Europe.

**340:444/544. THE ERA OF REVOLUTION, 1783-1815.**

*3 credits.*

The French Revolution and Napoleon.

**340:445/545. MEDIEVAL EUROPE, 400-1100.**

*3 credits.*

The Barbarians, the Carolingian revival, and the renewed invasions.

**340:446/546. MEDIEVAL EUROPE, 1100-1300.**

*3 credits.*

The High Middle ages: Part I: Political, social, economic, religious, and intellectual reawakening. Part II: The great age of synthesis.

**340:447/547. MEDIEVAL EUROPE, 1300-1500.**

*3 credits.*

The Later Middle Ages: Economic and political decline, the great international wars, economic and social unrest, and religious cross-currents.

**340:448/548. THE ITALIAN RENAISSANCE.** *3 credits.*

The Italian Renaissance with emphasis on economic, social, and cultural trends.

**340:449/549. THE NORTHERN RENAISSANCE.**

*3 credits.*

The Renaissance in the North with emphasis on economic, social, and cultural trends.

**340:450/451. THE REFORMATION.** *5 credits.*

Europe in the sixteenth century; its religious, cultural, political and diplomatic development, with special emphasis upon the Protestant and Catholic Reformations.

**340:451/551. NINETEENTH CENTURY EUROPE, 1815-1848.** *3 credits.*

Europe from the Napoleonic era to the revolution of 1848 with emphasis upon the impact of the French and industrial revolutions.

**340:452/552. NINETEENTH CENTURY EUROPE, 1848-1871.** *3 credits.*

The impact of nationalism, socialism, and imperialism on European civilization.

**340:453/553. NINETEENTH CENTURY EUROPE, 1871-1914.** *3 credits.*

The coming of modern industrial society; intellectual currents; the background of World War I.

**340:454/554. TWENTIETH CENTURY EUROPE, 1914-1930.** *3 credits.*

World War I, Russian revolutions, the rise of Fascism, and other postwar problems.

**340:455/555. TWENTIETH CENTURY EUROPE, 1930-1945.** *3 credits.*

Rise of National Socialism, the plight of the democracies, road to war, and World War II.

**340:456/556. TWENTIETH CENTURY EUROPE, 1945 TO PRESENT.** *3 credits.*

Europe since World War II, the cold war, and European attempts at unity.

**340:458/558. RUSSIA TO 1725.** *3 credits.*

From the foundation of Kiev through the reign of Peter the Great.

**340:459/559. RUSSIA IN THE EIGHTEENTH AND NINETEENTH CENTURIES. 3 credits.**

Changes in Russian society and culture, the impact of the West, the end of serfdom, the intelligentsia, the attempts of autocracy to adjust to the industrial age.

**340:460/560. RUSSIA IN THE TWENTIETH CENTURY. 3 credits.**

Russia in World War I, the revolution, and the Soviet period.

**340:470/570. ANGLO-SAXON AND MEDIEVAL ENGLAND TO 1471. 5 credits.**

Anglo-Saxon life, thought and institutions, the Norman Conquest; Medieval life, thought, and institutions.

**340:471/571. TUDOR ENGLAND, 1471-1588.**

3 credits.

The Yorkists and Tudors; the transition from medieval to early modern times. The early Elizabethan age.

**340:472/572. STUART ENGLAND, 1588-1685.**

3 credits.

The Armada; the late Elizabethan age; the early Stuarts — conflict, revolution, the Restoration.

**340:473/573. THE AGE OF ARISTOCRACY IN ENGLAND, 1685-1783. 3 credits.**

The Sensible Revolution — late Stuarts and early Hanoverians: politics, religion, and society in the Age of Aristocracy.

**340:474/574. THE AGE OF IMPROVEMENT IN ENGLAND, 1783-1867. 3 credits.**

The Agricultural and first Industrial Revolutions; the politics of reform.

**340:475/575. ENGLAND SINCE 1867. 3 credits.**

The second Industrial Revolution; politics in transition; the development of the welfare state; war society.

**340:477/577. HISTORY OF WESTERN SCIENCE AND TECHNOLOGY TO 1700. 3 credits.**

The birth of science with the Greeks; its transmission to Western Europe; the scientific revolution from Copernicus to Newton. Technology in Greek, Roman, Medieval and early modern times.

**340:478/578. HISTORY OF WESTERN SCIENCE AND TECHNOLOGY, 1700-1900. 3 credits.**

Industrial revolutions; the further development of physical science; interactions of science and technology; the chemical and electrical industries. Development of geology and biology, including Darwin's theory of evolution. Science and technology in the United States.

**340:479/579. HISTORY OF WESTERN SCIENCE AND TECHNOLOGY IN THE 20TH CENTURY.**

3 credits.

Atomic and nuclear physics; relativity theory; the Bomb. Genetics and the chemical basis of life. The unparalleled growth of science and technology and their impacts on all aspects of life.

**340:480/580. HISTORY OF CHINA TO 1840.**

3 credits.

Traditional China from its origins to the Opium War.

**340:481/581. HISTORY OF CHINA SINCE 1840.**

3 credits.

The impact of the West; Nationalism; Communism.

**340:485/585. HISTORY OF JAPAN. 3 credits.**

Traditional and modern Japan; its relations with China and the West.

**340:489. COLLOQUIUM IN HISTORY.**

3 credits.

A course designed for history majors in their senior year, to cut across existing chronological and subject matter lines and provide an opportunity for majors to relate their previous work in history to various topics or themes. The subject and instructor will vary.

**340:490/590. COLONIAL LATIN AMERICA.**

3 credits.

Pre-Columbian civilization, discovery and conquest, Spanish and Portuguese institutions.

**340:491/591. LATIN AMERICA, NINETEENTH CENTURY. 3 credits.**

Era of independence through the launching of new nations.

**340:492/592. REPUBLICS OF LATIN AMERICA, TWENTIETH CENTURY. 4 credits.**

Political history, social revolution, and contemporary problems.

**340:494/594. U.S.-LATIN AMERICAN RELATIONS.**

5 credits.

Latin American problems and policy; the Monroe Doctrine, O.A.S., intervention, militarism, social revolution, recent relations and trends.

**340:496/596. HISTORY OF MEXICO. 5 credits.**

Indian civilizations to the present with emphasis upon relations with the United States.

**340:499/599. HISTORICAL METHODS. 3 credits.**

Practice in historical research, use of research tools, experience in the writing of history. This course will not apply to the graduate History major.

**GRADUATE COURSES****340:611-612-613. INDIVIDUAL READING.**

1-3 credits each.

Permission required.

**340:622. PROSEMINAR IN ANCIENT HISTORY.**

4 credits.

Study of historical literature, sources of materials, and major interpretations of Ancient history, especially Greek and Roman periods.

**340:623-624. SEMINAR IN ANCIENT HISTORY.**

4 credits each.

Prerequisite, 622. This seminar in Ancient history will deal with selected topics in the field, particularly the Greek and Roman eras.

**340:625. PROSEMINAR IN MEDIEVAL HISTORY.**

4 credits.

Study of historical literature, sources of materials, and major interpretations of Medieval history period of Europe.

**340:626-627. SEMINAR IN MEDIEVAL HISTORY.**

4 credits each.

Prerequisite, 625. This seminar will deal with selected topics from Medieval history of Europe, from the time of the barbarian invasions to and including the Later Middle Ages.

**340:631. PROSEMINAR IN MODERN EUROPEAN HISTORY TO 1815. 4 credits.**

Study of historical literature, sources of materials, and major interpretations of early Modern European history, from the Renaissance to the early 19th Century.

**340:632-633. SEMINAR IN MODERN EUROPEAN HISTORY TO 1815. 4 credits each.**

Prerequisite, 631. This seminar will deal with selected topics of early Modern European history, including on

occasion social, economic, and intellectual aspects.

**340:634. PROSEMINAR IN MODERN EUROPEAN HISTORY SINCE 1815.** *4 credits.*

Study of historical literature, sources of materials, and major interpretations of Modern European history from the early 19th Century to the present.

**340:635-636. SEMINAR IN MODERN EUROPEAN HISTORY SINCE 1815.** *4 credits each.*

Prerequisite, 634. This seminar will deal with selected topics of Modern European history, including on occasion social, economic, and intellectual aspects.

**340:651. PROSEMINAR IN THE HISTORY OF ENGLAND AND THE EMPIRE.** *4 credits.*

Study of historical literature, sources of materials, and major interpretations of English History.

**340:652-653. SEMINAR IN THE HISTORY OF ENGLAND AND THE EMPIRE.** *4 credits each.*

Prerequisite, 651. This seminar will deal with selected topics of English history.

**340:666. PROSEMINAR IN AMERICAN HISTORY TO 1865.** *4 credits.*

Study of historical literature, sources of materials, and major interpretations of American history prior to 1865.

**340:667-668. SEMINAR IN AMERICAN HISTORY TO 1865.** *4 credits each.*

Prerequisite, 666. This seminar will deal with selected topics in American history from the Colonial period to the mid-nineteenth century.

**340:669. PROSEMINAR IN AMERICAN HISTORY SINCE 1865.** *4 credits.*

Study of historical literature, sources of materials, and major interpretations of American history since 1865.

**340:670-671. SEMINAR IN AMERICAN HISTORY SINCE 1865.** *4 credits each.*

Prerequisite, 669. This seminar will deal with selected topics in American history from the end of the Civil War to the present.

**340:677. PROSEMINAR IN LATIN-AMERICAN HISTORY.** *4 credits.*

Prerequisite, two courses in Latin-American history. Study of historical literature, sources of materials, and major interpretations of Latin-American history.

**340:678-679. SEMINAR IN LATIN-AMERICAN HISTORY.** *4 credits each.*

Prerequisite, 677. This seminar will deal with selected topics in cultural, diplomatic, intellectual, and political history of Latin-America.

**340:690. THESIS RESEARCH.** *4 credits.*

Research for thesis for Master of Arts degree.

**340:696. THESIS WRITING.** *4 credits.*

Writing of thesis for Master of Arts degree.

**340:698. HISTORIOGRAPHY.** *3 credits.*

A study of historians, historical interpretations, and writings.

**340:890. DISSERTATION RESEARCH.**

*1-18 credits.*

Research for dissertation for Doctor of Philosophy degree.

**340:896. DISSERTATION WRITING.**

*1-18 credits.*

Writing of dissertation for Doctor of Philosophy degree.

## 345: MATHEMATICS

**345:100. MATHEMATICS LABORATORY.**

*0 credits.*

Opportunity for individual work under staff guidance. For students enrolled in Finite Math, Elementary Functions and Analytical Geometry-Calculus.

**345:115-116. ELEMENTARY FUNCTIONS I, II.**

*3 credits each.*

Prerequisites, high school algebra and trigonometry. An introduction to elementary function theory; sets, number systems, absolute value, polynomial functions, systems of equations, matrices and determinants, circular functions, logarithmic and exponential functions, identities, sequences, mathematical induction, binomial theorem.

**345:118. PRE-CALCULUS MATHEMATICS.** *4 credits.*

Prerequisite, 3 years of high school mathematics. An introduction to pre-calculus mathematics: sets, number systems, absolute value, polynomial functions, systems of equations, trigonometric functions, trigonometric identities, complex numbers, solutions of triangles.

**345:140-195. MODERN UNIVERSITY MATHEMATICS.**

*1 to 12 credits.*

Sets, basic algebra, functions, graphing, linear and quadratic functions, probability, differential and integral calculus of algebraic functions, partial derivatives and multiple integrals, matrices, linear programming, game theory, mathematics of finance, and selected topics.

**345:140. BASIC LANGUAGE.** *1 credit.*

Prerequisite, one year of high school algebra.

**345:145. FUNCTIONS AND GRAPHING.** *1 credit.*

Prerequisite, 140.

**345:150. COMBINATORICS, COMPUTERS, AND VARIATION.** *1 credit.*

Prerequisite, 145.

**345:155. PROBABILITY.** *1 credit.*

Prerequisite, 150.

**345:160. ANALYTIC GEOMETRY.** *1 credit.*

Prerequisite, 145.

**345:165. DIFFERENTIAL CALCULUS.** *1 credit.*

Prerequisite, 145.

**345:170. INTEGRAL CALCULUS.** *1 credit.*

Prerequisite, 165.

**345:175. MULTIVARIATE CALCULUS.** *1 credit.*

Prerequisite, 170.

**345:180. MATRICES.** *1 credit.*

Prerequisite, 145.

**345:185. SYSTEMS OF EQUATIONS AND INEQUALITIES.** *1 credit.*

Prerequisite, 180.

**345:190. LINEAR PROGRAMMING.** *1 credit.*

Prerequisite, 185.

**345:195. MATHEMATICS OF FINANCE.** *1 credit.*

Prerequisite, 150.

**345:206. ACTUARIAL MATHEMATICS.** *3 credits.*

Prerequisite, 115-116 (or equivalent). Interest procedures, annuities, amortization, sinking funds, bonds, stocks, depreciation, formulas for life insurance, premiums, valuation procedures, construction of mortality tables.

**345:231-232-233-234-235. ANALYTIC GEOMETRY — CALCULUS I, II, III, IV, V.**

*4 credits each.*

Sequential; prerequisite, 116 or 118 or equivalent. Equations

\*These courses are to be offered in alternate years beginning with the 1973-74 academic year.

\*\*These courses are to be offered in alternate years beginning with the 1974-75 academic year.

of functions and their graphical representation, analytic geometry, limits, continuity, introduction to differentiation and integration, applications involving maxima and minima, differentials, curvature, applications to area, volumes, surface of revolution, moments and center of mass, methods of integration, solid analytical geometry, vectors, partial differentiation, multiple integrals, infinite series.

**345:236. DIFFERENTIAL EQUATIONS I.**

4 credits.

Prerequisite, 235. Methods of forming and solving important types of ordinary differential equations; applications of differential equations to science.

**345:237. DIFFERENTIAL EQUATIONS II.**

4 credits.

Prerequisite, 236. Methods of forming and solving important types of non-linear differential equations, power series solutions of ordinary differential equations, numerical methods of solving differential equations, boundary-value problems.

**345:301. HISTORY OF MATHEMATICS.** 3 credits.\*\*

Prerequisite, 235 or permission. Origin and development of mathematical ideas and processes.

**345:311. ABSTRACT ALGEBRA.** 3 credits.

Prerequisite, 233. Introduction to groups, rings, integral domains, axiomatic foundation of the natural, integer, rational, real, and complex number systems.

**345:312-313. LINEAR ALGEBRA I, II.**

3 credits each.

Prerequisite, 233. Sequential. Vector spaces, linear transformations, matrices, determinants, inner product spaces, spectral theory, quadratic forms, linear programming.

**345:401/501. THEORY OF NUMBERS.** 3 credits.

Prerequisite, 235. Development of an integral domain, prime numbers. Euler's algorithm, congruence, Euler's Phi function, quadratic residues, Pell equation, Waring's problem.

**345:405. CONCEPTS IN GEOMETRY.** 3 credits.\*

Prerequisite, consent of Instructor. A presentation of geometry as a branch of contemporary mathematics by treating Euclidean geometry in an axiomatic manner to meet the current standards of rigor. Topics included are incidence, distance, betweenness, planar and spatial order properties, congruence, angles, triangles, non-Euclidean Geometries, similarities, circles, spheres, areas, ruler and compass constructions.

**345:406. CONCEPTS IN ALGEBRA.** 3 credits.\*

Prerequisite, consent of Instructor. Not available to students taking 345:311. Definition and elementary properties of groups, rings, integral domains, fields, vector spaces, with major emphasis on the rings of integers, rational numbers, complex numbers and polynomials. Intended primarily for secondary school teachers.

**345:407. CONCEPTS IN ANALYSIS.** 3 credits.\*

Prerequisite, consent of Instructor. Not available to students taking 345:420. A careful introduction to the notion of a limit and to related notions of continuity, differentiation and integration with particular emphasis on gaining conceptual mastery rather than in the acquisition of manipulative skills.

**345:410/510. MATRICES AND LINEAR ALGEBRA.**

3 credits.

Prerequisite, 116 or 118, or permission. Not available for graduate credit for mathematics majors or students who have completed Differential Equations. Matrices and their

operation, determinants, systems of linear equations, vector spaces, eigenvectors, eigenvalues.

**345:413/513. INTRODUCTION TO TOPOLOGY.**

3 credits.

Prerequisite, 313. Introduction to topological spaces and topologies, functions, mappings, homeomorphisms, connected spaces, compact spaces, metric spaces.

**345:420/520. ADVANCED CALCULUS I.** 3 credits.

Prerequisite, 236. An introduction to the real number systems, series and sequences, and the theory of convergence and uniform convergence.

**345:422-423/522-523. APPLIED ADVANCED CALCULUS II, III.** 3 credits each.

Sequential; prerequisite, 420. Applied advanced calculus courses to include an introduction to the real number system, sequences and series, limits, continuity, differentiation, partial differentiation, integration, multiple integration, uniform convergence, maxima and minima of several variables, transformations, improper integrals, line and surface integrals, approximate integration, complex variables.

**345:424. TOPICS IN APPLIED MATHEMATICS.**

3 credits. (May be repeated for a total of 6 credits).

Prerequisite, 423 or permission of the Instructor. Selected topics, such as mathematical model building, non-linear oscillations, stability theory, graph theory, combinatorics, game theory, or other areas of applied mathematics.

**345:425-426/525-526. THEORY OF FUNCTIONS OF A COMPLEX VARIABLE, I, II.** 3 credits each.

Sequential; prerequisite, 235. Complex numbers, analytic function theory, elementary functions of a complex variable, mapping and geometry of elementary functions, differentiation, series, integration, residues and poles, analytic continuation, conformal mapping.

**345:427-428/527-528. NUMERICAL ANALYSIS I, II.**

3 credits each.

Sequential; prerequisite, 236. Interpolation, finite difference methods, numerical differentiation and integration; numerical solutions to ordinary differential equations, algebraic and transcendental equations, coding, method of least squares.

**345:431/531. SPECIAL FUNCTIONS.** 3 credits.

Prerequisite, 236. Power series solution to differential equations, Bessel functions, Legendre functions, hypergeometric functions, boundary-value problems, orthogonal functions, Fourier Series.

**345:432/532. PARTIAL DIFFERENTIAL EQUATIONS.**

3 credits.

Prerequisite, 236. Partial differentiation and integration, Lagrange equations, linear partial differential equations, boundary-value problems.

**345:433/533. OPERATIONAL CALCULUS.** 3 credits.

Prerequisite, 236. Applied properties of Laplace and integral transforms, integration of transforms, convolution theorem, transforms of unit, impulse and period functions, applications to differential equations.

**345:434/534. VECTOR ANALYSIS.** 3 credits.\*\*

Prerequisite, 235. Vector algebra with applications to analytic geometry, differential and integral calculus of scalar-vector, vector-scalar, and vector-vector functions, integral theorems, curvilinear coordinates, engineering applications.

\*\*These courses are to be offered in alternate years beginning with the 1974-75 academic year.

**345:435/535. TENSOR ANALYSIS. 3 credits.\*\***

Prerequisite, 434. n-dimensional spaces, coordinate transformations, contravariant and covariant vectors, contravariant, covariant and mixed tensors; symmetric and skew-symmetric tensors, fundamental operations with tensors, differentiation of tensors, applications.

**345:436/536. ADVANCED PARTIAL DIFFERENTIAL EQUATIONS. 3 credits.\***

Prerequisite, 432. Existence and uniqueness theorems, wave equations, problems on infinite intervals, initial-value problems, Laplace equation, Bessel functions.

**345:441/541. NON-EUCLIDEAN GEOMETRY.**

3 credits.

Prerequisite, 234. A historical development of the modern view in geometry emphasizing postulational systems and the introduction of coordinates in various spaces.

**345:442/542. PROJECTIVE GEOMETRY. 3 credits.\***

Prerequisite, 313 or consent of Instructor. An introduction to projective linear spaces and coordinate systems; the propositions of incidence, the principle of duality, the theory of forms of the first and second kinds, conics.

**345:482-483/582-583. INTRODUCTION TO REAL ANALYSIS, II, III. 3 credits each.**

Sequential; prerequisite, 420. Real numbers, sequences, cardinal numbers, point set theory, metric spaces, continuity, differentiation, integration, series of numbers, series of functions, power series.

**345:484/584. TOPICS IN MATHEMATICS.**

3 credits. (May be repeated for a total of 6 credits.)

Prerequisite, permission. Selected topics in advanced mathematics, including subject areas in analysis, algebra, geometry.

**345:490. INDIVIDUAL READING.**

1-3 credits. (May be repeated for a total of 6 credits.)

Prerequisite, Senior standing and permission, Mathematics majors only. Directed studies designed as an introduction to research problems, under the guidance of a selected faculty member.

## GRADUATE COURSES

**345:610. MATRIX ALGEBRA. 3 credits.**

Prerequisite, 236. Study of techniques used in matrices, inverse of a matrix, rank, linear equations, vector spaces and linear transformations, characteristic equation of a matrix; bilinear, quadratic and Hermetian forms.

**345:611-612-613. ALGEBRAIC THEORIES I, II, III.**

3 credits each.

Sequential; prerequisite, 311-312 or 406 or 510 or consent of Instructor. Study of abstract mathematical systems, axiomatic set theory, properties of groups and rings, fields, vector spaces, ideals, lattices, and sentential calculus.

**345:614-615-616. TOPOLOGY I, II, III.**

3 credits each.\*\*

Sequential; prerequisite, 423, or 483. Set theory, ordinal and cardinal numbers, topological spaces, filters, and nets, separation, coverings, metric spaces, homotopy, topological groups, related topics.

**345:621-622-623. FUNCTIONS OF A REAL VARIABLE I, II, III. 3 credits each.**

Sequential; prerequisite, 423 or 483 or consent of Instructor. Structure of the real number system, sets and their properties, limit theorems properties of continuous and semi-continuous functions, derivatives of functions, Borel sets and Baire functions, measure; measurable sets,

measurable functions, Riemann and Lebesgue integration, the Lebesgue integration as a set function, planar measure and double integration.

**345:625-626-627. ANALYTIC FUNCTION THEORY I, II, III. 3 credits each.\***

Sequential; prerequisite, 423 or 483. Concepts of number systems, elementary functions, homeomorphic functions, continuity, differentiability, power series, complex integration, residue theory, analytic continuation. Singularities.

**345:628. ADVANCED NUMERICAL ANALYSIS.**

3 credits.

Prerequisite, 428 (or equivalent). Least square polynomial approximation, Gaussian quadrature, approximations of types other than polynomial, numerical solution of differential equations of various types, integral equations and solutions of systems of equations.

**345:635-636-637. CALCULUS OF VARIATIONS, I, II, III.**

3 credits each.\*\*

Sequential; prerequisite, 236. Problems with fixed and movable end-points, problems with constraints, generalizations, several variables, parameter-invariant problems, finite differences, Ritz's method. Kantorovich's method, maximality principle, linear time-optimal problems, the relationship between calculus of variations and the maximality principle.

**345:641. ALGEBRAIC GEOMETRY. 3 credits.\*\***

Prerequisite, 313. An introduction to the study of systems of algebraic equations in several variables and of the structure which can be associated with such equations.

**345:642. DIFFERENTIAL GEOMETRY.**

3 credits.\*\*

Prerequisite, 432 or 483. An introduction to the theory of curves and surfaces in three dimensions, intrinsic geometry of a surface, the geometry of surfaces in the large.

**345:698. MATHEMATICS AND STATISTICS SEMINAR.**

3 credits. (May be repeated for a total of 6 credits.)

For properly qualified candidates for the Master's Degree in mathematics and statistics. Seminar type discussions scheduled by the Department involving special problems dealing with various phases of mathematics and statistics. A supervised research project will be included in this course.

**345:699. RESEARCH AND THESIS.**

3 credits. (May be repeated for a total of 6 credits.)

Prerequisite, permission. Properly qualified candidates for the master's degree may obtain six credits for research experience which culminates in the presentation of a faculty-supervised thesis.

## 347: STATISTICS

**347:200. STATISTICAL LABORATORY. 2 credits.**

Opportunity for individual work under staff guidance.

**347:251-252. INTRODUCTION TO STATISTICS I, II.**

3 credits each.

Sequential; prerequisite, College level algebra (or equivalent). An introduction to the fundamental ideas of statistics at a pre-calculus level to include topics from descriptive statistics, probability, discrete distributions, problems of sampling, normal distribution, tests of hypotheses, regression and correlation, analysis of variance, time series and index numbers, nonparametric statistics, estimation.

\*These courses are to be offered in alternate years beginning with the 1973-74 academic year.

\*\*These courses are to be offered in alternate years beginning with the 1974-75 academic year.

**347:450/550. PROBABILITY.** 3 credits.

Prerequisite, 345:235. An introduction to frequency distributions, probability, probability distributions, expected values, sums of random variables.

**347:451-452-453/551-552-553. THEORETICAL STATISTICS I, II, III.** 3 credits each.

Sequential; prerequisite, 345:236. Elementary combinatorial probability theory, probability distributions, mathematical expectation, functions of random variables, sampling distributions, point and interval estimation, tests of hypotheses, regression and correlation, introduction to experimental designs.

**347:464/564. SAMPLING TECHNIQUES.**

3 credits.\*

Prerequisite, 252. Statistical aspects of sampling, general discussion of methods of drawing samples, evaluation of sample surveys.

**347:471-472/571-572. APPLIED STATISTICS I, II.**

3 credits each.

Sequential; prerequisite, 345:235. Applications of statistical theory to the natural and physical sciences and engineering, including tests of hypotheses, regression and correlation, analysis of variance and covariance, nonparametric statistics, sampling, quality control, reliability, and other selected topics.

**347:473-474/573-574. EXPERIMENTAL DESIGN, I, II.**

3 credits each.

Sequential; prerequisite, 452 or 472. Fundamental principles of analysis of variance, crossed and nested designs, multiple comparisons, power considerations, factorial designs, crossed and nested factors, principles of confounding, randomized blocks, latin squares, fractional factorial designs, applications to problems in applied fields.

**347:475/575. RELIABILITY THEORY AND QUALITY CONTROL.** 3 credits.\*

Prerequisite, 453 or 472. Theory involved in the study of reliability and quality control including hazard functions, exponential failure law, the Weibull distribution, series and parallel reliability, reliability estimation, control charts, acceptance sampling.

## GRADUATE COURSES

**347:650. ADVANCED PROBABILITY.** 3 credits.

Prerequisite, 653 or permission. Random walk, distributions, unlimited sequences of trials, laws of large numbers, convolutions, branching processes, renewal theory, Markov chains, time-dependent stochastic processes.

**347:651-652-653. MATHEMATICAL STATISTICS I, II, III.** 3 credits each.

Sequential; prerequisite, 345:423 or 483. Probability theory, random variables and probability distributions, moment generating functions and limit theorems, large and small sample theory, theory of tests of hypotheses, point and interval estimation, introduction of nonparametric statistics.

**347:661. REGRESSION AND CORRELATION.**

3 credits.

Prerequisite, second quarter of a sequential statistics course or equivalent. Analytical theory of least squares using matrix notation, methods of matrix inversion, multiple regression, orthogonal polynomials, basic analysis of variance, correlation analysis, partial correlation.

**347:662-663. LINEAR MODELS I, II.**

3 credits each.\*\*

Sequential; prerequisite, 653 or permission. The general linear model in matrix notation, general linear hypotheses,

regression models, experimental design models, analysis of variance and covariance, variance components, response surfaces.

**347:665-666. ADVANCED TOPICS IN STATISTICS I, II.** 3 credits each.\*

Sequential; prerequisite, 653 (or permission). Selected topics in statistics including concepts in nonparametric statistics, order statistics, advanced inference, multivariate analysis, sequential analysis, stochastic processes, advanced analysis of variance.

**347:667. STATISTICAL COMPUTER APPLICATIONS.** 3 credits.\*

Prerequisite, 345:236 and one course in statistics. Translation of statistical operations into machine language. Iterative procedures, recursion formulas.

**347:671-672-673. ADVANCED BEHAVIORAL STATISTICS, I, II, III.** 3 credits each.

Sequential; prerequisite, College level algebra (or equivalent). Open only to behavioral science majors. Scientific inference using frequency distributions, tests of significance, point and interval estimation, regression and correlation, analysis of variance and covariance, nonparametric statistics, fundamental principles of designs, randomized blocks, latin squares, factorial designs, individual comparisons, confounding, applications to problems in applied fields.

**347:675. FACTOR ANALYSIS.** 2 credits.

Prerequisite, 671 or 375:602 or permission. Theory and techniques in identifying independent variables through the use of factor analysis.

**347:676. NONPARAMETRIC STATISTICS-METHODS.** 3 credits.

Prerequisite, 252 or 672 (or permission). Theoretical bases and relationships among various nonparametric techniques compared with parametric ones.

## 352: FRENCH

**352:101-102-103. BEGINNING FRENCH I, II, III.**

4 credits each.

Sequential. A thorough study of the sound system and basic structural patterns of the French language, including oral practice and the reading of simple prose. A placement test is required of every student who has completed more than one unit of French in high school.

**352:201-202-203. INTERMEDIATE FRENCH, I, II, III.**

3 credits each.

Audio-oral sections. Sequential; prerequisite, 103 or equivalent. Practice in reading, writing, speaking and listening comprehension. Grammar review, short stories, plays and novels on intermediate level. A placement test is required of every student who did not complete 103 or the equivalent.

**352:205. FRENCH READINGS FOR NON-MAJORS.**

3 hours, 0 credits.

May be repeated. A one-quarter non-credit course for graduate students preparing for the graduate reading proficiency examination in French. No previous knowledge of French required.

\*These courses are to be offered in alternate years beginning with the 1973-74 academic year.

\*\*These courses are to be offered in alternate years beginning with the 1974-75 academic year.

**352:207-208-209. INTERMEDIATE FRENCH I, II, III READING OPTION. 3 credits each.**

Sequential. Prerequisite, 103 or equivalent. Reading and translation of texts dealing with contrasting French and American customs, values and attitudes. A placement test is required of every student who did not complete 103 or the equivalent.

**352:212/312. INDIVIDUAL SUMMER STUDY. ABROAD. 3 credits.**

Prerequisite, 202 or equivalent and consent of Instructor. Individual Summer Study Abroad projects under this code number may be recognized as equivalent to 353:203, or to one quarter of *French Composition and Conversation* or to one quarter of *French Culture and Civilization*.

**352:250. MASTERPIECES OF THE TWENTIETH CENTURY FRENCH NOVEL IN TRANSLATION. 3 credits.**

No prerequisite. Reading and discussion of the works of Proust, Gide, Saint-Exupery, Malraux, Sartre, Camus, Sarraute. May not be taken for credit toward the major in French.

**352:251. MASTERPIECES OF TWENTIETH CENTURY FRENCH THEATER IN TRANSLATION. 3 credits.**

No prerequisite. Reading and discussion of the works of Giraudoux, Anouilh, Montherlant, Sartre, Camus, Ionesco, Beckett, de Ghelderode. May not be taken for credit toward the major in French.

**352:301-302-303. FRENCH COMPOSITION AND CONVERSATION. 3 credits each.**

Prerequisite, 203 (or equivalent). Free composition, special attention to vocabulary and idioms, development of oral expression and conversational ability. In 303, introduction to the fundamentals of *explication de textes*.

**352:305-306-307. INTRODUCTION TO FRENCH LITERATURE. 3 credits each.**

Prerequisite, 203 (or equivalent). Survey of French literature from its origins to the present, with lectures, readings, and class discussion of representative works.

**352:309-310-311. FRENCH CULTURE AND CIVILIZATION. 3 credits each.**

Prerequisite, 303 or 307 or consent of Instructor. An audio-visual presentation with class discussions of the French cultural heritage from its origins to the present. Conducted in French.

**352:401. FRENCH PHONETICS. 3 credits.**

Prerequisite, 203 or equivalent. Intensive drill in pronunciation with correction and improvement of student's accent, emphasis on articulation, intonation and rhythm.

**352:403-404-405. ADVANCED FRENCH COMPOSITION AND CONVERSATION. 3 credits each.**

Prerequisite, 303 or equivalent. A thorough analysis of syntax, morphology, phonetic principles and grammatical structure. Free composition and conversation on a wide variety of topics designed to improve the student's ability to speak and write idiomatic French.

**352:407/507. FRENCH LITERATURE OF THE MIDDLE AGES TO THE 14TH CENTURY. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. Reading, in modern translation, of such medieval works as the *Chanson de Roland*, other medieval epics, *romans courtois*, *lais* and the *Roman de Renart*. Class discussions and lectures. Conducted in French.

**352:408/508. FRENCH LITERATURE OF THE 14th AND 15TH CENTURIES AND OF THE EARLY RENAISSANCE. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. Reading, in modern translation, of medieval religious drama, secular drama, the poetry of Francois Villon, the poetry of Marot, the novels of Rabelais. Class discussions and lectures. Conducted in French.

**352:409/509. FRENCH LITERATURE OF THE RENAISSANCE. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. Reading, in modern translation, of works by Ronsard, Du Bellay, Montaigne and others. Class discussions and lectures. Conducted in French.

**352:411/511. 17TH CENTURY FRENCH LITERATURE I. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. The literary movements of the classical period and their background. Malherbe and his literary doctrine. The early novel: Honore d'Urfe, Scarron, Furetiere. The theater of Corneille. Conducted in French.

**352:412/512. 17TH CENTURY FRENCH LITERATURE II. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. Descartes, Pascal, the theater of Moliere, La Fontaine, Bossuet. Conducted in French.

**352:413/513. 17TH CENTURY FRENCH LITERATURE III. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. The theater of Racine, Boileau, Mme de Sevigne, La Bruyere, Mme de La Fayette, La Rochefaucauld, Fenelon. Conducted in French.

**352:415/515. 18TH CENTURY FRENCH LITERATURE I. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. The legacy of Moliere and Racine; the beginning of the novel, Regnier, Le Sage, Marivaux, Abbe Prevost. The first assault on traditions: Bayle, Fontenelle, Montesquieu. Conducted in French.

**352:416/516. 18TH CENTURY FRENCH LITERATURE II. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. Buffon, Diderot, and the Encyclopedists, Voltaire, the *salons*. Conducted in French.

**352:417/517. 18TH CENTURY FRENCH LITERATURE III. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. Rousseau, Beaumarchais, Choderlos de Laclos, literature of the Revolution. Conducted in French.

**352:419/519. 19TH CENTURY FRENCH LITERATURE I. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. French literature of the Romantic period: Chateaubriand, Madame de Stael, Stendhal, Balzac, Lamartine, Hugo, Musset, Vigny. Conducted in French.

**352:420/520. 19TH CENTURY FRENCH LITERATURE II. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. Realism and Parnassianism, Scribe, Gautier, Leconte de Lisle, Heredia, Flaubert. Conducted in French.

**352:421/521. 19TH CENTURY FRENCH LITERATURE III. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. Naturalism and symbolism in prose and poetry. Verlaine, Rimbaud, Mallarme, Lautreamont, Laforgue, Becque, Maeterlinck,

Zola and the naturalistic writers. Conducted in French.

**352:427/527. 20TH CENTURY FRENCH THEATER AND POETRY I. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. Apollinaire, Peguy, Claudel, Valery, Tarry, Romain, Salacrou. Conducted in French.

**352:428/528. 20TH CENTURY FRENCH THEATER AND POETRY II. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. Breton and surrealism, Eluard, Aragon, Supervielle, Cocteau, Giraudoux, Lenormand, Anouilh, and Montherlant.

**352:429/529. 20TH CENTURY FRENCH THEATER AND POETRY III. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. Saint-John Perse, Michaux, Prevert, Char, Sartre, Camus, Beckett and Ionesco. Conducted in French.

**352:435/535. TWENTIETH CENTURY FRENCH NOVEL I. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. Proust, Gide, Martin du Gard, Romain, Duhamel and others. Conducted in French.

**352:436/536. TWENTIETH CENTURY FRENCH NOVEL II. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. Rodiguet, Mauriac, Bermanos, Giono, Maurois and others. Conducted in French.

**352:437/537. TWENTIETH CENTURY FRENCH NOVEL III. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. Malraux, Saint-Exupery, Existentialism and new trends. Conducted in French.

**352:450. EXPLICATION DE TEXTES. 3 credits.**

Prerequisite, 303 or 307 or consent of Instructor. Study of the traditional French method of literary analysis based on passages of representative authors from selected periods of French literary history.

**352:491-492-493. INDIVIDUAL READING IN FRENCH. 1 to 3 credits each.**

Prerequisite, consent of Instructor. Offered in accordance with student's needs.

## GRADUATE COURSES

**352:601. ADVANCED FRENCH GRAMMAR AND STYLISTICS. 5 credits.**

Advanced study of normative French grammar with translation into French of English texts and practice in free composition.

**352:603-604-605. ROMANCE AND APPLIED LINGUISTICS. 3 credits each.**

History of the French language from 842 to the present, syntactical analysis of French texts. Third quarter deals with the application of linguistic research to the teaching of French in secondary schools or in college.

**352:607-608-609. SELECTED TOPICS IN THE MOVEMENT OF IDEAS IN FRENCH LITERATURE. 3 credits each.**

Ideas characteristic of various periods in French literature. The first quarter will focus on writers before 1750. Second and third quarter topics will be selected from 1750 to the present time. A formal report demonstrating the ability to use essential research techniques will be required.

**352:619-620-621. FRENCH CULTURE AS EXPRESSED IN LITERATURE. 3 credits each.**

An anthropological approach to French culture emphasizing

social and civic institutions, education, value systems, national characteristics, and historical perspectives. A study of major themes and patterns of French culture as they are expressed in the mainstream of French literature.

**352:651-652-653. INDIVIDUAL READING AND RESEARCH SEMINAR. 1-3 credits each.**

Prerequisite, consent of Instructor. Private study and research in specific areas, with considerable reading of French texts in the area concerned, plus written reports in French and/or an intensive term paper.

**352:690. THESIS WRITING. 3-9 credits.**

## 353: GERMAN

**353:101-102-103. BEGINNING GERMAN, I, II, III. 4 credits each.**

Sequential. Reading, speaking, writing and listening comprehension, intensive drill in pronunciation, short stories, outside reading and/or supplementary work in the Language Laboratory.

**353:201-202-203. INTERMEDIATE GERMAN, I, II, III. 3 credits each.**

Sequential; prerequisite, 103 or equivalent. Grammar review, practice in reading, writing, speaking and listening comprehension; short stories, plays, novels on intermediate level, outside reading and/or supplementary work in the Language Laboratory.

**353:205. GERMAN READINGS FOR NON-MAJORS. 3 hours, 0 credits.**

May be repeated. A one-quarter non-credit course for graduate students preparing for the graduate reading proficiency examination in German. No previous knowledge of German required.

**353:207-208-209. INTERMEDIATE GERMAN I, II, III READING OPTIONS. 3 credits each.**

Sequential. Prerequisite, 103 or equivalent and permission. Reading of German texts in culture and civilization, discussion in English, translation and grammatical analysis where appropriate. Not open to majors.

**353:250. MASTERPIECES OF TWENTIETH CENTURY GERMAN LITERATURE IN TRANSLATION. 3 credits.**

Readings and discussion of the works of Mann, Rilke, Hesse, Kafka, Benn, Brecht, Frisch, Dürrenmatt, Borchert and Grass. May not be taken for credit toward the major in German.

**353:251. MASTERPIECES OF NINETEENTH CENTURY GERMAN LITERATURE IN TRANSLATION. 3 credits.**

Readings and discussions of the works of Kleist, Heine, Hebbel, Keller, Storm, Meyer, and Hauptmann. May not be taken for credit toward the German major.

**353:252. LITERATURE OF THE AGE OF GOETHE IN TRANSLATION. 3 credits.**

Readings and discussions of representative drama, prose and poetry of Lessing, Goethe, and Schiller. May not be taken for credit toward the major in German.

**353:301-302-303. GERMAN COMPOSITION AND CONVERSATION. 3 credits each.**

Prerequisite, 203 (or equivalent). Advanced composition using German models, special attention to words and idioms, development of oral expression and conversational ability.

**353:305-306-307. INTRODUCTION TO GERMAN LITERATURE. 3 credits each.**

Prerequisite, 203 (or equivalent). Introduction to the study of German literature. Readings and class discussions in German of representative works.

**353:403-404-405. ADVANCED GERMAN COMPOSITION AND CONVERSATION. 3 credits each.**

Prerequisite, 303 (or equivalent). A continuation of the material covered in 301, 302 and 303 at a more advanced level.

**353:406-407-408. GERMAN CULTURE AND CIVILIZATION. 3 credits each.**

Prerequisite, 303, 307 or equivalent. Particular emphasis on the customs, traditions, literary trends, and artistic tendencies that constitute Germany's contribution to Western Civilization.

**353:419/519. THE AGE OF GOETHE I. 3 credits.**

Prerequisite, 303 or 307 or permission. Enlightenment and the generation of Sturm and Drang, including works of Wieland, Lessing, Klopstock, Herder the young Goethe, and others.

**353:420/520. THE AGE OF GOETHE II. 3 credits.**

Prerequisite, 303 or 307 or permission. Faust, selections from parts I and II. Ballads of Goethe and Schiller.

**353:421/521. THE AGE OF GOETHE III. 3 credits.**

Prerequisite, 303 or 307 or permission. Romanticism in the poetry of Goethe, Novalis, Eichendorf, Heine, and others. Study of the Märchen, folklore and Germanic mythology.

**353:431/531. CLASSICAL GERMAN DRAMA. 3 credits.**

Prerequisite, 303 or 307 or permission. Representative works of the major classical dramatics including Lessing, Goethe, (except Faust) Schiller, Kleist, Grillparzer, and others.

**353:432/532. DRAMA OF SOCIAL CRITICISM. 3 credits.**

Prerequisite, 303 or 307 or permission. Representative works of the major dramatists of social criticism including Sturm and Drang dramatists, Büchner, Hebbel, Hauptmann and Wedekind.

**353:433/533. TRENDS IN MODERN DRAMA. 3 credits.**

Prerequisite, 303 or 307 or permission. Representative works of major modern dramatists including Hofmannsthal, Kaiser, Brecht, Zuckmayer, Dürrenmatt, and Borchert.

**353:435/535. THE ROMANTIC SHORT STORY. 3 credits.**

Prerequisite, 303 or 307 or permission. Reading and discussion of representative works of German Romanticism, including those of Tieck, Kleist, E.T.A. Hoffmann, Brentano, Eichendorff, and others.

**353:436/536. THE SHORT STORY OF POETIC REALISM. 3 credits.**

Prerequisite, 303 or 307 or permission. Reading and discussion of works representative of the period, including those of Droste-Hulshoff, Stifter, Keller, Meyer, Storm, and others.

**353:437/537. THE MODERN SHORT STORY. 3 credits.**

Prerequisite, 303 or 307 or permission. Reading and discussion of representative works of Hauptmann, Schnitzler, T. Mann, Kafka, Zweig, Borchert, Böll, and others.

**353:439/539. TWENTIETH CENTURY GERMAN LITERATURE I. 3 credits.**

Prerequisite, 303 or 307 or permission. The fading of old traditions and emergence of new values during the first decades of the century. Readings, and discussion of the works of T. Mann, Schnitzler, Hauptmann, Kaiser, George, Hofmannsthal, Rilke, Wedekind, and others.

**353:440/540. TWENTIETH CENTURY GERMAN LITERATURE II. 3 credits.**

Prerequisite, 303 or 307 or permission. New interpretations of reality during and after World War I. A continuation of the studies undertaken in 439, based on readings and discussions of the writings of Hesse, Kafka, Döblin, Werfel, and others.

**353:441/541. TWENTIETH CENTURY GERMAN LITERATURE III. 3 credits.**

Prerequisite, 303 or 307 or permission. Recent trends as reflected in such writers as Zweig, Zuckmayer, Dürrenmatt, Böll, Frisch, Grass, and others.

**353:491-492-493. INDIVIDUAL READING IN GERMAN 1-3 credits each.**

Prerequisite, permission.

**355: ITALIAN****355:101-102-103. BEGINNING ITALIAN, I, II, III.**

4 credits each.

Sequential, Reading, speaking, writing and listening comprehension; intensive drill in pronunciation, short stories, outside reading and/or supplementary work in the Language Laboratory.

**355:201-202-203. INTERMEDIATE ITALIAN, I, II, III. 3 credits each.**

Sequential. Prerequisite, 103 (or equivalent). Grammar review, practice in reading, writing, speaking and listening comprehension; short stories, plays, novels on intermediate level, outside reading and/or supplementary work in the Language Laboratory.

**355:207-208-209. INTERMEDIATE ITALIAN I, II, III READING OPTION. 3 credits each.**

Sequential. Prerequisite, 103 or equivalent. The readings will cover various aspects of Italian culture through the centuries, with particular emphasis on history, literature, art, and the contemporary Italian way of life as compared with the American one. Review of grammar to the extent necessary for an accurate understanding of the texts.

**355:250. GENIUS OF ITALIAN LITERATURE IN TRANSLATION. 3 credits.**

No prerequisite. Reading and discussion of works of Dante, Petrarca, Boccaccio, Ariosto, Macchiavelli, Cellini, Tasso, Bruno, Pirandello, De Filippo.

**355:301-302-303. ITALIAN COMPOSITION AND CONVERSATION. 3 credits each.**

Prerequisite, 203 (or equivalent). Italian composition using Italian models, special attention to words and idioms, and development of oral expression and conversational ability.

**355:305-306-307. INTRODUCTION TO LITERATURE. 3 credits each.**

Prerequisite, 203 (or equivalent). Introduction to the study of Italian literature. Readings and class discussions in Italian of representative works.

**357: RUSSIAN****357:101-102-103. BEGINNING RUSSIAN, I, II, III.**

4 credits each.

Sequential. Reading, speaking, writing and listening comprehension; intensive drill in pronunciation, short stories, outside reading and/or supplementary work in the Language Laboratory.

**357:201-202-203. INTERMEDIATE RUSSIAN, I, II, III.** *3 credits each.*

Sequential. Prerequisite, 103 (or equivalent). Grammar review, practice in reading, writing, speaking and listening comprehension; short stories, plays, novels on intermediate level, outside reading and/or supplementary work in the Language Laboratory.

**357:207-208-209. INTERMEDIATE RUSSIAN I, II, III READING OPTION.** *3 credits each.*

Sequential. Prerequisite, 103 or equivalent. Reading of texts in Russian dealing with the culture of Russian-speaking people. Discussion of the content of these texts in English along with a review of grammar to the extent necessary for an accurate understanding of the texts. Not open to majors.

**357:301-302-303. RUSSIAN COMPOSITION AND CONVERSATION.** *3 credits each.*

Prerequisite, 203 (or equivalent). Advanced composition using Russian models, special attention to words and idioms, development of oral expression and conversational ability.

**357:305-306-307. INTRODUCTION TO RUSSIAN LITERATURE.** *3 credits each.*

Prerequisite, 203 (or equivalent). Introduction to the study of Russian literature. Readings and class discussions in Russian of representative works.

**357:309-310-311. RUSSIAN CIVILIZATION AND CULTURE.** *3 credits each.*

Prerequisite, 203 (or equivalent). Readings and discussion of Russian texts relating to important developments in Russian civilization and culture.

**357:403-404-405. ADVANCED RUSSIAN COMPOSITION AND CONVERSATION.** *3 credits each.*

Prerequisite, 303 (or equivalent). A continuation of the material covered in 301, 302, and 303 at a more advanced level.

**357:411-412-413. SCIENTIFIC RUSSIAN.** *3 credits each.*

Prerequisite, 203 (or equivalent). Intensive reading of scientific articles in Chemistry, Physics, Mathematics, Biology, and Medicine.

**357:427. RUSSIAN LITERATURE OF THE TWENTIETH CENTURY.** *5 credits.*

Prerequisite, 203 (or equivalent). Reading and discussion of selected literary works from Gorky to Evtushenko.

**357:439. ADVANCED RUSSIAN SYNTAX, GRAMMAR AND CONVERSATION.** *5 credits.*

Prerequisite, 405 (or equivalent). Advanced work in composition, translation into Russian, and idiomatic use of the spoken language.

**357:491-492-493. INDIVIDUAL READING IN RUSSIAN.** *1-3 credits each.*

Prerequisite, permission.

**358: SPANISH****358:101-102-103. BEGINNING SPANISH, I, II, III.** *4 credits each.*

Sequential. Reading, speaking, writing and listening comprehension: intensive drill in pronunciation, short stories, outside reading and/or supplementary work in the Language Laboratory.

**358:201-202-203. INTERMEDIATE SPANISH, I, II, III.** *3 credits each.*

Sequential. Prerequisite, 103 (or equivalent). Grammar review, practice in reading, writing, speaking and listening comprehension; short stories, plays, novels on intermediate level, outside reading and/or supplementary work in the Language Laboratory.

**358:207-208-209. INTERMEDIATE SPANISH I, II, III READING OPTION.** *3 credits each.*

Sequential. Prerequisite, 103 or equivalent. By permission only. Reading of texts in Spanish dealing with the culture of Spanish-speaking people. Discussion of the content of these texts in English along with a review of grammar to the extent necessary for an accurate understanding of the texts. Not open to majors.

**358:211/311. SPANISH-SPANISH AMERICAN CULTURAL EXPERIENCE.** *1-3 credits.*

Prerequisite, faculty permission. A student's residence and/or independent study in a Spanish speaking country which results in demonstrable assimilation of the country's culture may earn a maximum of three hours of credit. The student's success in attaining prescribed levels of cultural knowledge and insights and the overall educational value of the student's experience of living abroad will be measured and evaluated by the faculty.

**358:251. CONTEMPORARY SPANISH LITERATURE IN TRANSLATION.** *3 credits.*

Reading and discussion of representative works from Spain and Spanish America's leading novelists, dramatists, and thinkers, a selection of whose writings in English translation will provide students with insights into the contemporary Spanish mind and imagination as they focus on the problems of human existence. May not be taken for credit toward the Spanish major.

**358:301-302-303. SPANISH COMPOSITION AND CONVERSATION.** *3 credits each.*

Prerequisite, 203 (or equivalent). Advanced composition using Spanish models, special attention to words and idioms, development of oral expression and conversational ability.

**358:305-306-307. INTRODUCTION TO SPANISH AND SPANISH — AMERICAN LITERATURE.** *3 credits each.*

Prerequisite, 203 (or equivalent). Direct reading and discussion, in Spanish, of novels, short stories, and drama in the modern idiom of Spain, Puerto Rico and the 17 Spanish-American republics.

**358:309. INTRODUCTION TO HISPANIC LINGUISTICS.** *5 credits.*

Prerequisite, 203 (or equivalent). An elementary survey of four approaches to the study of the Spanish Language: (a) the history of the language, from late spoken Latin to modern Spanish; (b) the structure of present-day Spanish; its phonology and grammar; (c) the dialects, or regional varieties, of Spanish; (d) applied linguistics, with special emphasis on the problems likely to be met by prospective teachers of Spanish. Lectures and discussion. This course should be taken by all Spanish majors.

**358:401. COMMERCIAL CORRESPONDENCE IN SPANISH.** *5 credits.*

Prerequisite, 203 (or equivalent). Translation of business letters from Spanish into English and from English into Spanish, with emphasis on modern phraseology in commercial correspondence.

**358:403-404-405. ADVANCED SPANISH COMPOSITION AND CONVERSATION.** *3 credits each.*

Prerequisite, 303 (or equivalent). A continuation of the material covered in 301, 302, and 303 at a more advanced level.

**358:407-408-409. MEDIEVAL AND RENAISSANCE SPANISH LITERATURE.** *3 credits each.*

Prerequisite, 303 or 307 or permission. Reading and discussion of representative works that mark the beginnings

of Spanish literature in poetry, prose and drama, with emphasis given to the major works: *Cantar de Mio Cid*, *El Libro de Buen Amor*, *La Celestina*, and the ballads. The Renaissance in Spain: lyric and mystical poetry, the comedia before Lope de Vega, and the pastoral and chivalric novel. Conducted in Spanish.

**358:411-412-413/511-512-513. SPANISH LITERATURE OF THE GOLDEN AGE.** *3 credits each.*

Prerequisite, 303 or 307 or permission. Reading and discussion of representative novels and short stories with special emphasis on the works of Miguel de Cervantes. Drama, poetry and essays of the sixteenth, seventeenth and eighteenth centuries will be studied. Conducted in Spanish.

**358:415-416-417/515-516-517. SPANISH LITERATURE FROM 1800-1936.** *3 credits each.*

Prerequisite, 303 or 307 or permission. Reading discussion and lectures. Study of Neoclassicismo, Romanticismo, Realismo, Naturalismo, the generation of 1898 and 1927. Conducted in Spanish.

**358:419-420-421/519-520-521. SPANISH LITERATURE SINCE 1940.** *3 credits each.*

Prerequisite, 303 or 307 or permission. Reading and discussion of the most representative writers of Spain's literary Renaissance since 1940. Representative poetry, drama, novels, and short stories will be studied. Conducted in Spanish.

**358:423-424-425/523-524-525. SPANISH-AMERICAN LITERATURE.** *3 credits each.*

Prerequisite, 303 or 307 or permission. Reading and discussion of representative Spanish-American Literature from discovery to the present time. Oral and written reports. Conducted in Spanish.

**358:427-428-429/527-528-529. SPANISH AND SPANISH-AMERICAN CULTURE AND CIVILIZATION.**

*3 credits each.*

Prerequisite, 303 or 307 or permission. Emphasis on the customs, traditions, literary trends, and artistic tendencies that constitute Spain's specific contribution to Western Civilization. Cultural evolution, including educational and political institutions of Puerto Rico and the 17 Spanish-American republics. Conducted in Spanish.

**358:491-492-493. INDIVIDUAL READING IN SPANISH.**

*1-3 credits each.*  
Prerequisite, permission.

## GRADUATE COURSES

**358:601-602-603. MEDIEVAL AND RENAISSANCE SPANISH LITERATURE.** *3 credits each.*

Reading and discussion of the monumental medieval literary works of Spain such as *Poema de Mio Cid*, *El Conde Lucanor*, *El Libro de Buen Amor*. Studies in the effect of the revival of learning on Spanish literature; Italianism, Humanism, Mysticism. Conducted in Spanish.

**358:605-606. SEMINAR IN HISPANIC LINGUISTICS.**

*3 credits each.*  
Present-day methods of comparative, historical, and structural linguistic. Research work in Castilian and Spanish American linguistics. Offered in accordance with student needs. Conducted in Spanish.

**358:607-608. SEMINAR IN HISPANIC BIBLIOGRAPHY AND IN RESEARCH METHODS.**

*3 credits each.*  
Required of all candidates on the thesis plan. Special studies in research methods. Identification, analysis and

evaluation of Hispanic bibliographical sources. Offered in accordance with student needs. Conducted in Spanish.

**358:609-610-611. SEMINAR ON CLASSICAL AND MODERN PENINSULAR LITERATURE.**

*3 credits each.*

Reading and discussion of representative writers from the Renaissance to the late Baroque period. Studies in the essay, the novel, the theater, the poetry and the philosophic writings of the modern period. Conducted in Spanish.

**358:613-614-615. SEMINAR OR SPANISH-AMERICAN LITERATURE.** *3 credits each.*

Studies in representative writers preceding the War for Independence. Reading and discussion of various genres and authors representing significant literary developments of the modern period. Conducted in Spanish.

**358:617-618-619. SEMINAR ON PRESENT DAY SPANISH AMERICAN LITERATURE.**

*3 credits each.*

Reading and discussion of contemporary writers with emphasis on the theatre, the novel and the short story. Conducted in Spanish.

**358:621-622-623. SEMINAR ON PRESENT-DAY PENINSULAR SPANISH LITERATURE.** *3 credits each.*

Studies in representative present-day writers with analyses and discussions of the novel (621), the theater (622) poetry and short stories (623). Conducted in Spanish.

**358:651-652-653. INDIVIDUAL READINGS IN SPANISH.** *1-3 credits each.*

The content of any given Individual Reading program would be taken from course contents approved for graduate work in Spanish.

**358:690. THESIS WRITING.** *3-9 credits.*

## 360: PHILOSOPHY

**360:101. INTRODUCTION TO PHILOSOPHY.**

*4 credits.*

An introduction to philosophic problems and attitudes through acquaintance with the thought of some of the leading thinkers of the Western tradition.

**360:120. INTRODUCTION TO ETHICS.** *4 credits.*

Prerequisite, 101. An introduction to the problems of moral conduct through readings from the tradition and class discussions; Nature of "good", "right", "ought" and "freedom".

**360:131. COMPARATIVE RELIGIONS I: EASTERN.**

*4 credits.*

An introduction to Hinduism, Buddhism, Jainism, Confucianism, Taoism and Shinto.

**360:132. COMPARATIVE RELIGIONS II. MAJOR WESTERN RELIGIOUS.** *4 credits.*

An introduction to Zoroastrianism, Judaism, Christianity and Islam.

**360:133. COMPARATIVE RELIGIONS III: CONTEMPORARY MAJOR DEVELOPMENTS.**

*4 credits.*

An inquiry into the variety of contemporary religions outside the major eastern and western systems.

**360:170. INTRODUCTION TO LOGIC.** *4 credits.*

An introduction to the nature and function of deductive systems with particular attention to traditional logic, including forms of mediate and immediate inference and formal fallacies.

**360:211. HISTORY OF ANCIENT PHILOSOPHY.***4 credits.*

History and early development of ancient Greek philosophy from Pre-Socratics to Aristotle.

**360:212. HISTORY OF MEDIEVAL PHILOSOPHY.***4 credits.*

History of Western philosophy from end of Roman Empire to Renaissance. Major philosophers studied will include St. Augustine, St. Anselm, St. Thomas Aquinas, Duns Scotus, and William of Ockham.

**360:213. HISTORY OF MODERN PHILOSOPHY.***4 credits.*

An analysis of the major philosophical issues of the 17th and 18th centuries.

**360:223. VALUE THEORY. 4 credits.**

An inquiry into man as an evaluator. A study of some principles and theories of value and their implications.

**360:224. SOCIAL AND POLITICAL PHILOSOPHY.***4 credits.*

Prerequisite, one course in philosophy or permission of instructor. An examination of the images of man implied in the major social and political philosophies in Western History. Special attention is devoted to the epistemological, methodological, ontological and axiological assumptions and consequences of these theories.

**360:232. PHILOSOPHY OF RELIGION. 4 credits.**

Prerequisite, two courses in philosophy. Discussion and analysis of the problems of theology and the nature of the religious experience; God's nature and existence, immortality, sin, faith, and reason, the holy, revelation and redemption.

**360:250. PHILOSOPHY OF ART. 4 credits.**

Prerequisite, 101 or permission. An introduction to the major theories of the nature of art and the art object with readings and discussions of examples. Such thinkers as Plato, Aristotle, Schopenhauer, Lessing, Pater and Freud are examined.

**360:274. FORMAL LOGIC. 4 credits.**

Prerequisite, 170 or permission of instructor. An introduction to symbolic logic through the construction of a propositional calculus and a first-order predicate calculus.

**360:314. CENTURY PHILOSOPHY.***4 credits.*

Prerequisite, one course in philosophy or permission of instructor. An inquiry into the philosophically significant ideas of Hegel, Marx, Schopenhauer, Mill, Kierkegaard, and Nietzsche.

**360:316. AMERICAN PHILOSOPHY. 4 credits.**

Prerequisite, one course in philosophy or permission of instructor. The movement of ideas in America from Royce to the present.

**360:318. ANALYTIC PHILOSOPHY. 4 credits.**

Prerequisites, 211, 212, and 213 or permission of instructor. Study of British and American philosophers concerned with ideal and ordinary languages. Russell, Carnap, Ayer, Moore, Wittgenstein, Ryle, and Austin.

**360:332. DIALECTICAL MATERIALISM.***4 credits.*

Prerequisite, 224 or permission of instructor. Includes attention to Hegelian and other origins, as well as its development in the writings of Marx, Engels, Lenin, and contemporary writers. Focus on metaphysics, social philosophy, philosophy of history, the nature of man, ethics, and aesthetics.

**360:411/511. LATER DIALOGUES OF PLATO.***4 credits.*

Prerequisites, one introductory course, and 211 or permission of instructor. A course in the later dialogues of Plato, commencing with the Theatetus.

**360:417. CONTEMPORARY CONTINENTAL PHILOSOPHY. 4 credits.**

Prerequisite, 211, 212 and 213, 314, or permission of instructor. Analysis and discussion of the major trends in Continental philosophy; Neo-Kantianism, Existentialism and Phenomenology, Neo-Hegelianism, and Marxist revisionism.

**360:419/519. BRITISH EMPIRICISM. 4 credits.**

Prerequisites, one introductory course, 213 or permission of instructor. An intensive analysis of selected major writings of Locke, Berkeley, and Hume.

**360:421/521. PHILOSOPHY OF LAW. 4 credits.**

Prerequisite, one course in philosophy or permission of instructor. A philosophical inquiry into the nature of law and legal institutions.

**360:422/522. CONTINENTAL RATIONALISM.***4 credits.*

Prerequisites, one introductory course, 213, or permission of instructor. An intensive analysis of selected major writings of Descartes, Spinoza, and Leibniz.

**360:424/524. EXISTENTIALISM. 4 credits.**

Prerequisite, one introductory course in philosophy, 314, or permission of instructor. An in-depth inquiry into the thought of Kierkegaard, Jaspers, Heidegger, Sartre, Tillich and other existentialists with their concern for man and his human condition.

**360:426/526. PHENOMENOLOGY. 4 credits.**

Prerequisites, one introductory course, 314, or permission of instructor. The inquiry into the methodology of Husserl and Heidegger and their influence upon Western European and American thought.

**360:432/532. ARISTOTLE. 4 credits.**

Prerequisites, 211, 213, or permission of instructor. A detailed study of Aristotle's metaphysics, philosophy of nature, philosophy of man, and ethics. Taught in alternate years.

**360:434/534. KANT. 4 credits.**

Prerequisite, 213 or permission of instructor. A study of Kantian system of thought and its relation to the history of philosophy. Includes a thorough investigation of one or more of Kant's philosophic works.

**360:436/536. GERMAN IDEALISM. 4 credits.**

Prerequisite, 213 or permission of instructor. An intensive study of the German idealists of the 19th century, including Fichte, Schelling, Hegel, and Schopenhauer.

**360:442/542. 20TH CENTURY PHILOSOPHY.***4 credits.*

Prerequisites, two courses in History of Philosophy or permission of instructor. A study of pragmatism, logical positivism, linguistic analysis, and existentialism.

**360:444/544. PROBLEMS IN PHILOSOPHY.***4 credits.*

Prerequisites, two courses in philosophy or permission of instructor. A thorough, critical examination of one major philosophical problem. Topics include such as Philosophy of Mind, Philosophy of Language, Philosophy of History, Aesthetics, Philosophy of Social Science.

**360:462/562. THEORY OF KNOWLEDGE. 4 credits.**

Prerequisite, three courses in philosophy. An examination of the nature of knowledge; theories of perception, conception

and truth, the problem of induction, and the relation of language to knowledge.

**360:464/564. PHILOSOPHY OF SCIENCE. 4 credits.**

Prerequisite, 372 or 462 or permission of instructor. The nature of explanation, causality, and physical theory.

**360:471/571. INTRODUCTION TO METAPHYSICS. 4 credits.**

Prerequisite, 211, 212, 213. A systematic and critical study of metaphysical problems and their possible solutions as seen in the context of their historic development. Each problem is carefully defined and placed in its historic context. Emphasis is placed upon reading of original sources, both historic and contemporary.

**360:480/580. SEMINAR. 4 credits.**

Prerequisite, permission of instructor.

**360:481/581. SEMINAR. 4 credits.**

Prerequisite, permission of instructor.

**360:482. SEMINAR. 4 credits.**

Prerequisite, permission of instructor.

## GRADUATE COURSES

Admission to courses requires permission of departmental advisor.

**360:611. ANCIENT PHILOSOPHY. 4 credits.**

Beginning with the early cosmologists, this is a study of the origins and development of Western Philosophy, the syntheses of Plato and Aristotle, through Plotinus.

**360:615. SEMINAR: HISTORY OF PHILOSOPHY. 4 credits.** (May be repeated for a total of 16 credits.)

A study in the philosophical works of one major philosopher. Open only with consent of instructor.

**360:618. ANALYTIC PHILOSOPHY. 4 credits.**

Discussion of the analytic approach to the problems of referring, truth, the relation of language to metaphysics, meaning, and the concept of a person; particular emphasis upon determining the motivation, contribution, and value of this approach. Reading covering the works of (the late) Wittgenstein, Moore, Austin, Anscombe, Geach, Kenny, Vesey, et al.

**360:626. ETHICAL THEORY. 4 credits.**

An examination of the problems related to human conduct and decision-making in the light of the Western tradition as well as the contemporary insights of positivism, phenomenology, existentialism, logical analysis, naturalism and pragmatism.

**360:676. LOGICAL THEORY. 4 credits.**

An introduction to the main problems typically encountered in logical theory; Logic and ontology, alternative logics, truth and analyticity, induction, special problems concerning the interpretation of the conditional and modal logics. It is suggested that graduate students be familiar with the material covered in undergraduate logic (274) before taking this course.

**360:680. SEMINAR. 4 credits.** (May be repeated for a total of 12 credits).

**360:688. SEMINAR: THESIS SUPERVISION I. 2 credits.**

**360:689. SEMINAR: THESIS SUPERVISION II. 2 credits.**

## 365: PHYSICS

**365:101-102-103. CONCEPTS OF PHYSICS I, II AND III. 4 credits each.**

Prerequisites, high-school algebra and trigonometry, or

345:115-116 as a corequisite. General physics; emphasizes such unifying concepts of contemporary physics as conservation laws, symmetry principles and the nature of particles and fields. Newtonian mechanics; electricity and magnetism; interference and diffraction of waves; the nature of heat, space and time in the theory of relativity, quantum mechanics of atomic phenomena; recent developments in the study of elementary particles.

**365:107-108-109. INTRODUCTORY COMPUTATIONS I, II, III. 1 credit each.**

Corequisite, 101-102-103. Optional courses to provide additional, computational experience in introductory physics, and to emphasize the application of algebra and trigonometry to the solution of physical problems. Course 107 should be taken concurrently with 101, etc.

**365:130. DESCRIPTIVE ASTRONOMY. 3 credits.**

A qualitative and non-mathematical introduction to the subjects of astronomy and astrophysics, intended primarily as a first science course for students not majoring in physical science. Telescopes and spectroscopy; the solar system; physical characteristics of the sun and planets, planetary motions, satellites, comets, meteorites, age and origin of the solar system; the stars: description, evolution, multiple stars and clusters, interstellar space, galaxies, the physical universe and relativity.

**365:133. MUSIC, SOUND AND PHYSICS. 3 credits.**

Prerequisite, None. A qualitative introduction to sound production, transmission and perception, with emphasis on music. Descriptive treatment of vibration, waves, resonance; physiology of hearing; production of musical sounds; pitch, frequency, tone quality, harmonics, intensity; room acoustics; musical instruments, the human voice, electronic sound.

**365:137. LIGHT: COLORS, CAMERAS AND PERCEPTION. 3 credits.**

Prerequisite, None. A qualitative introduction to the understanding of light and color, their perception and recording. The nature of light: reflection, refraction, interference, diffraction, polarization, absorption, photoelectric effect; cameras: lenses, apertures, shutters, photographic emulsions and processing; color characteristics of light and films; the structure of the human eye, color perception, color sensitivity; lasers and holography.

**365:201-202-203. ELEMENTARY CLASSICAL PHYSICS I, II, AND III. 4 credits each.**

Prerequisite, adequate preparation in high-school algebra and trigonometry. An introductory physics course for students of science and engineering. Kinematics and classical mechanics with emphasis on conservation laws, particularly as they relate to contemporary physics. Thermodynamics from the atomic point of view, concepts of order and disorder. Basic laws of electromagnetism. Wave motion, both mechanical and electromagnetic. Interference and diffraction of waves for both coherent and noncoherent sources. Vectors and a limited amount of calculus are introduced as needed.

**365:211-212-213. PHYSICS COMPUTATIONS I, II, III. 1 credit each.**

Corequisite, 201-202-203. Optional courses intended (1) to stress problem-solving techniques in elementary physics, and (2) to elaborate the application of mathematics through calculus to simple physical phenomena. Course 211 should be taken concurrently with 201, etc. Recommended for freshmen students, and also for other students with average performance or less in prior physical science and mathematics courses.

**365:301. ELEMENTARY MODERN PHYSICS.***4 credits.*

Prerequisite, 203 or permission of the instructor. Special relativity, introduction to quantum physics, atomic spectra, topics in nuclear and solid state physics.

**365:311-312-313. COLLOQUIUM. 1 credit each.****365:331-332-333. ASTROPHYSICS I, II, AND III.***3 credits each.*

Prerequisite, 103 or 203. A one-year comprehensive, quantitative course recommended for students majoring in physics or natural science, and for secondary school teachers and others desiring a comprehensive survey of astronomy and astrophysics at the intermediate level. The solar system: the earth, the moon, the sun, celestial mechanics, the planets, comets and meteors. The stars: spectral classification, atomic structure, variable stars, stellar motions, Milky Way, star clusters, interstellar medium, galaxies, cosmology, astronomical instruments.

**365:397-398-399. UNDERGRADUATE RESEARCH I, II, III. 1 to 6 credits each.**

Prerequisite, permission of instructor. Participation in a current research project in the department under the supervision of a faculty member.

**365:400/500. HISTORY OF PHYSICS. 4 credits.**

Prerequisite, 103 or 203. A study of the origin and evolution of the major principles and concepts that characterize contemporary physics.

**365:405-406-407/505-506-507. STRUCTURE OF MATTER I, II, III. 4 credits each.**

Prerequisite, 203. Contemporary physics at the intermediate level, aimed at the understanding of the observable properties of matter in terms of the interactions of its microscopic constituents.

**365:410/510. ELECTRONIC DEVICES AND CIRCUITS.***4 credits.*

Prerequisite, 203; corequisite, 345:234. Electron tubes, semiconductors, and their utilization in circuits. Introduction to the mathematical analysis of these circuits.

**365:411-412-413/511-512-513. INTERMEDIATE LABORATORY I, II, III. 2 credits each.**

Prerequisite, or corequisite, 410. Experiments involving measurements of physical properties of various systems which are most readily made with electronic instruments and circuits. Amplifiers, oscillators, bridges, special circuits. Detection and counting of nuclear radiations. Thermal and electrical properties of metals, semi-conductors and other materials. Photoelectric effect. Charge on the electron.

**365:420/520. OPTICS. 4 credits.**

Prerequisite, 203 and 345:235. Reflection, refraction; prisms, thin lenses, thick lenses, mirrors; waves and their propagation; interference and diffraction; diffraction gratings; polarization; emission of light; velocity of light; photometry; lasers.

**365:421/521. OPTICS LABORATORY. 2 credits.**

Corequisite, 420. Experimental studies of lenses, mirrors, prisms, diffraction gratings, interferometers, photometers, polarization, optical spectra and lasers.

**365:430/530. KINETIC THEORY AND THERMODYNAMICS. 4 credits.**

Prerequisite, 203 and 345:235. Kinetic theory of gases, temperature; thermodynamic systems; work; ideal gases; real gases; laws of thermodynamics; entropy, reversibility and irreversibility; Carnot cycle; Kelvin temperature scale; change of phase.

**365:431-432-433/531-532-533. MECHANICS I, II, III.***3 credits each.*

Prerequisite, 203; corequisite, 345:236. Introduction to vector analysis, planar statics and kinematics, plane motion of a particle and of a rigid body, plane impulsive motion, moving frames of reference, special motion of a particle and of a rigid body. Lagrange's equations, the special theory of relativity.

**365:441-442-443/541-542-543. ELECTRICITY AND MAGNETISM I, II, III. 3 credits each.**

Prerequisite, 203; corequisite, 345:236. Coulomb's law; Gauss's law; dielectrics; Poisson and Laplace equations; electrical images; magnetostatics; Kirchhoff's laws, chemical and thermal electromotive forces; Ampere's laws. Forces on moving charges, electromagnetic induction, alternating circuits, coupled circuits, filters, Maxwell's equations and electromagnetic waves.

**365:450/550. X-RAYS. 4 credits.**

Prerequisite, 203 or permission of instructor. Properties of X-rays. Theory of X-ray spectra. Absorption and scattering of X-rays. X-ray diffraction. Techniques for the production and utilization of X-rays. Application of X-rays to physical and chemical problems. Interpretation of X-ray diffraction and X-ray photographs.

**365:451-452-453/551-552-553. ADVANCED LABORATORY I, II, III. 2 credits each.**

Prerequisite, 413 or permission of instructor. Applications of electronic and solid state devices and techniques to research-type projects in contemporary physics. Introduction to resonance techniques; nuclear magnetic resonance, electron spin resonance, nuclear quadrupole resonance. Scintillation spectroscopy. Alpha and beta ray spectrometry.

**365:460/560. REACTOR PHYSICS. 4 credits.**

Prerequisite, 407. Nuclear physics, nuclear reactions, diffusion of neutrons, slowing down of neutrons, diffusion in the general case, reactor statics.

**365:461-462-463/561-562-563. PHYSICAL PROPERTIES OF POLYMERS I, II, III. 1 credit each.**

Prerequisite, 203. An introduction to the concepts of polymer molecular dimensions and configurations, rubber elasticity, diffusion and viscosity, polymer chain segmental motions, glass transition temperature, creep, visco-elasticity, partial crystallinity, spherulitic structure, and the mechanical properties of polymers.

**365:470/570. INTRODUCTION TO SOLID STATE PHYSICS. 4 credits.**

Prerequisites, 301; 345:236 or permission of instructor. An account of the basic physical processes which occur in solids, with emphasis on the fundamental relation between these processes and the periodicity of the crystalline lattice.

**365:471-472-473/571-572-573. NMR SPECTROSCOPY I, II, III. 2 credits each.**

Prerequisites 203; 345:236 or permission of instructor. The theoretical basis and experimental techniques of Nuclear Magnetic Resonance (NMR) spectroscopy. Classical concepts and quantum mechanical treatments of NMR. The Bloch equations; spin-spin and spin-lattice relaxation times. Steady state and transient phenomena. General features of broadline and high-resolution NMR spectra. NMR instrumentation and operating principles. The theory and analysis of high resolution NMR spectra. Discussion of the quantitative applications of broadline and high-resolution NMR spectra to the determination of physical and chemical structures.

**365:490/590. INTRODUCTION TO QUANTUM MECHANICS. 4 credits.**

Prerequisites, 443; 345:236 or permission of instructor. A brief introduction to the concepts of quantum mechanics; correspondence principles, uncertainty principle, state functions, Schrodinger's equation, WKB approximation, wave packets, continuum states, postulates of quantum mechanics central potentials, hydrogen atom.

**365:491-492-493/591-592-593. METHODS OF MATHEMATICAL PHYSICS I, II, III. 3 credits each.**

Prerequisites, 203; 345:236, and senior graduate standing in a physical science or engineering. A consideration of many mathematical methods useful in science and engineering. Elliptic integrals, perturbation theory, conformal mapping, variational methods, potential equation; diffusion equation, wave equation, Fourier transform, eigenfunctions and eigenvalues, solution of boundary value problems using Green's function, inertia tensor. Emphasis on applications to physics and engineering.

**GRADUATE COURSES****365:601-602-603. ATOMIC AND NUCLEAR PHYSICS I, II, III. 3 credits each.**

Prerequisites, 301 or 407 and 345:236, or permission of instructor. An expository and analytical treatment of the fundamental principles which operate to yield the observed complex behavior of matter. Introductory quantum mechanics, free particle quantum mechanics, the one-electron atom. Special theory of relativity, Radiation and radiative transitions. Pauli principle and exchange symmetry. Atomic spectroscopy, Quantum statistics. X-rays. Band theory of solids. Basic properties of nuclei. Particle scattering and nuclear forces. Systematics of nuclear stability and nuclear models.

**365:605-606. COMPUTER PHYSICS: NUMERICAL SOLUTIONS TO PHYSICAL PROBLEMS, I AND II. 3 credits.**

Prerequisite, 445:660. Review of Fortran and properties of digital computers. Computer solutions to physical problems, including Newton's, Schrodinger's and Laplace's equations; data reduction, curve fitting, plotting. Numerical methods are elaborated along with applications; problems are solved on the central computer. The second quarter may accommodate scientific problems of individual interest.

**365:611-612-613. PHYSICAL PROPERTIES OF MATTER I, II, III. 3 credits each.**

Prerequisite, 203. Experimental stress-strain relations of real materials, simple stress-strain analysis, brittle and ductile fracture, phenomenological theories for fracture, discussion of mechanical properties in terms of atomic and molecular structure, measurement and analysis of the friction and adhesion of real materials, surface tension of liquids and solids, thermodynamics of spreading and wetting, viscosity.

**365:621-622-623. ATOMIC AND MOLECULAR SPECTRA I, II, III. 3 credits each.**

Prerequisites, 301; 345:236 or permission of instructor. Elements of atomic theory; line spectra; electron spin and multiple structure; the building-up principle and the periodic system of the elements; special intensities; hyperfine structure; isotope effect, nuclear spin. Molecular bands, and development of theory; rotational, vibrational and electronic bands; Raman effect, isotopic effect, intensity of bands; methods of determining the molecular constants from wave number measurements.

**365:631-632-633. PHYSICS OF POLYMERS I, II, III. 2 credits each.**

Prerequisite, 345:236 or permission of instructor. Study of relations between the physical behavior of elastomers, plastics, and fibers and their molecular constitution.

**365:635-636-637. PHYSICS OF POLYMERS LABORATORY I, II, III. 2 credits each.**

Prerequisite, 201, corequisite, 631-632-633. Selected laboratory experiments to illustrate the principles and methods discussed in courses 631-632-633.

**365:651-652-653. THEORETICAL CLASSICAL PHYSICS I, II, III. 4 credits each.**

Prerequisites, 433 and 443. A course in theoretical physics emphasizing advanced classical mechanics, electricity and magnetism and developing the foundations of quantum mechanics. Inertial reference frames and Newtonian time scales, non-inertial frames, generalized coordinates, Lagrange's equations, theory of small vibrations, normal coordinates, Hamilton's equations, principles of least action. Hamilton-Jacobi method, application to atomic systems and origin of quantum mechanics, introduction to tensor analysis. Maxwell's equations space-time symmetry of the field equations, transformation of the field vectors to moving systems, stress and strain in elastic media, electromagnetic forces on charges and currents, electrostatic energy, magnetostatic energy, Poynting's theorem, forces on dielectrics in an electrostatic field, forces in the magnetostatic field, forces in the electromagnetic field, general properties of an electrostatic field, calculations of an electrostatic field from charge, distribution, expansion of the potential in spherical harmonics dielectric polarization, general properties of the magnetostatic field, calculation of the fields of a current distribution.

**365:661-662-663. THERMODYNAMICS AND STATISTICAL MECHANICS I, II, III. 3 credits each.**

Prerequisites, 430 and 345:236. Introduction to basic statistical concepts. Application of statistical ideas to systems of particles in equilibrium to develop the basic notions of statistical mechanics. Derivation of the purely macroscopic statements of thermodynamics. Illustration and discussion of macroscopic aspects followed by the same for the microscopic aspects of the theory. Phase transitions and quantum gases. Nonequilibrium situations and transport theory.

**365:681-682-683. QUANTUM MECHANICS I, II, III. 3 credits each.**

Prerequisite, 433, 443, 345:236 or permission of instructor. Courses 653 and 490 are also recommended but not required. A thorough development of ordinary wave mechanics; matrix formulation and unification in the more abstract Dirac formulation. The state function and its interpretation; wave packets; uncertainty relation; the wave equation; dynamical variables and operators; stationary states, Hermitian operators; eigenvalues and eigenfunctions; angular momentum; scattering theory; Green's functions; Born approximation; spin; Pauli matrices; symmetry properties; parity; perturbation methods; spin-orbit interactions; Clebsch-Gordon coefficients; exclusion principle; T-R invariance; S-matrix.

**365:684. ADVANCED NUCLEAR PHYSICS. 4 credits.**

Prerequisites, 603, 683. Quantum mechanics applied to the nucleus. Interaction of radiation with the nucleus, nuclear scattering, nuclear reactions; energy levels of nuclei.

**365:685-686-687. SOLID STATE PHYSICS I, II, III. 3 credits each.**

Prerequisites, 470, 683 or permission of instructor. Theory of

the physics of crystalline solids. Properties of the reciprocal lattice and Bloch's theorem. Lattice dynamics and specific heat. Electron states; cellular method, tight-binding method, Green's function method, orthogonalized plane wave and pseudo potentials. Electron-electron interaction; screening by impurities, Friedel sum rule, and plasma oscillations. Dynamics of electrons, transport properties and the Fermi surface.

**365:697. GRADUATE RESEARCH.** *1 to 8 credits.*

Prerequisite, permission. Properly qualified candidates for the M.S. degree may obtain up to eight credits for participation in faculty-supervised original research investigations. Grades and credits will be awarded at the completion of relevant portions of approved research projects, and not necessarily at the end of normal grading periods.

**365:698. MASTER'S THESIS RESEARCH.** *1 credit.*

Prerequisite, permission. With the approval of the department, one credit may be earned by candidates for the M.S. degree upon the satisfactory completion of a Master's Thesis. This thesis shall be the report of one or more faculty-supervised original research investigations.

**365:699. SPECIAL TOPICS IN PHYSICS.** *1 to 5 credits.*

Prerequisite, permission. To enable students who need information in special areas, in which no formal course is offered, to acquire knowledge in these areas.

### 370: POLITICAL SCIENCE

**370:100. GOVERNMENT AND POLITICS IN THE U.S.** *5 credits.*

An examination of the American political system, with emphasis on the fundamental principles, ideas, institutions and processes of modern government.

**370:110. CIVIL LIBERTIES IN AMERICA.** *3 credits.*

Not open to Political Science majors and cannot be used for credit toward a major in Political Science. A study of civil liberties issues in the U.S. Historical materials, judicial decisions, and contemporary social criticism are used to enhance understanding of the nature and justification of our civil liberties.

**370:120. CURRENT POLICY ISSUES.** *3 credits.*

Cannot be used for credit toward major in Political Science. A survey of the major political issues and problems confronting the nation; the environment in which public policies are formed and executed.

**370:150. INTRODUCTION TO POLITICAL SCIENCE.** *5 credits.*

An introduction to the study of modern political systems. Strongly recommended for students with good social science backgrounds who plan to major in Political Science. Not open to students who have successfully completed 370:100 or its equivalent.

**370:200. COMPARATIVE POLITICS.** *5 credits.*

An introduction to comparative political analysis; description of the political systems of Great Britain, France, Germany and the Soviet Union; the contrast between democracy and totalitarianism.

**370:210. STATE AND LOCAL GOVERNMENT AND POLITICS.** *5 credits.*

Prerequisite, 100 or 150. An examination of institutions, processes and intergovernmental relations at the state and local level.

**370:220. AMERICAN FOREIGN POLICY: PROCESS AND PROBLEMS.** *4 credits.*

An examination of American foreign policy with emphasis

on the policy-making process; public opinion and other limitations on policy; specific contemporary problems in selected areas.

**370:302. AMERICAN POLITICAL IDEAS.** *3 credits.*

Prerequisite, 100 or 150 or permission. A study of the major thinkers and writers of American political thought.

**370:303. DEVELOPMENT OF WESTERN POLITICAL THOUGHT.** *5 credits.*

Prerequisite, 100 or 150 or permission. A survey of the major ideas and concepts of Western political theory from the pre-Socratics through the modern period.

**370:310. INTERNATIONAL POLITICS.** *5 credits.*

Prerequisite, 100 or 150 or 200. Relations among nations examined in the political context.

**370:312. INTERNATIONAL ORGANIZATION.** *3 credits.*

Prerequisite, 310 or permission. Description and analysis of the processes and problems of international organizations with appropriate references to the United Nations, regional patterns, and alliance systems.

**370:320. BRITAIN AND THE COMMONWEALTH.** *4 credits.*

Prerequisite, 200 or permission. Description and analysis of the government and politics of Great Britain and the leading nations of the Commonwealth.

**370:321. WESTERN EUROPEAN POLITICS.** *5 credits.*

Prerequisite, 200 or permission. Description and analysis of the government and politics of France, Germany, Italy and Switzerland, with appropriate references to Scandinavia and the Low Countries.

**370:322. SOVIET AND EAST EUROPEAN POLITICS.** *5 credits.*

Prerequisite, 200. Theory and practice of government and politics in the Soviet Union; comparison with selected Communist systems of Eastern Europe.

**370:323. POLITICS OF CHINA AND JAPAN.** *4 credits.*

Prerequisite, 200. An examination of the governmental structures and political processes of China and Japan.

**370:324. MIDDLE EASTERN POLITICS.** *3 credits.*

Prerequisite, 200 or permission. An examination of the government structures and political processes of the nations of the Middle East.

**370:325. LATIN AMERICAN POLITICS.** *4 credits.*

Prerequisite, 200 or permission. An examination of the patterns of government and politics in the Latin American area.

**370:326. POLITICS OF DEVELOPING NATIONS.** *4 credits.*

Prerequisite, 200 or permission. A general introduction to the concepts and theories of political culture and political institutions, elite-recruitment and political processes of selected emerging nations.

**370:327. AFRICAN POLITICS.** *4 credits.*

Prerequisite, 200 or permission. An examination of the patterns of government and politics of the nations south of the Sahara.

**370:340. AMERICAN POLITICAL PARTIES AND INTEREST GROUPS.** *5 credits.*

Prerequisite, 100 or 150. The central role of political parties and interest groups in the political process. Development, structure and function of parties; patterns of party allegiance and voting behavior; interest groups and their effect on party government and policy.

**370:341. THE AMERICAN CONGRESS.** *5 credits.*

Prerequisite, 100 or 150. An examination of the structure and function of Congress, with comparative materials on the legislative process on all levels. Presidential and congressional conflict is examined with reference to political parties, interest groups and the bureaucracy.

**370:342. MINORITY GROUP POLITICS. 4 credits.**

Prerequisite, 100 or 150 or permission. An examination of the political behavior of racial, religious and ethnic minority groups in the United States and in selected foreign nations.

**370:350. THE AMERICAN PRESIDENCY. 4 credits.**

Prerequisite, 100 or 150. The Presidency as the focal point of politics, policy, and leadership in the American political system.

**370:370. PUBLIC ADMINISTRATION. 4 credits.**

Prerequisite, 100 or 150. An examination of the implementation of public policy. Administrative organization and principles will be stressed.

**370:375. THE FEDERAL BUREAUCRACY. 5 credits.**

Prerequisite, 370:100 or 370:150. Study of political conflict and cooperation in the executive branch, with emphasis on bureaucratic influence in policy-making. Specific attention will be paid to problems of Presidential and Congressional control, internal organization and decision-making, public relations, and state-federal relations.

**370:380. METROPOLITAN POLITICS. 5 credits.**

Prerequisites, 100 or 150 or 210. An examination of the problems emerging from urban and regional complexes in the United States. The structure and processes of political decision-making at this level will be analyzed.

**370:390. INDEPENDENT STUDY. 2-6 credits.**

(May be repeated for a total of 6 credits).

Prerequisite, Senior standing. 3.0 grade point average and adviser's permission.

**370:391. INTERNSHIP IN GOVERNMENT AND POLITICS. 3-5 credits.**

Prerequisite, four courses in Political Science, including 100 or 150, either 210 or 380, and permission of the instructor. Individual placement with political officeholders, party groups, governmental agencies and political interest groups for supervised field experience. Primarily for Political Science majors.

**370:392. HONORS IN POLITICAL SCIENCE. 5 credits.**

Prerequisite, at least 25 credits and a 3.25 average in Political Science and adviser's permission.

**370:395. PROSEMINAR FOR POLITICAL SCIENCE MAJORS. 4 credits.**

Prerequisite, 15 credits in Political Science. Group study and research; discussion of recent trends and developments in Political Science. Required of all majors.

**370:403/503. CONTEMPORARY POLITICAL IDEAS. 5 credits.**

Prerequisite, 303 or permission. An examination of central concepts of political thought from Marx to the present. Modern liberalism, communism, fascism and totalitarianism emphasized.

**370:410/510. INTERNATIONAL LAW. 3 credits.**

Prerequisite, 310 or permission. Established rules, practices and conventions governing the relations of the several nations and their citizens with one another.

**370:415/515. COMPARATIVE FOREIGN POLICY. 3 credits.**

Prerequisite, 310 or 220, or permission. A study of the foreign policies of selected nations, with special attention to

the processes and instruments of decision-making of the major powers.

**370:420/520. PROBLEMS IN COMPARATIVE POLITICS. 3 credits.**

Prerequisite, 200. Comparative studies in depth of various aspects of foreign political systems.

**370:440/540. PUBLIC OPINION AND POLITICAL BEHAVIOR. 5 credits.**

Prerequisite, 340 or permission. The nature and role of public opinion in the political process; historical development, current methods of measurement. The political behavior of the American electorate.

**370:441/541. THE POLICY PROCESS. 3 credits.**

Prerequisite, 12 credits in Political Science. An intensive study of the policy-making process, emphasizing the roles of the various participants in the executive and legislative branches as well as private individuals and groups. The case method will be emphasized.

**370:460/560. THE JUDICIAL PROCESS. 3 credits.**

Prerequisite, 461. The role of judges and courts in the context of the American political process. Special attention is given to the Supreme Court, its politics, personalities and procedures, and to the role of the courts in a democratic political system.

**370:461/561. THE SUPREME COURT AND CONSTITUTIONAL LAW. 5 credits.**

Prerequisite, 100 or 150. The development of the U.S. Constitution as reflected chiefly in Supreme Court decisions; judicial review in the democratic political process. Special emphasis on contemporary civil liberty problems.

**370:470/570. THE ADMINISTRATIVE PROCESS. 3 credits.**

Prerequisite, 370. An intensive analysis of the process and environment of administrative decision-making.

**370:480/580. URBAN POLICY PROBLEMS. 3 credits.**

Prerequisite, 380. An intensive study of selected problems in urban policy.

## GRADUATE COURSES

**370:600. SEMINAR IN POLITICAL THEORY.**

*5 credits.*

Prerequisite, 9 credits of Political Science or permission. Selected topics in Political Theory will be investigated in depth.

**370:610. SEMINAR IN INTERNATIONAL POLITICS.**

*5 credits.*

Prerequisite, 9 credits of Political Science, or permission. Analysis of current problems in the theory and practice of international politics and organization.

**370:620. SEMINAR IN COMPARATIVE POLITICS.**

*5 credits.*

Prerequisite, 9 credits of Political Science, including Political Science 420, or permission. Research on selected topics in Comparative Politics. The comparative method in Political Science.

**370:626. SEMINAR IN POLITICS OF DEVELOPING NATIONS. 5 credits.**

Prerequisite, 9 credits of Political Science, or permission. Selected topics will be investigated in depth. Emphasis on theories of political development.

**370:630. SEMINAR IN NATIONAL POLITICS. 5 credits.**

Prerequisite, 9 credits of Political Science, or permission. Readings and research on the formulation, development

and implementation of national policy in one or more areas of contemporary significance.

**370:640. SEMINAR IN POLITICAL BEHAVIOR.**

*5 credits.*

Prerequisite, 9 credits in Political Science, including 440, or permission. Techniques of quantitative research in Political Science; utility of and limitations of quantitative analysis.

**370:641. SEMINAR IN INTERGOVERNMENTAL RELATIONS.** *5 credits.*

Prerequisite, 9 credits of Political Science, or permission. A graduate level examination of problems resulting from the rapidly changing relations between levels of government in the U.S.; legal, social and political implications; comparisons with other federal systems.

**370:660. SEMINAR IN CIVIL LIBERTIES AND THE JUDICIAL PROCESS.** *5 credits.*

Prerequisite, 9 credits of Political Science, including 460 or permission. Civil liberties and the judicial process are viewed in the political context. Readings and research on selected topics.

**370:670. SEMINAR IN THE ADMINISTRATIVE PROCESS.** *5 credits.*

Prerequisite, 9 credits of Political Science, including 470, or permission. An intensive examination of the administrative implementation of public policies. Readings and research on selected topics.

**370:680. SEMINAR IN URBAN AND REGIONAL POLITICS.** *5 credits.*

Prerequisite, 9 credits of Political Science, including 480, or permission. Focuses on the processes of policy formulation and execution in the modern metropolitan community, with emphasis on a structural-functional context.

**370:690. INDEPENDENT RESEARCH AND READINGS.**

*2-6 credits.* (May be repeated for a total of 6 credits).

Prerequisite, permission.

**370:699. THESIS.** *3-9 credits each.*

## 375: PSYCHOLOGY

**375:141. GENERAL PSYCHOLOGY.** *5 credits.*

Basic facts and principles in the scientific study of behavior.

**375:145. QUANTITATIVE METHODS IN PSYCHOLOGY.** *4 credits.*

Prerequisite, 141. (141 may be taken concurrently.) Presentation of data, descriptive statistics, correlation, hypothesis testing and introduction to quantitative methodologies in psychology.

**375:147. INTRODUCTION TO EXPERIMENTAL PSYCHOLOGY.** *5 credits.*

Prerequisites, 141 and 145. Lectures and readings on problems of experimental evidence, apparatus, controls, observations and experimental designs. Students will conduct and report laboratory experiments, including statistical treatment, to answer standard and original questions, using human and animal subjects.

**375:151. DEVELOPMENTAL PSYCHOLOGY.** *5 credits.*

Prerequisite, 141. The determinates and nature of behavioral changes from conception to death.

**375:160. INDUSTRIAL PSYCHOLOGY.** *4 credits.*

Prerequisite, 141. A survey of the applications of psychology

in industry, business and government. Emphasis will be on understanding workers and the evaluation of their behavior.

**375:310. EXPERIMENTAL PSYCHOLOGY.** *4 credits.*

Prerequisites, 141, 145, 147. Scientific methods and tools of modern experimental psychology; studies in sensory processes, attention, perception and learning.

**375:315. SOCIAL PSYCHOLOGY.** *4 credits.*

Prerequisite, 141. Responses of the individual in relation to group situations and social influences of modern life. Lectures, readings and experiments.

**375:320. PHYSIOLOGICAL PSYCHOLOGY.** *4 credits.*

Prerequisite, 141. The relationship between the behavior of organisms and physiological processes mediating the behavior. Brain structure and function, motivation, etc. Biology 310:191 is desirable as a background.

**375:325. COMPARATIVE PSYCHOLOGY.** *4 credits.*

Prerequisites, 141, 145, 147. An analysis of behavior as a function of species which attempts to provide an understanding of the interaction between such factors as physiology, environment, population density, and social structure in the determination of behavior.

**375:400/500. ABNORMAL PSYCHOLOGY.** *5 credits.*

Prerequisite, 141 and 4 credits in Psychology. Syndromes, etiology, diagnosis and treatment of the major psychopathological conditions ranging from transient maladjustments to the psychoses.

**375:403/503. PERSONALITY.** *4 credits.*

Prerequisite, 141. Consideration of current concepts of the normal personality with emphasis on methods of measurement, experimental findings, and research techniques.

**375:405/505. PSYCHOPATHOLOGY OF CHILDHOOD.** *4 credits.*

Prerequisites, 151, 400. Study of the behavior of deviant children and adolescents.

**375:407/507. PSYCHOLOGICAL TESTS AND MEASUREMENTS.** *4 credits.*

Prerequisites, 141, 145. The nature, proper use and construction of tests and measurements in industry, government and education. Aptitude and achievement tests, rating scales, attitude and opinion analysis.

**375:409/509. INTRODUCTION TO THE CLINICAL METHOD.** *4 credits.*

Prerequisites, 400, 407. A review of tests, interviews and personal history data in human assessment.

**375:412/512. PSYCHOLOGY OF LEARNING.** *4 credits.*

Prerequisite, 141. Problems of conditioning and learning; acquisition of individual responses; reinforcement, drive, frequency, transfer, retention, problem solving. Lectures, readings, and experiments.

**375:417/517. HISTORY OF PSYCHOLOGY.** *4 credits.*

Prerequisite, 141. Psychology in the pre-scientific period and the details of the development of systematic viewpoints in the 19th and 20th centuries.

**375:421. ADVANCED INDUSTRIAL PSYCHOLOGY.** *5 credits.*

Prerequisites, 141, 160 or permission. Application of psychological techniques for resolution of industrial, business and organizational problems.

**375:422. INDEPENDENT READING IN PSYCHOLOGY.** *1-4 credits.*

Prerequisite, Psychology majors only. Departmental permission. Independent reading in an area of psychology under the supervision and evaluation of a selected faculty member.

**375:440-441-442. HONORS SEMINAR IN PSYCHOLOGY.** *3 credits each.*

Sequential; prerequisite, psychology major, Senior standing and permission. 440 — Exploration of research topics and issues in contemporary psychology. Selection of a research topic and survey of relevant literature. 441 — Independent research design and data collection, or independent critical review of research literature or theoretical formulation. 442 — Preparation of Honors Thesis. Submission of work to faculty of department for approval of thesis. Credit for 375:440-441-442 is contingent upon approval of Honors Thesis. Rough draft of thesis must be submitted one month prior to the end of the third quarter.

**375:450/550. ENVIRONMENTAL PSYCHOLOGY.** *4 credits.*

Prerequisite, 141. An attempt will be made to show the connection between some of the major questions that those concerned with environmental management and control are facing and particular problem areas from the study of developmental animal behavior, motivation, learning, etc.

**GRADUATE COURSES****375:601. THESIS-DISSERTATION SEMINAR.***4 credits.*

Prerequisite, permission. Preparation for writing of the thesis and dissertation. Review of professional problems and ethics.

**375:602. ADVANCED PSYCHOLOGICAL STATISTICS I.** *4 credits.*

Prerequisites, 145 or permission. Basic theory of hypothesis testing, chi square, analysis of variance, regression analysis and correlation.

**375:603. ADVANCED PSYCHOLOGICAL STATISTICS II.** *4 credits.*

Prerequisites, 602, 145 or permission. Advanced topics in hypothesis testing and correlational analysis. Survey of selected non-parametric techniques.

**375:605. RESEARCH METHODOLOGY.** *4 credits.*

Prerequisites, 602 and 603. 603 can be taken concurrently. 347:671 and 347:672 can be substituted for 375:602 and 603 respectively. A review of various research techniques reported in the literature. Students will learn how to apply statistics and experimental methodology to solve psychological problems and plan thesis procedures.

**375:608-609. EXPERIMENTAL DEVELOPMENT I, II.** *4 credits each.*

Prerequisites, 151, 412/512 or permission. A probing of the developmental data by means of intensive study of the literature, field observations and experimentation.

**375:610. THE PSYCHOLOGY OF MUSIC.** *3 credits.*

Prerequisites, undergraduate degree in psychology or music, permission of the instructor. A scientific study of music, its performers, and its listeners. Objective, empirical research in support of theory will be stressed in lectures and readings. The conduct and reporting of an experiment will be required.

**375:612. THEORIES OF PERSONALITY.** *4 credits.*

Prerequisites, 403 and 400. Historical consideration of personality. Psychoanalysis and deviations from it. Contemporary theoretical formulations; personality dynamics, structure and organization.

**375:613. THEORIES OF PSYCHOTHERAPY.** *4 credits.*

Prerequisite, 612 or permission. Contemporary theories of psychotherapy including Freudian, Jungian, Adlerian,

Rogerian, and other major systems.

**375:614. EXPERIMENTAL PSYCHOPATHOLOGY.** *4 credits.*

Prerequisites, 400/500 and 612. An approach to the study of abnormal behavior using objective measurements along with a series of pertinent and meaningful behavioral dimensions. Emphasis on experimental studies.

**375:615. PHYSIOLOGICAL PSYCHOLOGY I.** *3 credits.*

A survey of the neuroanatomical and neurophysiological basis of behavior with emphasis on functional analyses of neural mechanisms and behavior.

**375:616. PHYSIOLOGICAL PSYCHOLOGY II.** *3 credits.*

Prerequisite, 615. Detailed treatment of the biochemical and neurophysiological bases of motivated behavior, hormonal and endocrine mechanisms, gene and enzyme systems.

**375:618. GRADUATE SEMINAR IN PSYCHOLOGY.***2-4 credits.*

Prerequisite, 30 graduate credits of psychology. Special topics in the major areas.

**375:619. SURVEY OF PROJECTIVE TECHNIQUES.***3 credits.*

Prerequisites, 400 required or permission of the instructor; 403, 407, 612 recommended. Introduction to the rationale assumptions and ethics of projective testing. Elementary administration, scoring and interpretation of the Rorschach and survey of other important projective instruments.

**375:620. PRACTICUM IN PSYCHOLOGICAL ASSESSMENT AND INTERPRETATION.** *1-3 credits.*

(May be repeated to a total of 9 credits.)

Prerequisites, 20 credits of Graduate Psychology and permission. Supervised work-experience in the application of psychological techniques to human assessments and interpretations.

**375:621. HUMAN LEARNING AND LANGUAGE.***4 credits.*

Prerequisite, 412 or permission. A historical and contemporary review of research and theory in language, verbal learning, transfer, mediation and memory. A research paper on a selected topic will be required.

**375:622. OPERANT CONDITIONING.** *4 credits.*

Prerequisite, 412. A course covering theory and research in operant conditioning. The conduct and reporting of an original experiment may be required.

**375:623. CLASSICAL CONDITIONING.** *4 credits.*

Prerequisite, 412. A course covering theory and research in classical conditioning. The conduct and reporting of an original experiment may be required.

**375:624. COGNITIVE PROCESSES.** *4 credits.*

Prerequisite, 412. Theory and research in thinking, language development, and problem solving. An original project and report may be required.

**375:625. ADVANCED PROJECTIVE TECHNIQUES.***3 credits.*

Prerequisite, 619, plus permission. Application of projective testing to problems of diagnosis and evaluation. Practical experience in administration, scoring and interpretation. Integration of projective data with other assessment techniques in a variety of settings.

**375:626. PRINCIPLES OF INDIVIDUAL INTELLIGENCE TESTING.** *2 credits.*

Prerequisite, instructor's permission required. The theory and standardization procedures for individual tests of intelligence.

**375:627. PRACTICUM IN INDIVIDUAL INTELLIGENCE TESTING.** *3 credits.*

Prerequisite, 626 (may be taken concurrently) and instructor's permission required. Practice in the administration, scoring and interpretation of individual intelligence tests for adults.

**375:628. PRACTICUM IN INDIVIDUAL INTELLIGENCE TESTING IN CHILDREN.** *3 credits.*

Prerequisites, 626 (may be taken concurrently) and instructor's permission required. Practice in the administration, scoring and interpretation of individual intelligence tests for children.

**375:629. PRACTICUM IN INDIVIDUAL INTELLIGENCE TESTING IN PRESCHOOL CHILDREN.** *3 credits.*

Prerequisites, 626 (may be taken concurrently) and instructor's permission required. Practice in the administration, scoring and interpretation of individual intelligence tests for preschool children.

**375:630. ADVANCED GENERAL PSYCHOLOGY.** *4 credits.*

Prerequisites, 145, 147. Selective review of contemporary status in various specialty areas in psychology. Emphasis on current problems, new developments, and changing concepts.

**375:640. EXPERIMENTAL METHODS AND APPARATUS I.** *4 credits.*

Prerequisite, graduate standing. A survey of research techniques and laboratory apparatus, involving review and interpretation of the literature as well as operation of available equipment.

**375:641. EXPERIMENTAL METHODS AND APPARATUS II.** *4 credits.*

Prerequisite, 640. Design of an original experiment, including selection and operation of appropriate apparatus, collection of data, and report of results to the class. Interpretation of data should emphasize influence of methodology and apparatus.

**375:650-651. ENGINEERING PSYCHOLOGY.** *4 credits each.*

Prerequisite, 310 or permission. The techniques employed by human factors engineers. Systems analyses, mission profiles, function and task analyses, time-line and line analyses, work layout and related techniques.

**375:660. THESIS RESEARCH.** *2-6 credits.*

Prerequisite, departmental permission. Research analysis of data and preparation of thesis for the master's degree.

**375:705. COMPUTER TECHNIQUES IN PSYCHOLOGICAL MEASUREMENT.** *3 credits.*

Prerequisites, 602, 347:671, or permission. Information about the computer and its application to research on typical problems in psychology.

**375:706. ADVANCED TESTS AND MEASUREMENTS.** *4 credits.*

Prerequisite, 407 or permission. Advanced techniques in test construction and analysis.

**375:710. THEORIES OF LEARNING.** *4 credits.*

Prerequisite, 412. Empirical evaluation of the bases of major theoretical positions. Lectures, readings and experiments.

**375:711. ACQUISITION OF SKILL.** *4 credits.*

Prerequisite, 412. A review of research concerned with motor learning, the acquisition of manual or non-verbal behavior. The conduct and reporting of an original

experiment may be required.

**375:713. PERCEPTION.** *4 credits.*

Prerequisites, 412/512 or permission. The neural and psychological correlates of behavior in organisms.

**375:714. SENSATION.** *4 credits.*

Prerequisite, 147. Structure and function of peripheral receptor mechanisms with attention to the bases of sensation.

**375:716. COMPARATIVE ANIMAL BEHAVIOR.** *4 credits.*

Prerequisite, permission of instructor. A comparative study of the behavior of organisms emphasizing the interaction between such factors as physiology, environment, population density and social structure.

**375:718. SYSTEMS OF PSYCHOLOGY.** *3 credits.*

Prerequisite, 417/517. Overview of the development of the scientific method. Analysis of special problems confronting modern psychology.

**375:719. SEMINAR IN THE HISTORY OF PSYCHOLOGY.** *3 credits.*

Prerequisite, departmental permission. The consideration of special problems in the history of psychology.

**375:720. EXPERIMENTAL MOTIVATION.** *4 credits.*

Prerequisites, 147, 412 or permission. A broad, experimentally-oriented treatment of motivation emphasizing the evolution and development of current theoretical viewpoints and their empirical bases.

**375:721. INDUSTRIAL MOTIVATION.** *4 credits.*

Prerequisite, 720. Identification, description, analysis and techniques for implementation of intrinsic and extrinsic incentives during work activity.

**375:722. CLINICAL MOTIVATION.** *3 credits.*

Prerequisite, 720. Historical and contemporary survey of motivational theory and research findings as applied in the area of clinical psychology.

**375:723. EXPERIMENTAL SOCIAL PSYCHOLOGY.** *4 credits.*

Prerequisite, 315. An examination of selected theoretical and methodological issues in the study of social perception, group dynamics, inter-group relations and attitude formation and change.

**375:730. SEMINAR IN INDUSTRIAL PSYCHOLOGY.**

*4 credits. (May be repeated for a total of 12 credits.)*

Prerequisites, permission. Intensive evaluation of selected industrial psychology techniques. Techniques include leadership, morale, merit ratings, job evaluation, interviewing, attitude scaling, advertising, and public relations.

**375:733. RESEARCH INDUSTRIAL PSYCHOLOGY.**

*4 credits. (May be repeated for a total of 8 credits.)*

Prerequisite, 602, or 347:671, or permission. Performance of research on problems found in business, industry or governmental agencies.

**375:736. INDEPENDENT READING AND/OR RESEARCH.** *1-4 credits.*

*(May be repeated for a total of 12 credits.)*

Prerequisite, permission. Individual readings and/or research on a topic selected by a student under the supervision of a member of the faculty with whom specific arrangements have been made. Readings or research should not be directly related to a thesis or dissertation which the student will write for an advanced degree.

**375:739. ORGANIZATIONAL PSYCHOLOGY.** *4 credits.*

Prerequisite, permission. Organizational Psychology — The

study of the relationships between organizational characteristics and human behavior.

**375:742. PSYCHOLOGY OF INDUSTRIAL SELECTION.** *4 credits.*

Prerequisite, 602 or 347:671 or permission. Evaluation of techniques employed by psychologists for initial job selection and subsequent promotions. Excludes formal testing.

**375:745. PERFORMANCE EVALUATION.** *4 credits.*

Prerequisite, 602, or 347:671, or permission. The analysis development, and use of objective and subjective criteria in industry for use in performance appraisal, test validation, training and validation of environmental arrangements.

**375:751. PSYCHOLOGY OF TRAINING IN INDUSTRY.** *4 credits.*

Prerequisite, 412 or permission. The nature of industrial training, needs for training, methods of techniques, evaluation of training, training and learning theory.

**375:754. FACTOR ANALYSIS.** *2 credits.*

Prerequisite, 602, or 347:671, or permission. Theory and techniques in indentifying independent variables through the use of factor analysis.

**375:757. NON-PARAMETRICS.** *3 credits.*

Prerequisite, 145 or permission. Theoretical bases and relationships among various nonparametric techniques compared with parametric ones in Psychology.

**375:760. SCALING TECHNIQUES.** *2 credits.*

Prerequisite, 602, or 347:671, or permission. Consideration of scales of measurements, use of curve fitting, psychophysical methods and psychological scaling methods.

**375:763. PSYCHOLOGICAL EXPERIMENTAL DESIGN.** *3 credits.*

Prerequisite, 603, or 347:672, or permission. Theory and application of statistical tests of significance to more complex psychological experimental designs than in 603.

**375:790. DISSERTATION RESEARCH.** *2-20 credits.*

Required minimum 20 credits. Maximum subject to departmental approval — open to properly qualified students. Supervised research on a topic deemed suitable by the dissertation committee.

## 385: SOCIOLOGY

**385:100. INTRODUCTION TO SOCIOLOGY.** *5 credits.*

Basic terminology, concepts, and approaches in Sociology; including an introduction to the analysis of social groups, and the application of sociological concepts to the understanding of social system. Required of majors.

**385:104. SOCIAL PROBLEMS.** *4 credits.*

Prerequisite, 100 or permission. Selected contemporary problems in society examined from the viewpoint of sociological concepts which underline an understanding of social behavior.

**385:304. METHODS OF SOCIAL RESEARCH I.** *4 credits.*

Prerequisite, 100 or permission. A combination lecture and laboratory course requiring at least five laboratory hours per week. Research design, data gathering techniques and statistical procedures. Required of majors.

**385:305. METHODS OF SOCIAL RESEARCH II.** *4 credits.*

Prerequisite, 304. Continuation of 304. Required of majors.

**385:314. CRIMINOLOGY.** *4 credits.*

Prerequisite, 100 or permission. The nature and extent of

types of crime in varied social/cultural settings; the relation of the development of various criminal behavioral systems to the nature of criminal law, law enforcement process, social values, social settings and motivational orientations; the study of the etiologies of criminal behavioral systems.

**385:320. POPULATION.** *4 credits.*

Prerequisite, 100 or permission. Introduction to demographic analysis; the numbers, distribution, characteristics, and trends of U.S. and world population.

**385:321. POPULATION TRENDS AND DEMOGRAPHIC ANALYSIS.** *4 credits.*

Prerequisite, 320 or permission. Analysis of national and world population trends; and examination of the methods of the demographer.

**385:325. THE FAMILY.** *4 credits.*

Prerequisite: 100 or permission. Analysis of the Family as a social system; historical, comparative, and contemporary sociological approaches examined in relation to a family structure and functions.

**385:327. SOCIAL STRATIFICATION.** *4 credits.*

Prerequisite, 100 or permission. A study of the way social rankings occur in societies and how particular rankings affect individual behavior, group relations and social structures.

**385:336. SOCIAL CHANGE.** *4 credits.*

Prerequisite, 100 or permission. Introduction to theories and processes of social change, dimensions of change in contemporary, traditional and urban-industrial societies; projection and prediction of selected trends and forms.

**385:337. SOCIAL MOVEMENTS.** *4 credits.*

Prerequisite, 100 or permission. Social movements distinguished from other forms of collective behavior; analysis of social situations likely to produce social movement; focus upon structure and function of movements and their role in social change.

**385:340. SOCIOLOGICAL READING AND RESEARCH.** *1-4 credits.*

Prerequisite, permission. Individual study of a problem area of specific interest to the individual student under guidance of a department member. Preparation of a research paper.

**385:402/502. SOCIOLOGY OF RELIGION.** *4 credits.*

Prerequisite, 100 or permission. A study of forms of religion and their social functions with an emphasis on Religion in American Society.

**385:414/514. THE HISTORY OF SOCIOLOGICAL THOUGHT.** *4 credits.*

Prerequisite, 100 or permission. A study of the contributions of European and American thinkers to sociological thought. An appraisal of the theorist, his main works, influences on his thinking, and his sociological views. Emphasis on the historical development of the major schools of thought. Required of majors.

**385:415/515. CONTEMPORARY SOCIOLOGICAL THEORIES.** *4 credits.*

Prerequisite, 414 or permission. An examination and critical evaluation of the works of modern sociological theorists. Each is studied in breadth and depth; provides a perspective of the range of problems in the field and suggested approaches. Required of majors.

**385:423/523. JUVENILE DELINQUENCY.** *4 credits.*

Prerequisite, 100 or permission. An analysis of: differences and relationships between social problems, deviancy, adult criminal code, juvenile (delinquent) code, and delinquent

subcultures; the nature, extent and trends of delinquency in various social/cultural settings, motivational orientations and the development process of varied delinquent role formations. The legal processing of juveniles and the etiologies of forms of delinquency.

**385:424/524. PROBATION AND PAROLE.** *4 credits.*

Prerequisites, 314 or 423, or permission. The nature and organization of probation and parole. An examination of current issues and problems; procedures, techniques, and evaluation of outcomes; and new directions in probation and parole work will be undertaken.

**385:425/525. CORRECTIONS.** *4 credits.*

Prerequisites, 314, or 423, or permission. The history and development of corrections; international comparative correctional patterns; current and experimental practices in the U.S.; and issues and evaluation of corrections.

**385:427/527. RACIAL AND CULTURAL INTERGROUP RELATIONS.** *4 credits.*

Prerequisite, 100 or permission. A sociological interpretation of the relationships, between dominant and minority groups. An analysis of minority response patterns, the development of prejudice, discrimination, stereo-types, and ways of coping with inter-group tensions.

**385:428. SUBCULTURE PERSONALITY DEVELOPMENT.** *4 credits.*

Prerequisite, 100 or permission. Thorough study of the consequences of prejudice, discrimination, poverty and total social milieu on the development of personality among minority group members. Emphasis will range from idiosyncratic factors through total social systems of subcultures such as the ghetto, as they interact with the dominant culture.

**385:430/530. SOCIAL STRUCTURES AND PERSONALITY.** *4 credits.*

Prerequisite, 100 or permission. Examination of the interrelationships between position in society and personality characteristics. Personality will be treated as both a result and a determinant of social structure and process.

**385:431/531. SOCIAL INTERACTION.** *4 credits.*

Prerequisite, 100 or 375:141, or permission. An intensive study of advanced theory and research in social-psychology, particularly how social interaction and self-conception affect one another.

**385:432/532. THE SOCIOLOGY OF SOCIALIZATION.** *4 credits.*

Prerequisites, 100 or 375:141, or permission. Theoretical and empirical analyses of the learning and playing of social roles.

**385:433/533. SOCIAL ORGANIZATION.** *4 credits.*

Prerequisite, 9 hours of Departmental credit. The nature of social organization and social control; organizational typologies; theories of organizational structure and functions; analysis of complex organizations in a social system.

**385:434/534. SOCIOLOGY OF LAW.** *4 credits.*

Prerequisite, 9 credits of sociology or permission. A general treatment of the social origins and consequences of law and legal process. Particular emphasis is placed on problems of law and social change and on the structure and functioning of legal sanctions. Some attention is paid to law and law-like phenomena in formal organizations and primitive societies.

**385:435/535. SOCIOLOGY OF URBANIZATION.**

*4 credits.*

Prerequisite, 100 or permission. A study of the implications of growing density and nucleation of population on attitudes, social structures and social change.

**385:436/536. SOCIOLOGY OF EDUCATION.** *4 credits.*

Prerequisite, 100, or permission. The sociological analysis of education as a social institution and social system, emphasizing the contributions of the major contemporary sociological theoretical viewpoints; structural-functionalism, symbolic interactionism, and conflict theory.

**385:438/538. INDUSTRIAL SOCIOLOGY.** *4 credits.*

Prerequisite, 9 credits of sociology or Industrial Management. Comparison of formal and informal structures in industrial organizations; analysis of work roles and status systems; communication processes; relation of work plant to community and society.

**385:440/540. URBAN RESEARCH METHODS I.**

*4 credits.*

Prerequisite, competence in elementary statistics. Special problems and social research in urban areas, emphasis on problems of stratification, and social problems. Includes advanced statistical techniques and computer usage.

**385:441/541. URBAN RESEARCH METHODS II.**

*4 credits.*

Prerequisite, 440. A continuation of 440.

**385:442/542. COMPUTER APPLICATIONS IN SOCIAL SCIENCE.** *4 credits.*

Prerequisites, 304 and 305 or permission. Elementary Fortran programming for social science research application; preparation, storage and processing of data; use of stored program libraries and review of selected other applications such as simulation models and data banks.

## GRADUATE COURSES

**385:600. SOCIOLOGICAL RESEARCH METHODS.**

*4 credits.*

Advanced research methods including advanced statistical techniques.

**385:601. SEMINAR IN SOCIAL RESEARCH DESIGN.**

*4 credits.*

An intensive analysis of problems in a research design similar to those which will be encountered in the preparation of a master's thesis.

**385:602. SEMINAR IN THEORY AND MEASUREMENT OF SOCIAL ATTITUDES.** *4 credits.*

Prerequisite, 600 and 601, or permission. Theories of social attitudes and techniques for their measurement.

**385:603. SEMINAR IN SOCIOLOGICAL THEORY CONSTRUCTION.** *4 credits.*

An intensive study of techniques, rules, and methods for constructing scientific theory. The emphasis is upon the development of theories appropriate to the problems of sociological investigation. The writings of both social and physical scientists are studied in this regard, with a consideration of what philosophers of science have contributed.

**385:604. SEMINAR IN SOCIOLOGICAL ANALYSIS.**

*4 credits.*

A concentrated and accelerated introduction to the logic, methodologies, theories, terminology, substantive findings, fields and applications of sociology. This course serves two functions. It is required for all students with inadequate

background in sociology who will take other graduate courses in sociology. It is recommended as an elective to any graduate student who would strengthen his understanding of general sociology.

**385:606. SOCIOLOGY OF WORK.** *3 credits.*

An examination of work as a behavioral phenomenon in human societies; contrasts with nonwork and leisure; significance of occupations, professions, and work types in organization of work.

**385:609. SEMINAR IN SMALL GROUP THEORY.** *4 credits.*

Prerequisite, permission. Theory of small group relationships and discussion of empirical findings about primary groups.

**385:610. SEMINAR IN SMALL GROUP RESEARCH TECHNIQUES.** *4 credits.*

Prerequisite, 609. Application and implications of techniques of laboratory research in small groups.

**385:611. SEMINAR IN PERSONALITY AND SOCIAL SYSTEMS.** *4 credits.*

Advanced study of theory and research on the interaction of personality systems and social systems. Emphasis will be on the dynamics of the interaction and their direct effects upon both personality and social systems.

**385:612. SOCIOLOGY OF COMMUNICATION.** *3 credits.*

Examination of communication media, content, audiences, and impact within a sociological context.

**385:614. SEMINAR IN SOCIOLOGICAL THEORY.** *4 credits.*

An examination of major theoretical frameworks and concepts that form the foundation of sociological thought. Emphasis placed on classic works and their implications for contemporary sociological theory.

**385:616. SOCIAL CHANGE.** *4 credits.*

An advanced seminar in the theories of social change.

**385:617. RESEARCH IN SOCIAL CHANGE.** *2 credits.*

Prerequisite, 616. A continuation of 616. The student will prepare a major research paper based on the theoretical material covered in 616 and present it for discussion to the seminar.

**385:620. POPULATION THEORY.** *4 credits.*

Prerequisite, 320 or permission. The field of demography; the historical development of population theory; contemporary theories and their application to existing trends in the nation and world. Relation of population theory to other aspects of society.

**385:624. FAMILY STRUCTURE AND THEORY.** *3 credits.*

Prerequisite, 404 or permission. Analysis of actual and theoretical patterns of family systems; current research in family in relation to theories of the family and theories of social systems.

**385:628. SEMINAR IN RACE RELATIONS.** *4 credits.*

Prerequisite, graduate standing. An examination of race relations from the standpoint of theory and empirical research. Material will be drawn from a broad range of sources to provide an assessment of race relations as a world issue. Particular emphasis will be given to the relationship between social structure and the development of particular patterns of race relations.

**385:630. THE SOCIOLOGY OF POLITICAL BEHAVIOR.** *4 credits.*

Description, analysis, and interpretation of political behavior through the application of sociological concepts.

**385:633. SEMINAR IN URBAN SOCIOLOGY.** *4 credits.*

An in-depth analysis of concepts of urbanism and the theoretical frameworks in which they have been utilized from classic to contemporary periods; review of major contributions to the empirical analysis of urban life and to the establishment of program of urban regeneration.

**385:635. READINGS IN CONTEMPORARY SOCIOLOGICAL LITERATURE.** *1-4 credits.*

Prerequisite, 10 credits of Sociology and permission. Intensive reading and interpretation of written material in the student's chosen field of interest. Regular conferences with instructor. May be taken more than once.

**385:638. SEMINAR IN THE SOCIOLOGY OF DEVIANCE.** *4 credits.*

Prerequisite, 8 credits of graduate sociology, or permission. An examination of nature, types, and controls of deviance; and the analysis of conceptual levels, theoretical contributions, processes in social labeling and self-labeling, case studies, social consequences, and problems and issues of theory and research in the sociology of deviance.

**385:640. SEMINAR IN CRIMINOLOGY AND JUVENILE DELINQUENCY.** *4 credits.*

Analysis and evaluation of problems in criminological research; issues and problems in the development of criminal law and the process of selection and treatment of offenders; and the relationship of criminal and delinquent behavioral systems, as forms of socially deviant behavior, to social/cultural standards. An emphasis is placed on contemporary theories.

**385:645. SEMINAR IN CONTEMPORARY SOCIAL ISSUES.** *2-4 credits.*

Prerequisite, permission. Analysis of current theory and research related to significant contemporary social issues. Topics and credit variable. See class schedule for quarter in which seminar is offered.

**385:646. FAMILY INTERACTION.** *4 credits.*

This course will focus on treating the family as "a unity of interacting personalities." After exploring the various conceptual frameworks through which family sociology can be approached, it will concentrate on symbolic interactionism. Socialization within the family and for family roles will be viewed within a life cycle perspective, from early years of marriage, through parenthood and child socialization, to post-parental years.

**385:647. SEMINAR IN THE SOCIOLOGY OF EDUCATION.** *4 credits.*

Prerequisite, permission. Selected problems in the sociological analysis of educational systems. Emphasis on contemporary research on family, social stratification and race as determinants of learning, on school contexts and subcultures and on the dynamics of school and classroom as social systems.

**385:650. THESIS.** *2-8 credits.*

(May be repeated for a total of 8 credits.)

Prerequisite, permission. Supervised thesis writing.

388: SOCIOLOGY —  
JOINT DOCTORAL PROGRAM  
GRADUATE COURSES

**388:607. SOCIOLOGICAL THEORY CONSTRUCTION.** *4 credits.*

An intensive study of techniques, rules, and methods for constructing scientific theory. The emphasis is upon the development of theories appropriate to the problems of sociological

investigation. The writings of both social and physical scientists are studied in this regard, with a consideration of what philosophers of science have contributed. (Same as 385:603 and KSU 72107).

**388:608. SEMINAR IN SOCIOLOGICAL THEORY.**

*4 credits.*

An examination of major theoretical frameworks and concepts that form the foundation of sociological thought. Emphasis is placed on classic works and their implications for contemporary sociological theory. (Same as 385:614 and KSU 72106).

**388:610. QUANTITATIVE TECHNIQUES.** *4 credits.*

Prerequisite, permission. Advanced research methods including advanced statistical techniques. (Same as KSU 72210).

**388:611. SOCIOLOGICAL RESEARCH METHODS.**

*4 credits.*

Advanced research methods including advanced statistical techniques. (Same as 385:600 and KSU 72211).

**388:612. RESEARCH DESIGN.** *4 credits.*

An intensive analysis of problems in a research design similar to those which will be encountered in the preparation of a master's thesis. (Same as 385:601 and KSU 72212).

**388:613. THEORY AND MEASUREMENT OF SOCIAL ATTITUDES.** *4 credits.*

Prerequisite, 611 and 612 or permission. Theories of social attitudes and techniques for their measurement (Same as 385:602 and KSU 72213).

**388:614. COMPUTER APPLICATIONS IN SOCIAL SCIENCES.** *4 credits.*

Prerequisite, elementary statistics course or permission of instructor. An introduction to computers and their applications in the social sciences. (Same as KSU 72214).

**388:620. SOCIAL CHANGE.** *4 credits.*

An advanced seminar in the theories of social change. (Same as 385:616 and KSU 72320).

**388:621. RESEARCH IN SOCIAL CHANGE.** *2 credits.*

Prerequisite, 620. A continuation of 620. The student will prepare a major research paper based on the theoretical material covered in 388:620 and present it for discussion to the seminar. (Same as 385:617 and KSU 72321).

**388:630. SOCIAL PSYCHOLOGY.** *4 credits.*

An intensive examination of social psychological theory and research, both classic and contemporary. Provides students with a background and working knowledge of the social psychological aspects of social phenomena. (Same as KSU 72430).

**388:631. RESEARCH IN SOCIAL PSYCHOLOGY.** *2 credits.*

Prerequisite, 630. The design and development of a research project oriented to empirically examining selected concepts in social psychology or to testing selected propositions in social psychology. (Same as KSU 72431).

**388:632. SMALL GROUPS ANALYSIS.** *4 credits.*

Prerequisite, permission. Theory of small group relationships and discussion of empirical findings about primary groups. (Same as 385:609 and KSU 72432).

**388:633. PERSONALITY AND SOCIAL SYSTEMS.**

*4 credits.*

Advanced study of theory and research on the interaction of personality systems and social systems. Emphasis will be on the dynamics of the interaction and their direct effects upon both personality and social systems. (Same as 385:611 and KSU 72433).

**388:634. SOCIOLOGY OF COMMUNICATION.**

*3 credits.*

Examination of communication media, content, audiences, and impact within a sociological context. (Same as 385:612 and KSU 72434).

**388:640. SOCIAL ORGANIZATION.** *4 credits.*

An in-depth treatment of theories of social organization and their applications at both the micro and macro levels including bureaucracy, complex organizations, social control and power relations in organizations and societies. Special emphasis is placed on the various structuring components and their interrelationships as treated by contemporary theoretical schools. (Same as KSU 72540).

**388:641. RESEARCH IN SOCIAL ORGANIZATION.**

*2 credits.*

Prerequisite, 640. The design and development of a research project oriented to empirically examining selected concepts in social organization or to testing selected propositions in social organization. (Same as KSU 72541).

**388:642. SOCIOLOGY OF WORK.** *3 credits.*

An examination of work as a behavioral phenomenon in human societies; contrasts with nonwork and leisure; significance of occupations, professions and work types in organization of work. (Same as 385:606 and KSU 72542).

**388:643. FAMILY STRUCTURE AND THEORY.**

*3 credits.*

Prerequisite, 385:404 or permission. Analysis of actual and theoretical patterns of family systems. Current research in family in relation to the theories of the family and theories of social systems. (Same as 385:624 and KSU 72543).

**388:644. POLITICAL SOCIOLOGY.** *4 credits.*

Description, analysis, and interpretation of political behavior through the application of sociological concepts. (Same as 385:630 and KSU 72544).

**388:645. COMPLEX ORGANIZATIONS.** *4 credits.*

Prerequisite, permission. Organizations as social systems; their effect on individuals. Problems of professionals in bureaucracies. (Same as KSU 72545).

**388:646. SOCIAL STRATIFICATION.** *4 credits.*

Prerequisite, permission. Seminar dealing with social class and castes with special reference to the American social structure. (Same as KSU 72546).

**388:650. FAMILY INTERACTION.** *4 credits.*

This course will focus on treating the family as "a unity of interacting personalities." After exploring the various conceptual frameworks through which family sociology can be approached, it will concentrate on symbolic interactionism. Socialization within the family and for family roles will be viewed within a life cycle perspective, from early years of marriage, through parenthood and child socialization, to post-parental years. (Same as 385:646).

**388:651. SOCIOLOGY OF EDUCATION. 4 credits.**

Prerequisite, permission. Selected problems in the sociological analysis of educational systems. Emphasis on contemporary research on family, social stratification and race as determinants of learning, on school contexts and subcultures and on the dynamics of school and classroom as social systems. (Same as 385:647 and KSU 72547).

**388:655. HUMAN ECOLOGY. 4 credits.**

Selected problems in the sociological analysis of interactions between physical environments and human behavior. Emphasis on social institutions and environmental design, theories of urban form, environmental and physical constraints upon urban dynamics, social area analysis, and theories of residential differentiation. (Same as KSU 72650).

**388:656. RESEARCH IN HUMAN ECOLOGY. 2 credits.**

Prerequisite, 655. Intensive research on a selected aspect of human ecology by individual students with previous training in this area. Topic to be arranged between student and instructor. (Same as KSU 72651).

**388:657. URBAN SOCIOLOGY. 4 credits.**

An in-depth analysis of concepts of urbanism and theoretical frameworks in which they have been utilized from classic to contemporary periods, review of major contributions to the empirical analysis of urban life and to the establishment of programs of urban regeneration. (Same as 385:633 and KSU 72652).

**388:660. RESEARCH IN COMMUNITY AND AREA PROBLEMS. 4 credits.**

Prerequisite, permission. Special investigation of community, area, or regional problems; design and execution of small projects. (Same as KSU 72655).

**388:661. POPULATION. 4 credits.**

The field of demography; the historical development of population theory; contemporary theories and their application to existing trends in the nation and the world. Relation of population theory to other aspects of society. (Same as 385:620 and KSY 72656).

**388:665. DEVIANCE AND DISORGANIZATION. 4 credits.**

An examination of nature, types, and controls of deviance; and the analysis of conceptual levels, theoretical contributions, processes in social labeling and self-labeling, case studies, social consequences, and problems and issues of theory and research in the sociology of deviance. (Same as 385:638 and KSU 72760).

**388:666. RESEARCH IN DEVIANCE AND DISORGANIZATION. 2 credits.**

Prerequisite, 665. This course provides for an analysis of research problems in deviance and disorganization and for the development of a research project in the above area. (Same as KSU 72761).

**388:667. JUVENILE DELINQUENCY: THEORY AND RESEARCH. 4 credits.**

Prerequisite, permission. An analysis of theories of delinquency; ecological, class structural, subcultural, etc. A review of relevant research also presented. (Same as KSU 72762).

**388:668. SOCIOLOGY OF CRIMINAL BEHAVIOR. 4 credits.**

Analysis and evaluation of problems in criminological research; issues and problems in the development of criminal law and the process of selection and treatment of offenders; and the relationship of criminal and delinquent behavioral systems, as forms of socially deviant behavior, to social/cultural standards. An emphasis is placed on contemporary theories. (Same as 385:640 and KSU 72763).

**388:669. SOCIOLOGY OF CORRECTIONS. 4 credits.**

Prerequisite, permission. An analysis of the correctional institution as a social system; its formal structure and informal dynamics. Analysis of the present state of corrections research. (Same as KSU 72764).

**388:680. RACE RELATIONS. 4 credits.**

Prerequisite, graduate standing. An examination of race relations from the standpoint of theory and empirical research. Material will be drawn from a broad range of sources to provide an assessment of race relations as a world issue. Particular emphasis will be given to the relationship between social structure and the development of particular patterns of race relations. (Same as 385:628 and KSU 72870).

**388:681. THE AFRO-AMERICAN. 4 credits.**

Prerequisite, permission. Seminar in the culture of the Black American. (Same as KSU 72871).

**388:682. RESEARCH SEMINAR IN BLACK STUDIES. 4 credits.**

Prerequisite, permission. A joint, interdisciplinary, history and sociology research seminar, focusing on selected aspects of the life of the black community. (Same as KSU 72872).

**388:685. CONFLICT. 4 credits.**

Prerequisite, permission. Current conceptions of human conflict. Discussion of vital concepts and principles for understanding conflict phenomena. Power, values, ideology, riots, revolution and war. (Same as KSU 72875).

**388:686. CRITIQUE OF MASS COMMUNICATIONS RESEARCH. 4 credits.**

Prerequisite, permission. The systematic evaluation of theoretical, methodological and empirical aspects of significant studies of mass communication. (Same as KSU 72876).

**388:687. SOCIAL GERONTOLOGY. 4 credits.**

Prerequisite, permission. The impact of aging upon individuals and the society. The reactions of individuals and society to aging. (Same as KSU 72877).

**388:692, 693, 694. INDIVIDUAL INVESTIGATION. 3-5 credits.**

Prerequisites, one quarter of graduate work, permission of the instructor and the Director of Graduate Education. Readings and/or research supervised by a member of the graduate faculty. (Same as KSU 72896).

**388:703. ADVANCED CONCEPTUAL ANALYSIS. 4 credits.**

A critical examination of those concepts held fundamental and widely used in sociological diagnoses. Evaluation of these concepts from logical, semantical and operational perspectives. Assessment of the utility of these concepts to the

development of sociological theories. (Same as KSU 82106).

**388:705. GENERAL SYSTEMS THEORY.** 4 credits.  
Prerequisite, 607. An analysis of general systems theory as the basis for a model of society and as a heuristic framework for theory and research. (Same as KSU 82107).

**388:709. SPECIAL TOPICS IN SOCIOLOGICAL THEORY.** 2-4 credits.  
An open course to cover a content area not readily subsumable under other headings. Content of the course to be determined by the instructor. (Same as KSU 82109).

**388:719. ADVANCED TECHNIQUES IN RESEARCH.** 2-4 credits.  
Prerequisite, permission. Selected topics in advanced, multivariate statistical analysis and in strategies of sociological research. Emphasis on current trends and innovations in research techniques. (Same as KSU 82119).

**388:729. CONTEMPORARY ISSUES IN SOCIAL CHANGE.** 2-4 credits.  
Prerequisite, 620 or permission. A special subject seminar focusing on current research and theory related to significant contemporary issues, or to recent advances in the study of social change. Course content will vary each quarter and will be reported sufficiently in advance of each offering. (Same as KSU 82329).

**388:739. CONTEMPORARY TRENDS IN SOCIAL PSYCHOLOGY.** 2-4 credits.  
Prerequisite, permission. A special subject seminar focusing on an analysis of current social psychological theory and research related to significant contemporary issues, or to theoretical and methodological development of the field. Course content and focus will vary for each quarter in which it is offered. Sufficient advanced notice on content will be provided. (Same as KSU 82439).

**388:749. SPECIAL TOPICS IN SOCIAL ORGANIZATION.** 2-4 credits  
An open course to cover a content area not readily subsumable under other headings. Content of the course to be determined by the instructor. (Same as KSU 82549).

**388:764. ISSUES IN URBAN ANALYSIS.** 2-4 credits.  
A special topics seminar designed to allow the content to vary according to the interests and needs of both faculty and students. Current and special interests in urban process will be dealt with. (Same as KSU 82659).

**388:765. SPECIAL TOPICS IN DEVIANCE AND DISORGANIZATION.** 2-4 credits.  
Designed to meet the needs of students with interests in selected topics in deviance and disorganization. (Same as KSU 82769).

**388:899. DISSERTATION.** 1-15 credits.  
Dissertation. Must be repeated for a minimum of 45 credits. (Same as KSU 82899).

## 386: SOCIAL WORK

**386:270. POVERTY IN THE INNER CITY.** 4 credits.  
For persons wishing to understand and/or intending to work in inner city and other poverty areas of the U.S. — a survey.

This course does not meet requirements for Sociology majors.

**386:276. INTRODUCTION TO SOCIAL WELFARE.** 5 credits.  
Prerequisite, 385:100 or permission. Survey of the field of Social Welfare with special emphasis on the place of social work in the welfare system. Introduction of concepts relative to the place of welfare in our society and an examination of welfare as a social institution.

**386:373. METHODS AND CONCEPTS OF SOCIAL WORK.** 5 credits.  
Prerequisite, 276 or permission. Analysis of the methods and concepts utilized in contemporary practice in the various fields of social work.

**386:476. FIELD EXPERIENCE IN A SOCIAL AGENCY.** 3-12 credits. (3 credits minimum and 12 credits maximum — total in consecutive quarters only.)

Corequisite, 477; prerequisite, 373 or permission. Individual placement in selected community and social service agencies for supervised experience in casework, group work, community organization, corrections and similar fields. Student must enroll in 477 concurrently. Student must register intent and receive permission to take the course with the course instructor during the quarter prior to enrollment. Primarily for senior majors. Required for social work certification.

**386:477. FIELD EXPERIENCE SEMINAR.** 2 credits.  
Corequisite, 476; prerequisite, 373 or permission. Careful examination of the integration of academic and methodological studies into professional practice. Required in any quarter for which a student is enrolled in 476. Not open to others.

**386:485/585. COMMUNITY ORGANIZATION.** 4 credits.  
Prerequisite, permission. An examination of community organization as a social work process. Students learn to assess problems and project program to meet them.

## GRADUATE COURSES

**386:673. SEMINAR IN SOCIAL WORK METHODOLOGY.** 4 credits.  
An examination of the concepts and methods utilized in contemporary social work practice.

## 387: ANTHROPOLOGY

**387:150. CULTURAL ANTHROPOLOGY.** 5 credits.  
Structural and functional analysis of the concept and phenomenon of culture in general; comparative study of the social organization, material implements, world-view and ethos of contemporary non-literate groups seen in the process of rapid acculturational change.

**387:151. PHYSICAL ANTHROPOLOGY.** 4 credits.  
Study of protohuman and early human paleontology and comparative anatomy of the primates; evolutionary differentiation of Homo Sapiens as a single, polymorphous species into racial variations and their current sociocultural significance; Paleolithic, Neolithic and protohistorical archeology, including the emergence of agriculture and urbanization in the old and new worlds; and the evolution and structure of language as man's fundamental system of symbols.

**387:256. NEW WORLD PREHISTORY.** 4 credits.  
Prerequisites, 150 or 385:100, or permission. A survey of the

prehistoric cultures of North, Middle, and South America; beginning with the peopling of the Western Hemisphere and ending with European contact.

**387:257. INDIANS OF SOUTH AMERICA.** 4 credits.

Prerequisites, 150 or 385:100, or permission. A survey of the aboriginal peoples of South America, with emphasis on culture areas and continuity of culture patterns.

**387:357. MAGIC, MYTH AND RELIGION.** 4 credits.

Prerequisite, 150 or 385:100. Evolutionary transformations of magic and ritual into science and technology. Examination of animism, totemism, and other forms of preliterate religions. Mana, taboo, and other religious and social symbols.

**387:455/555. CULTURE AND PERSONALITY.** 4 credits.

Prerequisites, 150 or permission. A cross-cultural study of the roles and relationships of individual potentials and socio-cultural norms, socialization, and primary groups in the formation of the basic structures of modal and deviant personalities.

**387:459/559. FACTS AND VALUES IN CULTURE.**

4 credits.

Prerequisites, 150 or permission. An examination of the independence, ambiguity, and relativity of facts and values from a cultural point of view. Subjective and objective components of the distinction between factual judgments and value judgments. Evaluation of cultural relativism.

**387:461/561. LANGUAGE AND CULTURE.** 4 credits.

Prerequisite, 150 or permission. Language as a sub-system of culture in relation to language as a whole. The study of language and culture versus language in culture, as different approaches to their interdependence and interaction.

**387:463/563. TYPES OF KINSHIP AND SOCIAL ORGANIZATION.** 4 credits.

Prerequisites, 150 or permission. A comparative structural analysis of non-western systems of kinship and social organization in terms of status, role, reciprocal expectation, nomenclature, nuclear and extended households, and other kinship groupings.

## GRADUATE COURSES

**387:651. SEMINAR IN ANTHROPOLOGICAL THEORIES AND METHODS.** 4 credits.

Major theoretical viewpoints in cultural anthropology. Nature and scope of research problems in anthropology. Survey of methods in field work.

## 394: POLYMER SCIENCE

**394:401. INTRODUCTION TO APPLIED POLYMER SCIENCE.** 2 credits.

Lectures and laboratory. Prerequisite, one year of organic chemistry, or permission. The use of coal and petroleum products as raw materials for the polymer industry is discussed. Typical industrial processes are described, and the preparation, and properties of both natural, and synthetic polymers are outlined, and supplemented with suitable laboratory experiments.

**394:402. INTRODUCTION TO ELASTOMERS.** 2 credits.

Lectures and laboratory. Prerequisite, 401 or permission. The history and preparation of natural rubber are discussed. The methods utilized for the production of all synthetic rubbers are outlined. Typical laboratory experiments are included to show the effects of

compounding, processing, vulcanization, and testing on rubber products.

**394:403. INTRODUCTION TO PLASTICS.** 2 credits.

Lectures and laboratory. Prerequisite, 401 or permission. The plastics industry and its manufacturing methods are discussed. Plastics compounding for both thermoplastic and thermosetting materials is discussed with emphasis on processing and testing illustrated by typical laboratory experiments.

**394:407. POLYMER SCIENCE.** 3 credits. (2-3).

Prerequisite, 315:314, or 365:301, or 420:305, or permission. The principles of polymerization processes and the relationships between molecular structures and physical behavior of polymers are dealt with.

**394:408. POLYMER SCIENCE.** 3 credits.

Prerequisite, 315:112 or 128 or 133, or permission. The topic of molecular weight distributions of macro-molecules is discussed along with the methods of the determination of molecular weights. In addition, the relationships between the physical behavior of polymers and their molecular structure is discussed.

**394:411/511-412/512-413/513. MOLECULAR STRUCTURE AND PHYSICAL PROPERTIES OF POLYMERS I, II, AND III.** 3 credits each.

Prerequisite, 401 or 402 or 403 or permission. This is an interdisciplinary course in which the principles of chemistry and physics are brought to bear on the relationships between the molecular structure and chemical composition of macromolecules and their physical properties. The theories concerning physical properties of elastomers, amorphous and crystalline plastics as well as melts are presented. The principal experimental techniques to determine the physical properties of polymers will be outlined. The dependence of structure and morphology on previous thermodynamic histories will be discussed as well. Lecture and Laboratory.

**394:414-415-416. SEMINAR IN POLYMER SCIENCE.**

1 credit each

New and unsolved problems of polymer science will be discussed from the interdisciplinary view of materials science and students will prepare at least one formal technical presentation during the year.

## GRADUATE COURSES

**394:604-605. SPECIAL PROJECTS IN POLYMER SCIENCE.** 1-5 credits. (May be repeated for a maximum of 5 credits for both courses.)

Prerequisite, permission. Individual research projects of a limited character, intended to be completed within one quarter, will be assigned to students entering the Polymer Science program, under the supervision of a faculty member. These are intended to familiarize the student with typical problems and techniques in this field and to prepare him for his thesis research.

**394:610. INORGANIC POLYMERS.** 2 credits.

Prerequisite, 315:472/572 or 601, 602 or permission. This course is a survey course that is designed to broaden the outlook of the typical Department of Polymer Science graduate student beyond the chemistry and physics of carbon-chains. It is designed to show that there is no all-encompassing polymerization theory that can explain either the chemical formation or the constitution and structure of inorganic polymers.

**394:691. MASTER'S RESEARCH.** 1-9 credits.

Prerequisite, permission. For properly qualified candidates

for master's degree. Supervised original research in polymer science, under the direction of a faculty member, followed by submission of a thesis.

**394:701-702-703. POLYMER TECHNOLOGY.**

*3 credits each.*

Prerequisite, permission. A study of the basic principles and methods involved in the technology of polymeric materials, with special emphasis on rubber and plastics, and including the processing, compounding and finishing operations to which these materials are subjected.

**394:708-709-710. MACROMOLECULAR CHAIN STRUCTURE.**

*3 credits each.*

Prerequisites, either 315:314 or 365:301 or 420:305, or permission. This course is an interdisciplinary course on the chain-like structure of large molecules. The fundamental theories of chemical conformation and statistical mechanics must be developed to a sufficient degree that their application to polymeric problems can be discussed thoroughly. The experimental techniques used in the elucidation of chain structures are also discussed in detail.

**394:711-712. SPECIAL TOPICS IN POLYMER SCIENCE.**

*2 credits each.*

Prerequisite, permission. Study of topical subjects of current interest in Polymer Science, encompassing the chemistry, physics or engineering aspects of macromolecular substances, and including laboratory work where applicable. Lectures and/or laboratory.

**394:713. CHAIN STRUCTURE LABORATORY.**

*2, 3, or 4 credits.*

Prerequisites, either 315:314 or 365:301 or 420:305, or permission; prerequisite or co-requisite, 394:708. This laboratory is intended to apply the principles discussed in course 710 to the laboratory determination of polymer structure.

**394:791. DOCTORAL RESEARCH IN POLYMER SCIENCE.**

*2-24 credits.*

Open to properly qualified students accepted as candidates for the degree of Doctor of Philosophy in Polymer Science. At the present time, supervised original research may be undertaken in the fields of the chemistry, physics or engineering aspects of Polymer Science, depending on availability of staff and facilities.

## 398: URBAN STUDIES

### GRADUATE COURSES

**398:600. URBAN SCIENCE.**

*4 credits.*

Prerequisite, permission. A study of approaches used in the various disciplines in the study of urban area and region. This course is required of all students entering the urban studies program.

**398:601. FISCAL PROBLEMS AND POLICIES OF URBAN DEVELOPMENT.**

*3 credits.*

Prerequisite, permission. A study of the fiscal resources and potentials of an urban community and the limitations to urban fiscal planning.

**398:602. ECONOMIC IMPLICATIONS OF URBAN GROWTH.**

*3 credits.*

Prerequisite, permission. An examination of the urban economic unit and its susceptibility to social, economic, political and physical change.

**398:604. COMPARATIVE URBAN STUDIES.**

*4 credits.*

Prerequisite, permission. This course is designed to review conceptual schemes and methodology for comparative urban analysis and to examine selected urban areas among different countries in the following respects: pattern of urbanization, problems and challenges generated by urbanization, and public and private institutions and their measures developed and employed to meet the surging urban challenge. The study areas shall include a number of major cities selected from each continent for which sufficient scholarly publication in the English language is available.

**398:605. SEMINAR IN NATIONAL URBAN POLICY.**

*4 credits.*

Major federal policies which are primarily designed to solve urban problems will be systematically examined in such aspects as the background of policy developments, policy making processes, policy implementations and policy impact.

**398:610. SEMINAR IN AMERICAN URBAN DEVELOPMENT.**

*4 credits.*

An examination of the major literature on the processes of urbanization in the United States, and selected facets of urban institutional development.

**398:611. POLITICS IN URBAN AREAS.**

*3 credits.*

Prerequisite, permission. An empirical analysis of urban political structure and processes, and major political problems.

**398:612. ADMINISTRATION OF URBAN GOVERNMENT.**

*3 credits.*

Prerequisite, permission. The organization and management characteristics of various types of government entities in urban areas. Municipal and county governments, and special districts will be examined within the framework of organization and management theory.

**398:620. SOCIAL ORGANIZATION AND STRUCTURE OF THE URBAN AREA.**

*3 credits.*

Prerequisite, permission. An examination of the social organization and the functional implications of social change and disorganization.

**398:621. SOCIAL SERVICES PLANNING IN AN URBAN SOCIETY.**

*3 credits.*

Prerequisite, permission. An in-depth analysis of the total social services requirements and the various ways in which the social services planning function is carried out in urban communities.

**398:631. URBAN FACILITIES PLANNING.**

*3 credits.*

Prerequisite, permission. A study of the approaches to urban facilities planning — the need, process and limitation.

**398:632. PLANNING AND URBAN RENEWAL IN THE URBAN REGION.**

*4 credits.*

Prerequisite, permission. An in-depth examination of the types, forms, approaches and nature of urban planning at various levels and a critical appraisal of the impact of urban renewal.

**398:640. URBAN STUDIES SEMINAR.**

*3 credits.*

Prerequisite, 15 credits of Urban Studies core curriculum and 3 of approved advanced statistics or permission. Advanced urban research methods and techniques applied to a specific urban area. A comprehensive research paper is required.

**398:641. QUANTITATIVE METHOD OF URBAN REGIONAL ANALYSIS.**

*4 credits.*

Prerequisite, permission. The application of quantitative methods to urban and regional research. An interdis-

ciplinary consideration of techniques of population projection, migration estimation, regional income and social accounting, interregional flow analysis and urban cycle and multiplier analysis.

**398:644. SEMINAR IN URBAN RESEARCH DESIGN.**  
*4 credits.*

Prerequisite, 641 or equivalent and the completion of eight credits of core curriculum or permission. This course will emphasize advanced work in problem of definition, conceptual logic of urban research, sampling, questionnaire design, planning report development and writing, and advanced quantitative procedures.

**398:650-651. SELECTED TOPICS IN URBAN PLANNING.** *4 credits each.*

Prerequisite, by permission. A comprehensive analysis on the micro and macro level of selected topics in specific areas of Urban Planning Topics may include urban design, housing or other areas related to planning.

**398:652-653. SELECTED TOPICS IN URBAN DEVELOPMENT.** *4 credits each.*

Prerequisite, by permission. An analysis of selected topics in the processes and forms of the development of cities. Selected topics will be drawn from the economic, political, social and cultural development of cities and will concentrate on one or more urban institutions.

**398:654-655. SELECTED TOPICS IN URBAN POLICY AND ADMINISTRATION.** *4 credits each.*

Prerequisite, by permission. A consideration of issues

surrounding specific urban policy. Selected topics may include public welfare, intergovernmental financial aid, or other appropriate policy issues.

**398:670. SEMINAR ON INNOVATIVE ASPECTS OF NEW COMMUNITIES.** *3 credits.*

Prerequisite, permission. A study of the development of utopian communities and "new towns" and their social, political and economic implications for urban development.

**398:671. SEMINAR IN TECHNOLOGY, SCIENCE AND THE URBAN ENVIRONMENT.** *4 credits.*

This seminar is designed to explore the significance of science and technology on the quality of the environment in the urban community. The impact of biology, industrial technology and medicine, on the ethics, ecology and social environment of the urban community of the 20th century are the areas of central focus.

**398:689. INDIVIDUAL STUDIES.** *2-6 credits.*

(May be repeated for a total of 6 credits.)

Directed individual readings or research focused on a specific area or topic.

**398:690. INTERNSHIP IN URBAN STUDIES.**

*2-6 credits.*

Prerequisite, permission. A work experience program in which the student is expected to engage in meaningful research, policy planning and administrative operations in selected urban governments, state and federal governments and urban agencies, under the combined supervision of the employing agent and the faculty of the Urban Studies Department.

# The College of Engineering

## 410: GENERAL ENGINEERING

### 410:120. ENGINEERING DESIGN:

#### CHEMICAL ENGINEERING. 2 credits. (2-0).

Introduction of the freshman engineering student to problem-solving techniques in Engineering design. Required of all entering Chemical Engineering Freshmen.

### 410:130. ENGINEERING DESIGN:

#### CIVIL ENGINEERING. 2 credits. (2-0).

Introduction of the freshman engineering student to problem-solving techniques in Engineering design. Required of all entering Electrical Engineering Freshmen.

### 410:140. ENGINEERING DESIGN:

#### ELECTRICAL ENGINEERING. 2 credits. (2-0).

Introduction of the freshman engineering student to problem-solving techniques in Engineering design. Required of all entering Electrical Engineering Freshmen.

### 410:160. ENGINEERING DESIGN:

#### MECHANICAL ENGINEERING. 2 credits. (2-0).

Introduction of the freshman engineering student to problem-solving techniques in Engineering design. Required of all entering Mechanical Engineering Freshmen.

### 410:180. ENGINEERING DESIGN. 2 credits. (2-0).

Introduction of the freshman engineering student to problem-solving techniques in Engineering design. Required of all entering Engineering freshmen in Evening College.

### 410:301. COOPERATIVE WORK PERIOD I.

0 credits.

### 410:302. COOPERATIVE WORK PERIOD II.

0 credits.

### 410:403. COOPERATIVE WORK PERIOD III.

0 credits.

### 410:404. COOPERATIVE WORK PERIOD IV.

0 credits.

## 420: CHEMICAL ENGINEERING

### 420:200. MATERIAL BALANCES. 3 credits. (3-0).

Prerequisite, 315:133. Introduction to the material balance and other fundamental concepts as applied to the solution of chemical engineering problems.

### 420:201. ENERGY BALANCES. 4 credits. (4-0).

Introduction to energy balances and the first law of thermodynamics as applied to open and closed systems. Thermodynamic concepts, definitions and properties will be discussed.

### 420:210. CHEMICAL PROCESS INDUSTRIES.

3 credits. (3-0).

Prerequisite, 420:200. A study of the processes used to manufacture basic chemicals. Included are raw materials, processing sequences and economic factors.

### 420:305. MATERIALS SCIENCE. 3 credits. (3-0).

Prerequisites, 315:112 or 315:127 or 315:133; 345:231 and Junior standing. A study of metals, ceramics and polymers relating their general thermal, mechanical, electrical and dielectric behavior. Special topics, such as wear, polymer composites, semiconductors and metallic corrosion, will be covered.

### 420:321. INTRODUCTION TO TRANSPORT PROPERTIES. 4 credits. (4-0).

Prerequisites, 420:201, and 345:233. The transport properties of viscosity, thermal conductivity and diffusivity.

Illustrative examples of conservation of mass, momentum and energy. Analogy and dimensionless groups. Laboratory applications and demonstrations.

### 420:322. INTERPHASE TRANSPORT.

3 credits. (3-0).

Interphase transport, friction factors, heat and mass transfer coefficients, dimensionless correlations. Theoretical development of macroscopic momentum and energy balances.

### 420:323. MULTICOMPONENT TRANSPORT.

3 credits. (3-0).

Further illustrative examples of conservation of mass, momentum and energy at the macroscopic level.

### 420:325. CHEMICAL ENGINEERING THERMODYNAMICS. 3 credits. (3-0).

Prerequisite, 420:201. Introduction of the second law of thermodynamics. Presentation of thermodynamics properties of pure components and mixtures. Application of thermodynamics to flow processes using compressible fluids.

### 420:351. FLUID FLOW SYSTEMS. 3 credits. (2-1).

Prerequisite, 321. Fluid statics and fluid flow rate measurement. Analysis of fluid systems as it applies to process piping and pumping. The application of fluid mechanics to solid-liquid, solid-gas and liquid-liquid separations. Laboratory.

### 420:352. THERMAL TRANSFER PROCESSES.

3 credits. (2-1).

Prerequisite, 351. Energy transfer equipment analysis and theory and application of radiant heat transfer. Application of heat transfer to boiling systems such as evaporation. Laboratory.

### 420:353. MASS TRANSFER PROCESSES.

3 credits. (2-1).

Prerequisite, 352. Discrete mass transfer stages involving vapor-liquid, liquid-liquid, solid-liquid and solid-vapor equilibria. Multistage operations in co-current, counter-current and cross-current modes. Covers continuous unit operations of binary distillation, extraction, absorption, adsorption, humidification and drying. Laboratory.

### 420:408. POLYMER PROCESSING AND APPLICATIONS. 3 credits. (2-1).

Prerequisite, 394:407 or permission. The principles of forming and setting polymeric materials, for example by extrusion, calendaring, molding, etc., are treated and applied to elastomers, thermoplastic and thermosetting materials. Various industrial applications of polymers are also discussed. The course consists of two 1-hour lecture periods and one 3-hour laboratory period per week.

### 420:409/509. CERAMIC MATERIALS. 3 credits. (3-0).

Prerequisite, 305 or equivalent. An advanced study of ceramics and glasses including the macrostructure, microstructure and other properties.

### 420:415. UNIT OPERATIONS LABORATORY I.

2 credits. (0-2).

Corequisite, 323. Experiments in chemical engineering operations. Emphasis is on collection and analysis of data and report writing.

### 420:416. UNIT OPERATIONS LABORATORY II.

2 credits. (0-2).

Prerequisite, 323.

**420:417. UNIT OPERATIONS LABORATORY III.***2 credits. (0-2).*

Prerequisite, 323.

**420:426. PHASE AND REACTION EQUILIBRIA.***3 credits. (3-0).*

Prerequisite, 420:325. Use of fugacity, activity coefficients, and chemical potential to determine interphase and chemical equilibrium requirements.

**420:430. REACTION KINETICS. 4 credits. (4-0).**

Prerequisite, 323. Study of non-equilibrium processes. Reaction mechanisms, rate equations and reactor design as applied to both homogeneous and heterogeneous systems.

**420:435. PROCESS CONTROL. 4 credits. (3-1).**

Prerequisite, 420:323. The study of the response of process systems, controllers, and sensing elements. Applications to control systems design.

**420:440/540. PROCESS ECONOMICS. 3 credits. (3-0).**

Corequisite, 323. Economic analyses of chemical processes, equipment selection and cost estimation.

**420:441. PLANT DESIGN. 3 credits. (3-0).**

Prerequisite, 420:351, 352 and 353. Chemical plant equipment design, plant layout, site selection.

**420:442. PLANT DESIGN LABORATORY.***2 credits. (0-2).*

Prerequisite, 441. Chemical plant design project.

**420:461/561. SOLIDS PROCESSING. 3 credits. (3-0).**

Prerequisite, 323 or permission. Comprehensive problems in sedimentation, fluidization, drying and other operations involving treatment of particulate solids.

**420:462/562. DISTILLATION. 3 credits. (3-0).**

Prerequisite, 323 or permission. Multicomponent calculational techniques applied to the design of distillation equipment. Extractive and azeotropic distillation.

**420:463/563. AIR POLLUTION CONTROL.***3 credits. (3-0).*

Prerequisite, permission. Basic methods and applications of air pollution control in the chemical process industries.

**420:464/564. WATER POLLUTION CONTROL.***3 credits. (3-0).*

Prerequisite, permission. Waste treatment methods as applied to the chemical process industries.

**420:466/566. ANALOG COMPUTATIONS.***3 credits. (3-0).*

Prerequisite, 345:236. Discussion of the use of analog computation in chemical engineering including programming and operational techniques.

**420:499. CHEMICAL ENGINEERING RESEARCH.***1 to 4 credits. (0-1 to 4).***GRADUATE COURSES****420:600. MOMENTUM TRANSPORT I.***3 credits. (3-0).*

Prerequisite, 323 or permission. The momentum, continuity, and energy equations. Exact and approximate solutions using vector and tensor notation. Applications to typical laminar flow systems.

**420:604. TRANSPORT PHENOMENA. 3 credits. (3-0).**

Prerequisite, 321 or permission. Systematic presentation of the conservation of momentum, energy and mass at both the microscopic and macroscopic levels. Illustrative examples and analogies are presented.

**420:605. ENERGY TRANSPORT I. 3 credits. (3-0).**

Prerequisite, 323 or permission. Conduction and forced convection heat transfer. Analytical and graphical solutions.

**420:610. DIFFUSIONAL OPERATIONS.***3 credits. (3-0).*

Prerequisite, 323 or permission. Discussion of molecular mass transport, forced and natural convection as applied to mass transfer, the analogies between mass, momentum, and heat transport, simultaneous heat and mass transfer.

**420:611. ABSORPTION AND EXTRACTION.***3 credits. (3-0).*

Prerequisite, 610. Discussion of design techniques for absorption, adsorption, and extraction processes. Multicomponent absorption and extraction.

**420:615. REACTION ENGINEERING. 3 credits. (3-0).**

Prerequisite, 430 or permission. Kinetics of homogenous systems. Reactor design. Non-ideal flows.

**420:620. CLASSICAL THERMODYNAMICS.***3 credits. (3-0).*

Prerequisite, 325 or permission. Discussion of the laws of thermodynamics. Prediction and correlation of thermodynamic data. Phase and reaction equilibria.

**420:626. MATHEMATICAL MODELS AND METHODS. 3 credits. (3-0).**

Prerequisite, 345:236 or permission. Discussion of methods used to develop mathematical models for chemical engineering problems and their analytical solutions.

**420:627. CALCULATION METHODS. 3 credits. (3-0).**

Prerequisite, 345:236 and permission. Discussion of numerical and optimization techniques in the solution of chemical engineering problems.

**420:630. PROCESS DYNAMICS I. 3 credits. (3-0).**

Prerequisite, 435 or permission. Discussion of the dynamic response of processes, controllers, and sensing elements, and stability criteria. Application to control of simple chemical processes.

**420:635. CHEMICAL ENGINEERING OF POLYMERS I.***3 credits. (3-0).*

Prerequisite, 323 or permission. Study of the plastics industry with emphasis on the application of common unit operations in the production of plastics.

**420:650. TOPICS IN DESIGN. 3 credits. (3-0).**

Prerequisite, 345:236 or permission. Topics in advanced chemical engineering plant or process design such as catalysis, cryogenics, high pressure technology, high vacuum technology, estimation of physical properties, advanced process economics, special unit operations.

**420:698. SPECIAL PROBLEMS. 2-6 credits. (0-2 to 6).**

(May be repeated for a total of 6 credits.)

Prerequisite, permission of department head. For qualified candidates for the M.S.Ch.E. degree. This course is designed to allow a student to expand a particular area of interest by consultation with a faculty member and independent study beyond available course work. Credit is dependent upon nature and extent of project as determined by supervisor and department head. May be repeated for a maximum of 6 credits.

**420:699. CHEMICAL ENGINEERING RESEARCH.***1 to 9 credits. (0-1 to 9).*

For properly qualified candidates for Master's degree. Supervised original research in a specific area of Chemical Engineering to be selected on a basis of availability of staff and facilities.

**420:701. MOMENTUM TRANSPORT II.***3 credits. (3-0).*

Prerequisite, 600. Discussion of boundary layer formation, turbulent flow phenomena, and non-isothermal flow. Topics of current interest.

**420:702. NON-NEWTONIAN FLOW.** 3 credits. (3-0).  
Prerequisite 600. Rheological behavior of non-Newtonian fluids. Viscometry. Applications to engineering design.

**420:706. ENERGY TRANSPORT II.** 3 credits. (3-0).  
Prerequisite, 605. Heat transfer in boundary layers. Natural convection phenomena. Radiation.

**420:713. SPECIAL TOPICS IN TRANSPORT PROCESSES.** 3 credits. (3-0).  
Prerequisite, 345:236 or permission. Topics in advanced mass, energy and momentum transfer processes such as dialysis, electrodialysis, thermal diffusion, boiling fluids, two-phase fluid flow.

**420:716. ADVANCED REACTION ENGINEERING.** 3 credits. (3-0).  
Prerequisite, 615. Kinetics of heterogenous systems. Fluidized reactors. Non-ideal mixing models applied to reactor design.

**420:721. ADVANCED THERMODYNAMICS.** 3 credits. (3-0).  
Prerequisite, 620. An introduction to statistical and non-equilibrium thermodynamics with application in chemical engineering.

**420:728. SPECIAL TOPICS IN ADVANCED CALCULATIONS.** 3 credits. (3-0).  
Prerequisite, 345:236 or permission. Advanced calculation techniques applied to the solution of complex problems in chemical engineering operations.

**420:731. PROCESS DYNAMICS II.** 3 credits. (3-0).  
Prerequisite, 630. Discussion of advanced concepts in control of chemical processes such as design of cascade control, feed forward control and numerical control systems.

**420:736. CHEMICAL ENGINEERING OF POLYMERS II.** 3 credits. (3-0).  
Prerequisite, 635. Advanced concepts of mass and energy transport involving the manufacture and uses of plastics.

**420:771. POLLUTION CONTROL ENGINEERING.** 3 credits. (3-0).  
Prerequisite, 464/564. Advanced waste treatment methods as applied to the chemical process industries.

**420:794. ADVANCED SEMINAR IN CHEMICAL ENGINEERING.** 1-5 credits.  
Prerequisite, permission of Department Head. Advanced projects, readings and other studies in various areas of chemical engineering. Intended for students seeking the Ph.D. in Engineering degree. May be repeated up to a maximum of 9 credits.

**420:897. PRELIMINARY RESEARCH.** 1-8 credits. (May be repeated for a total of 8 credits.)  
Prerequisite, approval of Advisory Committee. Preliminary investigation of Ph.D. dissertation subject.

**420:898. DOCTORAL DISSERTATION.** 1-15 credits.  
Prerequisite, completion of preliminary examination and approval of Advisory Committee. Original research by a Ph.D. candidate. May be taken more than once.

**420:899. DISSERTATION PREPARATION.** 1-5 credits. (May be repeated for a total of 5 credits.)  
Prerequisite, approval of Advisory Committee. Writing of a Ph.D. dissertation by a Ph.D. candidate.

## 430: CIVIL ENGINEERING

**430:201. STATICS.** 4 credits. (4-0).  
Prerequisite, 365:101; corequisite, 345:234. Forces resultants, couples. Equilibrium of force systems. Distributed forces. Centers of gravity. Analysis of simple structures.

Friction. Moments of inertia. Method of virtual work. Kinematics.

**430:202-203. STRENGTH OF MATERIALS I AND II.** 3 credits each. (3-0).

Prerequisite, 201. Axial force, bending moment diagrams, axial stress and deformation; stress-strain diagrams; torsion; flexure; compound stresses; principle stresses and strains; failure theories; thin shells of revolution; beam deflections by double integration and moment area; three-moment equation; limit analysis of beams; buckling of columns.

**430:231. SURVEYING I.** 3 credits. (2-1).

Principles of plane surveying. Use of tape, level and transit. Computation of areas. Field problems involving measurement of horizontal and vertical distances and angles.

**430:232. SURVEYING II.** 3 credits. (3-1).

Prerequisite, 231. Precise leveling, triangulation, topographic surveying, astronomic observations pertinent to surveying, horizontal and vertical alignment of transportation routes, earthwork computations.

**430:304. MECHANICS I.** 4 credits. (4-0).

Prerequisite, 365:201; corequisite, 345:236. Basic concepts of mechanics, elementary vector algebra, concurrent force systems, equilibrium of a particle, kinematics of a particle kinetics of a particle, products of vectors, nonconcurrent force systems, center of mass, center of gravity and centroid, second moments of masses and areas, equilibrium of rigid bodies, kinematics of rigid bodies, kinetics of rigid bodies. Course can only be taken by students enrolled in Chemical and Electrical Engineering Programs.

**430:305. MECHANICS II.** 4 credits. (4-0).

Prerequisite, 304. Stress and strain, axial forces, flexure, torsion, statically indeterminate systems, impulse and momentum, work and energy, energy methods for equilibrium. Course can only be taken by students enrolled in Chemical and Electrical Engineering Programs.

**430:306. THEORY OF STRUCTURES I.**

3 credits. (3-0).

Corequisite, 203. Coplanar equilibrium; stability; determinacy; bridge and roof trusses; approximate analyses of indeterminate frames; influence lines; criteria for moving loads, virtual work methods; theorems of Castigliano; statically indeterminate frames.

**430:307. THEORY OF STRUCTURES II.**

3 credits. (3-0).

Stiffness properties; slope deflection; moment distribution; influence lines for statically indeterminate structure; temperature and settlement effects; matrix algebra; matrix analysis of beams and frames.

**430:311. SOIL MECHANICS.** 4 credits. (3-1).

Prerequisites, 203 and 460:310. Stresses and displacements in soil mass as an elastic body. Settlement and consolidation. Soil strength. Stability and limiting equilibrium of soil structures. Laboratory study of properties of soils.

**430:312. FOUNDATIONS.** 4 credits. (4-0).

Prerequisite, 311. Soil exploration. Groundwater flow. Spread footings, combined footings, mat-foundations. Design of pile foundations. Caissons. Retaining walls, sheetpiling, cofferdams. Earthworks. Tunneling.

**430:321. ENVIRONMENTAL ENGINEERING I.**

3 credits. (3-0).

Problems of engineering in public and industrial water supplies. Quality and quantity requirements. Development of surface and ground water supplies to meet the consumptive

use of present and future. Treatment methods and techniques for domestic and industrial use. Distribution systems design and analysis by such methods as Hardy Cross. Reservoirs and pumping stations. Principles of water utility management and water works finance.

**430:322. ENVIRONMENTAL ENGINEERING II.**

*4 credits. (3-1).*

Prerequisite, 321. Quantity and characteristics of sewage and storm water. Sewer hydraulics. Design of sanitary, storm, and combined sewer systems. Appurtenant structures and fixtures. Loads on buried pipes. Sewage disposal, dilution, and other treatment methods. Primary, secondary, and tertiary treatment. Sludge digestion and disposal. Construction, finance, maintenance, and operation of sewers and treatment facilities. Introduction to Public Health Engineering. Laboratory covers water and sewage quality analysis.

**430:341 WATER RESOURCES. 4 credits. (4-0).**

Prerequisite, 460:310. Hydrology, flood routing, reservoirs and dams. Navigation, water power, irrigation, flood control and multipurpose water resources systems. Study of economic, legal, ecologic and sociological aspects of water resources projects.

**430:342. HYDRAULIC ENGINEERING.**

*3 credits. (3-0).*

Prerequisite, 460:341. Flow in closed conduits and open channels. Analysis of hydraulic structures. Study of hydraulic machinery, wave theories and modeling techniques.

**430:350. URBAN PLANNING. 3 credits. (3-0).**

History of the development of cities from the earliest civilizations through the industrial revolution of the 19th century. Early attempts to planning. The necessity, organizational and legal aspects of planning and zoning. Environmental problems affecting engineers. The search for new solutions.

**430:351. TRANSPORTATION ENGINEERING.**

*3 credits. (3-0).*

Prerequisite, 232. Modern techniques of mass transportation. Local and long distance transportation needs. Traffic analysis. Planning of transportation systems. Highways, railroads, airports, heliports, etc. Principles of highway design.

**430:352. HIGHWAY DESIGN. 4 credits. (4-0).**

Prerequisite, 351. Complete detailed review of present highway design policies. The design standards and criteria. A step by step review and exercise of the planning process. Highway materials. Construction methods.

**430:380. ENGINEERING MATERIALS LABORATORY.**

*1 credit. (0-1).*

Prerequisite, 203. A study of laboratory instrumentation and standard techniques in the testing of engineering materials. Data analysis.

**430:401-402. STEEL DESIGN I AND II.**

*3 credits each.*

Prerequisite, 307. Tension members, compression members, beams. Combined axial and flexural loads. Plate girders. Plastic design. Riveted, bolted and welded connections. Complete design.

**430:403-404. REINFORCED CONCRETE DESIGN I AND II. 3 credits each.**

Prerequisite, 307. Design of flexural members by elastic and ultimate strength procedures. Columns, footings, retaining walls. One-way, two-way, and flat slabs. Creep, shrinkage, and temperature effects. Pre-stressed concrete beams.

**430:405-406/505-506. ADVANCED MECHANICS OF MATERIALS I AND II. 3 credits each.**

Prerequisite, 307. Torsioned analysis, rotating discs, membrane analysis, beams on elastic foundation, bending of plates, energy methods. Stability analysis.

**430:414. DESIGN OF EARTH STRUCTURES.**

*3 credits. (3-0).*

Prerequisite, 312. Criteria for design of earth structures, including earth dams, highway fills, cofferdams, etc. Analysis of embankment foundation stability. Embankment construction techniques and field instrumentation for monitoring soil movements and stability. Seepage analysis and methods for seepage control. Stabilization of foundation soils.

**430:418/518. ENGINEERING GEOPHYSICS.**

*3 credits. (2-1).*

Prerequisites, 311 and 337:101. Theory and application of geophysics and geophysical methods as applied to Civil Engineering. Study of seismology, earth's magnetic and electrical fields, gravity, and radioactivity. Conventional and geophysical methods of subsurface exploration and testing and identification of earth materials.

**430:421. ENVIRONMENTAL ENGINEERING III.**

*4 credits. (4-0).*

Prerequisite, 322 and 310:177. The engineering aspects involved in the control of the environment of the citizen. Includes communicable disease control, air pollution, industrial hygiene, milk and food sanitation, radiological health, solid milk and food sanitation, radiological health, solid waste disposal.

**430:425. ENVIRONMENTAL ENGINEERING**

**LABORATORY. 3 credits. (1-2).**

Selected physical, chemical, and bacteriological analysis of raw and treated water and waste waters.

**430:426/526. ENVIRONMENTAL ENGINEERING**

**DESIGN. 3 credits. (3-0).**

Analysis of various environmental control systems for water and waste water treatment. Economic analysis with the use of computer programming for the evaluation of various regional, metropolitan and urban areas to determine the most economical system for water supply and pollution control.

**430:441. HYDRAULIC STRUCTURES I.**

*4 credits. (4-0).*

Prerequisite, 311. The analysis and design of reservoirs and hydraulic structures such as dams, spillways, gates and outlet works. The use of design procedures and specifications in the design of hydraulic structures. The study of hydraulic machinery used in such structures.

**430:443. APPLIED HYDRAULICS. 4 credits. (4-0).**

Prerequisite, 460:310. Fundamental principles of flow in pipes and open channels. Discussion of flow control devices and channel transitions. Similitude of model studies, theoretical aspects of hydraulic structures, river engineering, coastal hydraulics, stream channel mechanics.

**430:451. INTRODUCTION TO MATRIX ANALYSIS OF STRUCTURES. 3 credits. (3-0).**

Prerequisites, 307 and 445:331. Elementary concepts of structural analysis. Static and Kinematic indeterminacy. Flexibility and stiffness matrices. Flexibility analysis of structures. Stiffness analysis of structures. Effects of temperature, prestrain and support displacements. Computer formulation of stiffness analysis.

**430:452. INTRODUCTION TO STRUCTURAL VIBRATIONS.** 3 credits. (3-0).

Prerequisite, 307. Vibration and dynamic analysis of structural systems with one, two or more degrees of freedom; beams, frames, buildings and bridges. Numerical methods of analysis. Idealized structural system. Elasto-plastic systems. Modal analysis.

**430:461. HIGHWAY ECONOMICS AND ADMINISTRATION.** 4 credits. (4-0).

Prerequisite, 352. The study of highway administration and management with regard to its development and practice as established by the state and federal highway agencies. Analysis of methods in evaluating highway taxation. Discussion of cost allocation studies and methods in evaluating the economic feasibility of highway routes.

**430:463. HIGHWAY PLANNING.** 3 credits. (3-0).

Prerequisite, 352. Analysis of highway planning programs and including highway needs studies, priority rating systems and programming methods. Discussion of traffic assignment and forecasting techniques as related to highway planning. Discussions will primarily be devoted to rural route problems using case history methods of analysis.

**430:471. CONSTRUCTION ADMINISTRATION.**

3 credits. (3-0).

Prerequisite, senior standing or permission of Department. Construction specifications. Preparation of construction specifications. Preparation of construction documents. Bidding and bonds. Construction management and supervision. Application of Critical Path Method (CPM). Agreements and contracts. Report writing.

**430:472. CONSTRUCTION ENGINEERING.**

4 credits. (4-0).

Prerequisite, senior standing or permission of Department. Planning of construction operations. Construction equipment and their selection. Safety engineering.

**430:473. CONSTRUCTION MATERIALS.**

3 credits. (2-1).

Prerequisites, 380 and 420:305. Composition, structure and mechanical behavior of structural materials such as concrete, wood, bituminous materials, plastics and composite materials. Discussion of applications and principles of evaluating material properties.

**430:482. HYDRAULICS LABORATORY.**

1 credit. (0-1).

Prerequisite, 342. Individual assignments of model studies by using wave channel, hydraulic flume, water table equipped with hydrogen bubble generator, and sediment transport channel. Reduction and presentation of laboratory data.

**430:491. C. E. SYSTEMS DESIGN.** 3 credits. (3-0).

Prerequisite, senior standing. A team approach to systematic design of complex Civil Engineering projects.

**430:492. SPECIAL PROJECTS.** 3 credits. (3-0).

Prerequisite, senior standing and permission. Directed individual or group research or study in the student's field of interest. Topic subject to approval by adviser.

## GRADUATE COURSES

**430:601. THEORY OF ELASTICITY I.**

3 credits. (3-0).

Prerequisite, 505. Analysis of stress and strain; equilibrium equations; constructive equations for isotropic, anisotropic and composite materials; formulation of boundary value problems; Airy stress functions, energy principles and variational methods. Application to plane problems.

**430:603. THEORY OF PLASTICITY I.**

3 credits. (3-0).

Prerequisite, 505 or 601. Fundamentals of plasticity; concept of yield and associate constitutive equations in the theory of elastic-plastic solids including those for elastic-perfect plastic solids and plastic solids with strain-hardening behavior. Application to torsion and plane problems.

**430:605. THEORY OF PLATES.** 3 credits. (3-0).

Prerequisite, 405/505. Pure bending of plates, small deflection theory, solutions for various edge conditions, plates on elastic foundations, large deflection theory.

**430:608. MATRIX ANALYSIS OF STRUCTURES I.**

3 credits. (3-0).

Prerequisites, 307 and 445:160. Not open to students who have credit for course 451. Advanced FORTRAN programming. Matrix algebra and solution of simultaneous equations. Flexibility analysis of structures. Stiffness analysis of structures. Effects of temperature, prestrain and support displacements. Computer formulation of stiffness analysis.

**430:609. MATRIX ANALYSIS OF STRUCTURES II.**

3 credits. (3-0).

Prerequisite, 608. Advanced computational techniques and programs for stiffness analysis. Local and global stiffness matrices for framed structures. Automatic dead load analysis. Direct computation of member end actions. Nonrigid joints for plane and space frames. Inclined supports. Nonprismatic members. Axial flexural interactions. Rectangular plane frames.

**430:611. ADVANCED SOIL MECHANICS I.**

3 credits. (3-0).

Prerequisite, 312. Study of physical and chemical properties of clays, rheology and plasticity, soil-water systems, soil structure, and soil stabilization techniques.

**430:612. ADVANCED SOIL MECHANICS II.**

3 credits. (3-0).

Prerequisite, 611. Theories of compressibility and consolidation, shear strength theories, water flow in soils, soil freezing and permafrost, and techniques for rigorous solutions to soil problems.

**430:614. FOUNDATION ENGINEERING I.**

3 credits. (3-0).

Prerequisite, 611. Foundation bearing capacity and settlement analysis, and design of shallow and deep foundations. Analysis and design of piles and pile groups.

**430:615. FOUNDATION ENGINEERING II.**

3 credits. (3-0).

Prerequisite, 614 or permission. Theory and design of retaining structures. Stability analysis and design concepts for earth structures. Soil-structure interaction theory and applications to underground structures including conduits, tunnels, and shafts.

**430:616. FOUNDATION ENGINEERING III.**

3 credits. (3-0).

Prerequisite, 615 or permission. Advanced methods of foundation construction including dewatering, soil stabilization, freezing, and pile sinking techniques. Cofferdams, underpinning, and other special problems.

**430:618. ROCK MECHANICS.** 3 credits. (3-0).

Prerequisite, 601 or permission. Mechanical nature of rocks; linear elasticity and application to rock problems; inelastic behavior of rocks, time dependence, and the effects of pore pressure; experimental characterization of rock properties; failure theory and crack propagation.

**430:620. SANITARY ENGINEERING PROBLEMS.***3 credits.*

Prerequisite, 321 and 322. The application of both laboratory methods and theory to the solution of sanitary engineering problems involving water pollution, stream regeneration, special industrial wastes, detergents, and others.

**430:621-622-623. INDUSTRIAL WASTE TREATMENT I, II AND III. 3 credits each.**

Prerequisite, permission. Study of the problems arising from industrial water pollution. Methods of treatment of industrial wastes with specific applications to various industries.

**430:641. ADVANCED HYDRAULICS.***3 credits. (3-0).*

Prerequisite, 643. Flow of liquids and gases in pipes. Analysis of pipe networks with various methods. Water hammer, pressures, oscillation in pipe networks, Solution of problems with the method of characteristics.

**430:643. ADVANCED FLUID MECHANICS.***3 credits. (3-0).*

Prerequisite, 460:310. Basic equations of fluid mechanics in general coordinates. Navier-Stokes equation, its solution by various simplifying assumptions; slow viscous flow, potential flow, etc. Theoretical considerations concerning solutions of typical fluid mechanics problems. Theory of turbulence.

**430:644. OPEN CHANNEL HYDRAULICS.***3 credits. (3-0).*

Prerequisite, 643. Applications of basic principles of fluid mechanics to flow in open channels; criteria for analysis of uniform, gradually varied and rapidly varied flows; design problems including applications of digital computers.

**430:645. SEDIMENT TRANSPORT. 3 credits. (3-0).**

Prerequisite, 644. The study and formulation of movement and transportation of solid granular particles in or through liquid bodies. Design of rivers and reservoirs with respect to sediment load. Hydrodynamics of fluid-particle systems in such as open channels and closed conduits.

**430:646. THEORY OF WAVES I. 3 credits. (3-0).**

Prerequisite, 643. Theory of wave motion. Analysis of periodic and solidarity waves. Study of tsunamis, storm surges and harbor oscillations. Effects of structures on waves.

**430:650. ENERGY METHODS. 3 credits. (3-0).**

Prerequisite, 505. General concepts and principles; work and energy; virtual work and Castigliano's theorems; variational approach and variational methods; potential and complementary energy; use of energy methods for the solutions of engineering problems; special problems.

**430:651. PLASTIC ANALYSIS I. 3 credits. (3-0).**

Prerequisite, 307. Analysis and design of beams and frames made of ductile material on the basis of the ultimate load; plastic bending of beams; limit loads of statically indeterminate structures; fundamental theorems of limit analysis; general methods for determining the limit load; variables influencing the value of plastic moment; instability phenomena; elasto-plastic deformations; minimum-weight design; grids and arches.

**430:653. ELASTIC STABILITY I. 3 credits. (3-0).**

Prerequisite, permission. Buckling of bars, beam-columns and frames. Buckling of compressed rings and curved bars. Lateral buckling of beams.

**430:655. PRESTRESSED CONCRETE.***3 credits. (3-0).*

Prerequisite, 404. Prestressing systems and anchorages. Loss

of prestress friction. Flexure. Design for flexure. Shear, bond, bearing. Beam deflections. Partial prestress. Structural applications.

**430:657-658. DYNAMICS OF STRUCTURES I AND II.***3 credits each. (3-0).*

Rigorous analysis of one and two degrees of freedom systems. Elasto-plastic and plastic analysis. Damping. Multiple and infinite degree of freedom systems. Members with variable moment of inertia. Equivalent systems and the dynamic hinge concept. Transfer matrices. Earthquake analysis, blast analysis, moving loads. Model analysis. Special topics.

**430:661. ADVANCED ENGINEERING MATERIALS I.***3 credits.*

Prerequisite, 505 and 601. Principles governing structure and mechanical behavior of materials with application to elasticity, plasticity, viscoelasticity and nonlinear creep. Mechanical properties of engineering materials such as metals, plastics, composites and cementitious materials. Discussion of methods of analysis, fabrication and testing.

**430:685. TRAFFIC CONTROL ENGINEERING.***3 credits. (3-0).*

Prerequisite, permission. Information retrieval and analysis of human and vehicular characteristics; the roadway element; system control and optimization of highways and intersections; planning and design of new traffic facilities including ways and terminals.

**430:691. SPECIAL PROBLEMS I. 3 credits.**

Prerequisite, graduate standing and permission. Supervised research or directed individual study in the student's major field. Topic selected by the student, subject to approval by advisor.

**430:692. SPECIAL PROBLEMS II. 3 credits.**

Prerequisite, 691 and permission. Continuation of 691. Individual research should lead to final report of publishable quality.

**430:699. MASTER'S THESIS. 1-9 credits.**

Prerequisite, permission. Research and thesis on some suitable topic in civil engineering as approved by the department. Defense of thesis is final examination.

**430:702. THEORY OF ELASTICITY II. 3 credits.**

Prerequisite, 601. Solution methods of complex variables, integral transforms, Green's functions; approximate solution methods; study of potential theory and its application to three-dimensional elasticity; solutions of problems in the infinite and semi-infinite domains.

**430:704. THEORY OF PLASTICITY II. 3 credits.**

Prerequisite, 603. Thermoplasticity, plastic behavior of solids under cyclic loading; slip line fields and soil mechanics problems. Uniqueness theorem, variational principles in plasticity. Special topics and problems.

**430:706. SHELL STRUCTURE. 3 credits. (3-0).**

Prerequisite, 605. General theory of thin shells. Analysis of domes, and shell walls. Shells of double curvature. Practical design problems.

**430:707. FINITE ELEMENT METHODS.***3 credits. (3-0).*

Prerequisites, 609, 505. Plane stress, plane strain stiffness matrices. Bodies of revolution subject to symmetrical and nonsymmetrical loads. Improved elements in two dimensional analysis. Three dimensional analysis. Bending of plates. General shells. Axisymmetric shells subjected to symmetrical and nonsymmetrical loads.

**430:717. SOIL DYNAMICS. 3 credits. (3-0).**

Prerequisite, 614, or permission. Vibration theory relating to

soils, soil structures, and foundations and applications to engineering problems. Design of foundations for dynamic loading including impact, pulsating, and blast loads.

**430:745. POTENTIAL FLOW THEORY.**

*3 credits. (3-0).*

Prerequisite, 643. Laplace's equation, its solution by analytic and numerical methods. Conformal transformation of regions with fixed and free (implicit) boundaries. Direct and inverse relaxation. Simplified solutions. Applications to ground-water seepage, heat flow, electric potential fields, and fluid dynamic problems.

**430:747. THEORY OF WAVES II.** *3 credits.*

Prerequisite, 646. Behavior of waves in shoaling waters and lakes. Wave diffraction. Characteristics of wind waves, swells and tides. Analysis of wave forces on offshore and shore structures. Coastal engineering.

**430:752. PLASTIC ANALYSIS II.** *3 credits. (3-0).*

Prerequisite, 651. Limit analysis of rotationally symmetric plates and shells; constitutive equations for rigid perfectly plastic material; lower bound and upper bound theorems; complete solutions; approximate yield conditions; multiple loads; yield conditions for shells; circular plates; cylindrical shells; conical shells; spherical shells; shallow shells; extensions and limitations of limit analysis.

**430:754. ELASTIC STABILITY II.** *3 credits.*

Prerequisite, 653. Torsional buckling, buckling of thin plates. Buckling of shells, icelastic buckling.

**430:759. DYNAMICS OF PLATES AND SHELLS.**

*3 credits. (3-0).*

Prerequisites, 658 or permission. Vibration of membranes, plates and shells with various boundary conditions. Dynamic response of plates and shells subjected to external dynamic forces. Special problems.

**430:760. VISCOELASTICITY.** *3 credits. (3-0).*

Prerequisite, 601. Linear theory of viscoelasticity; viscoelastic models; hereditary integrals; viscoelastic beams; vibrations, axial impact; buckling of columns; viscoelasticity in three dimensions.

**430:762. ADVANCED ENGINEERING MATERIALS II.**

*3 credits.*

Prerequisite, 661. Dislocation theory; advanced treatment of plastic deformation, creep and fatigue; failure theory; fracture phenomena for brittle and ductile materials; crack propagation. Application to engineering materials.

**430:782. TRANSPORTATION PLANNING AND MODELS.** *3 credits.*

Prerequisite, permission. Regional and metropolitan transportation studies; land use, traffic generation, distribution, and assignment models.

**430:785. THEORY OF TRAFFIC FLOW.** *3 credits.*

Prerequisite, permission. A scientific approach to the study of traffic phenomena with emphasis on applications. Deterministic and stochastic models of traffic flow; optimization of intersection controls; computer simulation of traffic problems; accident statistics.

**430:794. ADVANCED SEMINAR IN CIVIL ENGINEERING.** *1-5 credits.*

Prerequisite, of Department Head. Advanced projects, reading and other studies in various areas of civil engineering. Intended for students seeking the Ph.D. in Engineering degree. May be repeated up to a maximum of 9 credits.

**430:897. PRELIMINARY RESEARCH.**

*1-8 credits. (May be repeated for a total of 8 credits).*

Prerequisite, approval of Advisory Committee. Preliminary Investigation of Ph.D. dissertation subject.

**430:898. DOCTORAL DISSERTATION.** *1-15 credits.*

Prerequisite, completion of Preliminary Examination and approval of Advisory Committee. Original research by a Ph.D. candidate. May be taken more than once for credit.

**430:899. DISSERTATION PREPARATION.**

*1-5 credits. (May be repeated for a total of 5 credits).*

## 440: ELECTRICAL ENGINEERING

**440:233. CIRCUITS I.** *4 credits. (4-0).*

Corequisite, 345:234. Fundamentals of circuit analysis including loop and nodal methods, phasor techniques, resonance phenomena, and polyphase circuits.

**440:234. CIRCUITS II.** *3 credits. (3-0).*

Prerequisites, 233, 445:160. A continuation of circuit analysis including magnetic coupling in circuits, network theorems. Fourier methods, transfer functions. Laplace and Fourier transforms.

**440:331. CIRCUIT FUNDAMENTALS.**

*3 credits. (3-0).*

Prerequisites, 345:236, 365:203, or 103, 445:160. A course in circuit analysis for non-EE majors including loop and nodal methods, phasor techniques, resonance phenomena, and polyphase circuits.

**440:335. CIRCUITS III.** *3 credits. (3-0).*

Prerequisite, 234. Introduction to the use of Fourier, Laplace and State Variable techniques to analyze the dynamic operation of circuits.

**440:336. CIRCUITS IV.** *3 credits. (3-0).*

Prerequisite, 335. Application of Fourier, Laplace and State Variable approaches to establish frequency and time domain expressions for steady state and transient responses in an electrical circuit. Role of Bessel's functions in certain electrical problems.

**440:337. CIRCUITS V.** *3 credits. (3-0).*

Prerequisite, 336. Use of operational methods in the solution for the response due to a general form of a periodic excitation. Application of Complex Variable functions to electrical problems.

**440:340. ELECTRICAL MEASUREMENTS I.**

*3 credits. (2-1).*

Prerequisite, 233. Study of DC meters, potentiometers, ohmmeters, galvanometers, balanced and unbalanced Wheatstone bridges.

**440:341. ELECTRICAL MEASUREMENTS II.**

*3 credits. (2-1).*

Prerequisites, 340 and 445:160. Study of AC meters and bridges. Evaluation of errors involved in measurements.

**440:342. ELECTRICAL MEASUREMENTS III.**

*3 credits. (3-0).*

Prerequisite, 341. Analysis and characteristics of temperature and displacement transducers.

**440:345. ILLUMINATION.** *3 credits. (3-0).*

Fundamentals of illumination and principles underlying specifications and designs for adequate electrical lighting.

**440:351. ELECTROMAGNETIC FIELDS I.**

*3 credits. (3-0).*

Prerequisite, 345:236. Static and dynamic electric and magnetic fields are treated on the vector basis with a final topic of Maxwell's equations in point and integral forms.

**440:352. ELECTROMAGNETIC FIELDS II.***2 credits. (2-0).*

Prerequisite, 351. An extension of dynamic electromagnetic fields with applications including particle dynamics and propagation equations.

**440:353. ELECTRICAL MACHINERY I.***4 credits. (3-1).*

Prerequisites, 234 and 352. Magnetic circuits involving saturation of iron. Principles of electromechanical energy conversion. Basic rotating machines.

**440:354. ELECTRICAL MACHINERY II.***4 credits. (3-1).*

Prerequisite, 353. The theory of electrical machinery neglecting saturation. Transformer connections under balanced load. Regulation and basic control of machines.

**440:357. CONTROL AND APPLICATION OF ELECTRICAL MOTORS. 4 credits. (3-1).**

Prerequisite, 354. Magnetic control of motors accelerating and decelerating times, duty cycles, control theory and application for given problems.

**440:359. TRANSMISSION LINES AND NETWORKS.***4 credits. (3-1).*

Prerequisite, 336. Steady state and transient analysis of distributed parameter circuits. Low and high frequency applications. Networks for transmissions. Laboratory.

**440:365. ELECTRONICS I. 4 credits. (3-1).**

Prerequisite, 234. Physics of electron devices. Semiconductors, vacuum tubes, and gas tubes. Rectification. Laboratory.

**440:366. ELECTRONICS II. 4 credits. (3-1).**

Prerequisite, 365. Circuit analysis of electron devices in the frequency domain. Voltage amplifiers, power amplifiers, and oscillators. Laboratory.

**440:367. ELECTRONICS III. 4 credits. (3-1).**

Prerequisite, 366. Time domain analysis of electron devices. Modulation and transmitters, Demodulation and receivers. Wave-shaping, wave-form generation and pulse analysis. Laboratory.

**440:368. ELECTRONIC FUNDAMENTALS.***3 credits. (2-1).*

Prerequisite, 233 or 331. A course for non-EE majors covering vacuum and semiconductor devices. Applications including amplifiers, oscillators, timing circuits, and industrial electronic equipment.

**440:369. INDUSTRIAL ELECTRONICS I.***3 credits. (3-0).*

Prerequisites, 366, 354. Application of electronic devices at power levels is intended for those specializing in the "power" area of Electrical Engineering rather than "electronic" areas.

**440:371. FEEDBACK CONTROL SYSTEMS I.***3 credits. (3-0).*

Prerequisite, 336, 353. Introduction to servomechanisms and feedback principles. Modeling and response of feedback control systems. Stability analysis of linear systems.

**440:372. FEEDBACK CONTROL SYSTEMS II.***3 credits. (2-1).*

Prerequisite, 371. Synthesis and compensation techniques for linear control systems. Analysis and design of discrete-data systems. Introduction to non-linear control theory.

**440:381. ELECTRICAL MACHINERY FUNDAMENTALS. 3 credits. (2-1).**

Prerequisite, 233 or 331. A course for non-EE majors stressing the practical aspects of AC and DC machinery and associated schematic diagrams.

**440:382. INTRODUCTION TO ELECTRIC POWER.***3 credits. (2-1).*

Prerequisite, 233 and permission of Instructor. Sources of energy; steam and hydroelectric generating stations and auxiliaries; transmission of electric power; power systems protection; lightning phenomenon; power distribution. The course involves visits to generating stations, substations, and manufacturing plants in Ohio, Pennsylvania, and New York.

**440:391. ELECTRICAL ENGINEERING PROBLEMS.***1-3 credits.*

Prerequisite, permission of department head. Select comprehensive problems, supervised discussions and computation periods. May be taken more than once.

**440:401/501. ENGINEERING ECONOMY.***3 credits. (3-0).*

Prerequisite, 325:244 and senior standing in Engineering. This course is designed to present the subject of engineering economics as distinguished from classical economic theory. Business organization, value and use of money, amortization, depreciation, economic selection and replacement. Plant operating factors, utility rates. Engineering bids and specifications. Stress in the course is placed on solving problems.

**440:421. PHYSICAL ELECTRONICS I.***3 credits. (3-0).*

Prerequisites, 352, 365:301, 420:305. Introductory quantum mechanics, statistical distributions and band theory of solids as they apply to semiconductor devices. Dielectric and magnetic properties of engineering materials.

**440:422/522. PHYSICAL ELECTRONICS II.***3 credits. (3-0).*

Concepts of semiconductor physics with applications to circuit design.

**440:426. INTRODUCTION TO LASERS.***3 credits.*

Prerequisite, 336, 352. Introduction to the basic concepts of maser (laser) action; emission processes and their roles in laser action; types of lasers; presentation of generalized operating criteria.

**440:438. CIRCUITS VI. 3 credits. (3-0).**

Prerequisite, 337. Steady state and transient response of circuits in time and frequency domain via use of Fourier, Laplace, and State Variable methods.

**440:444. COMMUNICATION SYSTEMS ANALYSIS.***3 credits. (3-0).*

Prerequisite, 351, 367. Communications systems and equipment; noise, modulation; antennas and propagation; repeater, telemetry and navigational systems and equipment.

**440:445. RANDOM SIGNAL ANALYSIS.***3 credits. (3-0).*

Prerequisite, senior standing or consent of instructor. Applications of elementary set theory, discrete and continuous sample spaces; applications of probability, random variables, limit theorems, distribution functions, and density functions; applications of stochastic processes, random signals, system function, impulse responses, power spectrum functions, and correlation functions.

**440:446. COMMUNICATION THEORY I.***3 credits. (3-0).*

Prerequisite, 445 and permission. Spectral analysis and Fourier transforms; random variables and processes; amplitude, frequency, and pulse modulation systems; representations of noise in modulation systems; threshold in

frequency modulation, data transmission; communication system and noise calculations.

**440:447. COMMUNICATION THEORY II.**

3 credits. (3-0).

Prerequisite, 446. Continuation of 446.

**440:448. RADAR SYSTEM ENGINEERING.**

3 credits. (3-0).

Prerequisite, 352, 359, 366. Introduction to the basic concepts of radar and the underlying principles; followed by discussion of the general problems involved in the implementation of those principles; specific types of radar systems.

**440:453. ELECTROMAGNETIC FIELDS III.**

3 credits. (3-0).

Prerequisite, 352 or permission. Advanced field theory including boundary value problems and non-linear fields. Applications of Maxwell's equations.

**440:456. ANTENNAS.** 3 credits. (3-0).

Prerequisite, 352. Application of electromagnetic theory to radiation and propagation. Introduction of the concept of far and near fields, radiation patterns, directivity, radiation resistance, bandwidth, and gain. Considerations of special antennas including dipole, loop, arrays, and slots.

**440:457/557. MICROWAVES I.** 3 credits. (3-0).

Prerequisite, 352. Dynamic fields, Maxwell's equations, and the wave equations. Field analysis of waveguides. Microwave sources.

**440:458/558. MICROWAVES II.** 3 credits. (3-0).

Prerequisite, 457/557. Microwave components. Techniques of microwave measurements. Microwave systems.

**440:459/559. MICROWAVE LABORATORY.**

1 credit. (0-1).

Corequisite, 458/558. Laboratory to accompany 458/558.

**440:461. COMPUTER CIRCUITRY I.**

4 credits. (3-1).

Prerequisite, 366. Analysis of computer circuits. Introduction to the use of Boolean Algebra and mapping techniques in analyzing switching circuits.

**440:462/562. COMPUTER CIRCUITRY II.**

3 credits. (3-0).

Prerequisite, 367 and 461/561. Electronic circuitry considerations in logic circuits, methods of sequential and threshold logic analysis and synthesis, development of computer arithmetic elements, memory and storage devices.

**440:463/563. COMPUTER CIRCUITRY III.**

3 credits. (3-0).

Prerequisite, 462/562. Applications of logic circuits in the modern digital electronic computer and in digital communication systems. Computer organization and control, input-output devices and interface standards, advanced topics in computers.

**440:465. INDUSTRIAL ELECTRONICS II.**

3 credits. (3-0).

Prerequisite, 369. This is a continuation of 369, intended for electrical engineering students specializing in "power" areas.

**440:467/567. PULSE AND DIGITAL WAVEFORMS.**

3 credits. (3-0).

Prerequisite, 366. A course in switching waveforms to fill the increased need for computer and communication usage.

**440:473/573. FEEDBACK CONTROL SYSTEMS III.**

3 credits. (3-0).

Prerequisite, 372. The state variable description of control systems and the concepts of controllability and observability. The state-transition technique for system design.

Introduction to optimal control. Application of the computer in the operation of control systems.

**440:480/580. SYMMETRICAL COMPONENTS I.**

3 credits. (3-0).

Prerequisite, 354. Per unit method as applied to power system calculations. Fundamental principles of symmetrical components as applied to the analysis of unbalanced electrical circuits.

**440:484. ELECTRICAL MACHINERY III.**

3 credits. (3-0).

Prerequisite, 354. The realistic electrical machine. Waveforms and machine windings. Saturation in machines. Unbalanced loads on transformers. Transients in machines.

**440:485. ELECTRICAL MACHINERY LABORATORY III.** 1 credit. (0-1).

Corequisite, 484. Laboratory to accompany 484.

**440:487. ELECTRIC ENERGY SYSTEM THEORY I.**

3 credits. (3-0).

Prerequisite, 480, 371. Corequisite, 337, or permission. Fundamental concepts of electric power systems and definitions for energy conversion devices therein; system models, load flow analysis, and basic operational features; computer solutions.

**440:488. ELECTRIC ENERGY SYSTEM THEORY II.**

3 credits. (3-0).

Prerequisite, 487. Energy systems under abnormal conditions; optimum dispatch and control; faults; stability theory; computer solutions.

**440:493/593. SEMINAR IN ELECTRICAL ENGINEERING.** 1, 2 or 3 credits.

Prerequisite, permission of department head. Special topics in Electrical Engineering. May be taken more than once.

## GRADUATE COURSES

**440:609. SEMICONDUCTOR APPLICATIONS I.**

3 credits. (3-0).

Prerequisite, 422/522. Application of semiconductor devices in electronic circuits.

**440:610. SEMICONDUCTOR APPLICATIONS II.**

3 credits. (3-0).

Prerequisite, 609. Application of semiconductor devices in waveforming circuits.

**440:621. PROTECTIVE RELAYING.** 3 credits. (3-0).

Prerequisite, 681 or permission. The principles and application of relays as applied to the protection of power systems.

**440:623. PHYSICAL ELECTRONICS III.**

3 credits. (3-0).

Prerequisite, 522. Static and dynamic behavior of p-n junction and junction transistors. Theory of avalanche and Zenar breakdown. FET pnpn diode and Gunn effect oscillator.

**440:630. LINEAR CIRCUIT ANALYSIS.**

3 credits. (3-0).

Prerequisite, graduate standing. Generalized operational methods, time domain analysis, state variable methods and matrix techniques applied in circuit analysis.

**440:631. NETWORK SYNTHESIS I.** 3 credits. (3-0).

Prerequisite, 630. Energy relations in passive networks; complex variable theory, realizability and synthesis of driving point impedance and transfer functions.

**440:643. SIGNAL AND DATA ANALYSIS.**

3 credits. (3-0).

Prerequisite, 341 or by consent of Instructor. Analysis,

interpretation, and smoothing of engineering data through application of statistical methods. Introduction to probability concepts.

**440:646. CRITICAL ASPECTS OF MEASUREMENTS.**

*3 credits. (3-0).*

Prerequisite, 630. Brief review of electrical measurement devices and transducers. Consideration of measurement lags. Sampling and digital recording.

**440:647. STATISTICAL COMMUNICATION I.**

*3 credits. (3-0).*

Prerequisite, 445 or 643 or permission. Applications of statistics to the detection and estimation of signals in communication systems; consideration is given to linear and non-linear systems with random inputs; also included are narrow-band systems, noise figure, meansquared-error filter, modulation theory and discrete and continuous signals in information theory.

**440:648. STATISTICAL COMMUNICATIONS II.**

*3 credits. (3-0).*

Prerequisite, 647. Continuation of 647.

**440:653. ELECTROMAGNETIC FIELDS.**

*3 credits. (3-0).*

Prerequisite, graduate standing. Introduction to advanced electromagnetic concepts at the graduate level.

**440:654. ADVANCED ELECTROMAGNETIC FIELDS.**

*3 credits. (3-0).*

Prerequisite, 653. Application of Maxwell's equations continued. Propagation equations and antenna analysis.

**440:656. ADVANCED ANTENNA THEORY.**

*3 credits. (3-0).*

Prerequisite, 653. Analysis of core complicated radiating structure, including topics in array theory, cylindrical antennas, surface wave radiation and slot antennas. Theoretical relationships involving bandwidth, energy storage, impedance, etc. will be discussed in detail. Numerical techniques will be discussed.

**440:671. DISCRETE CONTROL SYSTEMS.**

*3 credits. (3-0).*

Prerequisite, 674 and 473/573 or permission. Theory and techniques for the analysis and design of discrete control system. Z-transform technique, stability analysis, frequency response. Optimization of discrete control system. Digital computer control.

**440:672. SYSTEMS ANALYSIS.** *3 credits. (3-0).*

Prerequisite, 643. Application of operations research methods and optimization approach to engineering problems. Linear and dynamic programming, queuing, and Monte Carlo techniques.

**440:674. CONTROL SYSTEM THEORY.**

*3 credits. (3-0).*

Prerequisite, 573. The stability problem. State variable feedback. Advanced topics in linear synthesis.

**440:675. NON-LINEAR CONTROL THEORY.**

*3 credits. (3-0).*

Prerequisite, 674. Techniques for the determination of stability for non-linear systems such as describing functions analysis, the second method of Liapunov, and Popov frequency locus techniques.

**440:676. RANDOM PROCESS ANALYSIS.**

*3 credits. (3-0).*

Prerequisite, 674. Analysis and design of control systems with stochastically defined input. Introduction to estimation filters.

**440:680. SYMMETRICAL COMPONENTS II.**

*3 credits. (3-0).*

Prerequisite, 480/580. Simultaneous faults or symmetrical power systems. Positive, negative, and zero sequence impedance calculations of apparatus and lines.

**440:681. STEADY STATE ANALYSIS OF POWER SYSTEMS.** *3 credits. (3-0).*

Prerequisite, 680. General circuit constants, power circle diagrams, steady state stability, load flow.

**440:682. TRANSIENT ANALYSIS OF POWER SYSTEMS.** *3 credits. (3-0).*

Prerequisite, 680. Sudden application of load to machines. Transient and dynamic stability.

**440:683. ECONOMIC OPERATION OF POWER SYSTEMS.** *3 credits. (3-0).*

Prerequisite, BSEE and 455:160 or equivalent. Analytical and computing techniques for economic operation of a large power system. System representation, transmission loss, coefficients, control of reactive and active power flow. Matrix methods. Application of digital techniques, transmission losses as function of voltage phase angle. Introduction to the method of diakoptics.

**440:684. SURGE PROTECTION OF ELECTRICAL SYSTEMS.** *3 credits. (3-0).*

Prerequisite, 480/580. The phenomena of lightning and switching surges on electrical systems. The protection of systems and apparatus by line design, the application of protective devices and insulation coordination.

**440:686. ADVANCED ELECTRICAL MACHINERY.**

*3 credits. (3-0).*

Prerequisite, 484. Advanced topics relative to reactances and transient performance of electrical machinery.

**440:692. SPECIAL PROBLEMS.** *1 to 6 credits.*

Prerequisite, permission of department head. For qualified graduate students. Supervised research or investigation in student's major field of training or experience. Credit dependent upon nature and extent of project. May be taken more than once.

**440:699. MASTER'S THESIS.** *1 to 9 credits.*

Prerequisite, permission of department head. Research and thesis on some suitable topic in Electrical Engineering.

**440:751. SPECIAL TOPICS IN ELECTROMAGNETICS I.** *3 credits. (3-0).*

Prerequisite, 654. Introduction to advanced techniques and in analyzing field problems. Topics will include application of Green's functions techniques to cylindrical and spherical geometries and related boundary value problems. Stationary phase and saddle point techniques and their use in radiation problems. Variational methods and their use in scattering problems.

**440:752. SPECIAL TOPICS IN ELECTROMAGNETICS II.** *3 credits. (3-0).*

Prerequisite, 751. Continuation of the methods developed in 751. This sequence of two courses at the doctoral level will satisfy the special needs of the person whose chosen field is electromagnetic field theory with an emphasis on mathematical foundations.

**440:776. OPTIMAL CONTROL I.** *3 credits. (3-0).*

Prerequisite, 674. Formulation of the optimization problem; application of variational calculus, maximum principle, and the optimality principle to the control problems.

**440:777. OPTIMAL CONTROL II.** *3 credits. (3-0).*

Prerequisite, 776. Computational techniques in optimization and applications of optimal control.

**440:778. ADAPTIVE CONTROL. 3 credits. (3-0).**

Prerequisite, 777. The problems of system identification, performance criteria and decision-making; the implementation and application of adaptive control.

**440:779. ADAPTIVE TOPICS IN CONTROL SYSTEMS. 3 credits. (3-0).**

Prerequisite, 778. Discussions of recent advances in control systems.

**440:794. ADVANCED SEMINAR IN ELECTRICAL ENGINEERING. 1, 2 or 3 credits.**

Prerequisite, permission of department head. Advanced level coverage of various specialized topics. Intended for students seeking the Ph.D. in Engineering. May be taken more than once.

**440:897. PRELIMINARY RESEARCH.**

1-8 credits. (May be repeated for a total of 8 credits.)

Prerequisite, approval of Advisory Committee. Preliminary investigation of Ph.D. dissertation subject.

**440:898. DOCTORAL DISSERTATION. 1-15 credits.**

Prerequisite, completion of preliminary examination and approval of Advisory Committee. Original research by a Ph.D. candidate. May be taken more than once.

**440:899. DISSERTATION PREPARATION.**

1-5 credits. (May be repeated for a total of 5 credits.)

Prerequisite, approval of Advisory Committee. Writing of a Ph.D. dissertation by a Ph.D. candidate.

**445: COMPUTER SCIENCE****445:201. INTRODUCTORY FORTRAN PROGRAMMING. 3 credits. (3-0).**

Introduction to use of digital computers, designed for students who have not studied calculus. (No credit for persons having completed 445:206.)

**445:202. COBOL PROGRAMMING. 3 credits. (3-0).**

Prerequisite, Business major or permission. The use of COBOL and other business-oriented computer programming language on digital computers.

**445:206. FORTRAN PROGRAMMING FOR SCIENTISTS AND ENGINEERS. 3 credits. (3-0).**

Prerequisite, 345:231 or 202:336. Introduction to the application and use of stored program digital computers. Intended for students majoring in Engineering or the physical sciences. (No credit for persons having completed 201.)

**445:306. INTRODUCTION TO ASSEMBLY LANGUAGE PROGRAMMING. 3 credits. (3-0).**

Prerequisite, 206. Introduction to programming on machine and assembly language levels. Symbolic coding and assembly systems. Macros, Debugging Procedures.

**445:320. ANALOG COMPUTERS. 3 credits. (2-1).**

Prerequisite, 440:233, and 345:236 or 440:331. (No corequisite). Basic concepts involved in the solution of scientific and engineering problems via the analog computer.

**445:407. INTRODUCTION TO SYSTEMS PROGRAMMING. 3 credits. (3-0).**

Prerequisite, 306. Introduction to machine organization, operating systems, job control language, loaders, and assemblers.

**445:432. INTRODUCTION TO SYSTEM SIMULATION. 3 credits. (3-0).**

Prerequisite, 331. Problem formulation, modeling, solution

techniques, analysis and interpretation of results; statistical techniques, simulation languages; applications.

**445:461. COMPUTER METHODS IN SCIENCE AND ENGINEERING. 3 credits. (3-0).**

Prerequisite, 206 or equivalent knowledge of programming in Fortran IV, and 345:236. The efficient use of the modern digital computer to the solution of linear and non-linear problems encountered in Science and Engineering. Solutions for roots of equations, and the use of the computer in interpolation, numerical differentiation and integration, matrix multiplication and inversion, and the calculation of determinants. The proper use of the *Sub-Routine*, *Common*, and *Equivalence* statements, overlay techniques, etc.

**445:493/593. SEMINAR IN COMPUTER SCIENCE.**

1, 2 or 3 credits.

Prerequisite, permission of department head. Special topics in Computer Science. May be taken more than once.

**GRADUATE COURSES****445:631. SYSTEM SIMULATION ON DIGITAL COMPUTERS. 3 credits. (3-0).**

Prerequisites, 345:236, some computer programming and permission. Problem formulation, modeling, solution techniques, analysis and interpretation of results; computer integration of differential equation systems; Monte Carlo methods, simulator languages; applications.

**445:660. COMPUTER APPLICATION I. 3 credits. (3-0).**

Prerequisites, 206 and 345:236. Organization of scientific and engineering problems for computer adaptation. Subject matter selected from various branches of science and engineering.

**445:661. COMPUTER APPLICATION II. 3 credits. (3-0).**

Prerequisite, 660. Extension of 660 into more complex problems selected by students on the basis of interest.

**445:692. SPECIAL PROBLEMS. 1-6 credits.**

Prerequisite, permission of department head. For qualified graduate students. Supervised research or investigation in student's major field of training or experience. Credit dependent upon nature and extent of project. May be taken more than once.

**445:794. ADVANCED SEMINAR IN COMPUTER SCIENCE. 1, 2, 3 credits.**

Prerequisite, permission of department head. Advanced level coverage of various topics. Intended for students seeking the Ph.D. in Engineering. May be taken more than once.

**460: MECHANICAL ENGINEERING****460:125. ENGINEERING GRAPHICS I. 3 credits. (1-2).**

Freehand sketching techniques. Orthographic projection and pictorial representation of typical machine elements.

**460:126. ENGINEERING GRAPHICS II. 2 credits. (0-2).**

Prerequisite, 125. Introduction to formal design drawing. Graphical communication.

**460:300. THERMODYNAMICS I. 3 credits. (3-0).**

Introduction of basic concepts of Thermodynamics, the pure substance, the system, and the laws of Thermodynamics.

**460:301. THERMODYNAMICS II. 3 credits. (3-0).**

Prerequisite, 300. Entropy, inequality of Clausius, the

irreversible process, irreversibility, availability, cycle analysis.

**460:302. THERMODYNAMICS III.** *3 credits.* (3-0).

Prerequisite, 301. Maxwell relations, real gases, ideal mixtures, fugacity, chemical reactions, phase and chemical equilibrium.

**460:305. THERMAL SCIENCE.** *3 credits.* (3-0).

Corequisite, 345:234. Credit not allowed for both 300 and 305. Introduction to the first and second laws of thermodynamics, perfect gas relationships, properties, introduction to conduction, convection and radiation heat transfer.

**460:310. FLUID MECHANICS.** *3 credits.* (3-0).

Corequisite, 460:322. Properties and behavior of gases and liquids at rest and in motion. The energy equation. Flow in conduits. Forces on body submerged in moving fluid.

**460:315. HEAT TRANSFER.** *4 credits.* (4-0).

Prerequisite, 310. Fundamentals of heat transfer by conduction, convection, radiation, and combination of these.

**460:316. HEAT TRANSFER PROCESSES.** *3 credits.*

Prerequisite, 315. Continuation of 315. Analysis and design of heat transfer equipment. Natural convection heat transfer. Topics from conduction, convection and radiation heat transfer not covered in 315.

**460:320. KINEMATIC ANALYSIS OF MECHANISMS.**

*4 credits.* (3-1).

Prerequisite, 345:236. Displacements, velocities, accelerations and introduction to forces in plane motion mechanisms. Introduction to design of gears, gear trains and cams.

**460:322. DYNAMICS.** *4 credits.* (4-0).

Prerequisite, 430:201. Kinetics of particles and rigid bodies. Acceleration, work, energy, momentum and impulse.

**460:330. DYNAMICS OF MACHINERY.** *3 credits.* (2-1).

Prerequisites, 320, 430:202. Dynamic analysis of components and machines, dynamic forces and reactions. Balancing of rotating and reciprocating masses. Analysis and design of gear trains and cams.

**460:336. ANALYSIS OF MECHANICAL COMPONENTS I.** *3 credits.* (3-0).

Prerequisite, 430:202. Analysis of stress due to static, dynamic, thermal, and time dependent loads.

**460:337. ANALYSIS OF MECHANICAL COMPONENTS II.** *3 credits.* (3-0).

Prerequisite, 336, 380. Application of stress analysis and failure theory to design of mechanical components.

**460:360. ENGINEERING ANALYSIS I.** *3 credits.* (3-0).

Prerequisite, 345:236. Application of ordinary differential equations to the solution of problems in Mechanical Engineering.

**460:361. ENGINEERING ANALYSIS II.** *3 credits.* (3-0).

Prerequisite, 360. Special topics in the "closed-form" analysis of problems in Mechanical Engineering.

**460:362. ENGINEERING ANALYSIS III.** *3 credits.* (3-0).

Prerequisite, 361. The application of numerical and computer techniques to the solution of problems in Mechanical Engineering.

**460:380. MECHANICAL PROPERTIES OF MATERIALS.** *3 credits.* (3-0).

Prerequisite, 430:202. Structures of common metallic materials and the study of their macroscopic mechanical behavior. Theories of failure.

**460:390. FLUID MECHANICS LABORATORY I.**

*1 credit.* (0-1).

Prerequisite, 310. Demonstration of flow measuring devices, pump characteristics and measurement of pressure drop in pipes, valves and other piping components.

**460:391. AERODYNAMICS LABORATORY.** *1 credit.* (0-1).

Prerequisites, 301, 310. Demonstration of aerodynamic principles in subsonic and supersonic flow. Wind tunnel operation.

**460:392. AIR CONDITIONING LABORATORY.**

*1 credit.* (0-1).

Prerequisite, 302. The application of the principles of thermodynamics, heat transfer and fluid mechanics to analyze a practical air conditioning unit.

**460:393. INTERNAL COMBUSTION ENGINES LABORATORY.** *1 credit.* (0-1).

Prerequisite, 301. A study of the application and performance of reciprocating and rotary engines.

**460:394. HEAT TRANSFER LABORATORY.**

*1 credit.* (0-1).

Prerequisite, 315. An experimental investigation of certain conduction, convection and radiation heat transfer processes.

**460:395. ACOUSTICS LABORATORY.** *1 credit.* (0-1).

Prerequisites, 325, 425 and permission. Noise measurement equipment — function and operation. Spectral and statistical analysis of sound. Physiology of hearing and noise criteria.

**460:396. COMPUTER METHODS LABORATORY.**

*2 credits.* (0-2).

Prerequisite, 361. Application of digital computers to solution of typical problems in heat transfer, fluid dynamics, machine design, kinematics, strength of materials, elasticity and vibrations and dynamics.

**460:398. VIBRATIONS AND DYNAMICS**

**LABORATORY.** *1 credit.* (0-1).

Prerequisite, 320 and permission. Laboratory study of vibrations and dynamics including periodic forces, resonance and magnification, damping, critical speeds, torsional vibration, rotor balancing, self-induced vibrations, dynamic response and acceleration, impulse impacts and the dynamics of machine elements.

**460:399. TURBOMACHINERY LABORATORY.**

*1 credit.* (0-1).

Prerequisites, 301, 310. Experimental determination of performance characteristics of turbines, compressors and fans by thermodynamic and fluid dynamic measurements.

**460:410. ENVIRONMENTAL CONTROL.** *3 credits.* (3-0).

Prerequisites, 302 and 315, or permission. Thermodynamics of gas mixtures. Design and selection of air conditioning equipment. Control of gas mixtures, heating, cooling and humidity.

**460:411/511. COMPRESSIBLE FLUID MECHANICS.**

*3 credits.* (3-0).

Prerequisites, 301, 310. Introduction to the effects of fluid compressibility in one-dimensional flows, Subsonic and supersonic flows of a perfect gas in nozzles, diffusers and ducts including shockwaves, friction effects and effects of heat transfer.

**460:413/513. JET PROPULSION AND TURBOMACHINERY.** *3 credits.*

Prerequisite, 411/511. Thermodynamic and fluid dynamic analysis of rotary compressors and turbines with applications to jet propulsion, gas turbines, pumps and fans.

**460:415. ENERGY CONVERSION.** *3 credits.* (3-0).

Some topics from the fields of internal combustion engines, cycle analysis, modern conversion devices.

**460:422/522. EXPERIMENTAL STRESS ANALYSIS I.** *3 credits.* (3-0).

Prerequisite, 430:202 or 430:305. Experimental methods of

determining stress or strain. Use of brittle lacquer, strain gages and photoelasticity.

**460:423/523. INTRODUCTION TO ASTRONAUTICS.**

*3 credits.*

Prerequisites, 310, 322. Introduction to rocket propulsion, including basic equations, staging and types of rockets. Introduction to orbital mechanics including satellite orbits, ballistic flight and inner-planetary transfer orbits.

**460:425/525. ENGINEERING ACOUSTICS I.** *3 credits.*

Prerequisite, 431/531. Energy of vibration, analysis by Fourier's Theorem, phase and mechanical impedance concepts, wave propagation and reflection, plane waves, spherical waves and radiation impedance.

**460:430/530. ENGINEERING DYNAMICS I.**

*3 credits. (3-0).*

Prerequisite, 322. Engineering applications of: systems of particles, work, energy, Lagrangian mechanics, rigid body kinetics, the inertia tensor.

**460:431/531. VIBRATIONS.** *3 credits. (3-0).*

Prerequisite, 345:236. Undamped, damped, and forced vibrations for systems having a single degree of freedom.

**460:440. AUTOMATIC CONTROLS I.** *3 credits. (3-0).*

Prerequisite, 345:236. Complex variables and Laplace transforms. Mathematical models of physical systems. Transient systems analysis and steady-state sinusoidal analysis. Analog simulation of linear systems.

**460:441. AUTOMATIC CONTROLS II.** *3 credits. (3-0).*

Prerequisite, 440. Transfer functions. First and second order systems. System accuracy and error analysis. Stability criteria. Polar and log-frequency plots.

**460:442/542. INDUSTRIAL AUTOMATIC CONTROL.**

*3 credits. (3-0).*

Prerequisite, 441 or permission. Theory and operation of basic control mechanisms. Analysis and design of mechanical hydraulic, pneumatic and fluidic control systems. Practical techniques for optimizing system performance.

**460:443/543. SYSTEM ANALYSIS AND CONTROL.**

*3 credits. (3-0).*

Prerequisite, 441 or permission. Mathematical modeling of engineering systems; techniques for synthesis of controllers for systems with multi-degrees of freedom and varying parameters. Optimum switching.

**460:460. MECHANICAL DESIGN I.** *4 credits. (3-1).*

Prerequisites, 301, 310, 336; 315 desirable. The design process. Creativity and inventiveness. The tools of decision-making probability, reliability, optimization.

**460:461. MECHANICAL DESIGN II.** *4 credits. (3-1).*

Prerequisite, 460. The interdisciplinary aspects of design. Case studies and projects.

**460:490. CONTROLS AND SYSTEMS LABORATORY I**  
*1 credit (0-1).*

Prerequisite 441. Measurement of parameters for first and higher order systems. Experimental study of the effect of controllers on the stability and performance of systems.

**460:491. CONTROLS AND SYSTEMS LABORATORY II.**  
*1 credit. (0-1).*

Prerequisite 441. Selected topics in the experimental analysis of control and systems performance.

**460:494. MECHANICAL ENGINEERING LAB.**

*1-10 credits. (May be repeated for a total of 10 credits.)*

Prerequisite, permission of Instructor. Laboratory experiments in the areas of dynamics, measurements, thermodynamics, fluids, and heat transfer.

**460:495. MECHANICAL ENGINEERING PROBLEMS.**

*1-3 credits. (May be repeated for a total of 5 credits.)*

Prerequisite, senior standing. Investigation of a project by individual or small student groups. Detailed formal report required.

**460:496. SPECIAL TOPICS.** *1-3 credits.*

*(May be repeated for a total of 3 credits.)*

Prerequisite, permission. Brief description of current content to be announced in schedule of classes.

## GRADUATE COURSES

**460:600. GAS DYNAMICS I.** *3 credits.*

Prerequisite, 411/511 or permission. Derivation of basic equations for flow of a compressible fluid. Topics from one-dimensional flow. Two-dimensional irrotational flow. Method of small perturbations. Method of characteristics.

**460:608. THERMODYNAMICS I.** *3 credits.*

Prerequisites, 302, 345:236; 345:432 desirable. Extension and generalization of the basic concepts of thermodynamics. Thermodynamic systems and states. Criteria for equilibrium. Third law.

**460:610. DYNAMICS OF VISCOUS FLOW I.**

*3 credits. (3-0).*

Derivation and solution of equations governing viscous flow. Applications include unsteady flows, slow viscous flows, parallel flows, lubrication theory and introduction to laminar boundary layers.

**460:615. CONDUCTIVE HEAT TRANSFER.**

*3 credits. (3-0).*

Prerequisites, 315, 345:236; 345:432 desirable. Study of the one-two-and three-dimensional heat conduction equation. Development of theoretical, graphical and analog techniques for analysis and design.

**460:617. RADIATIVE HEAT TRANSFER.** *3 credits. (3-0).*

Prerequisites, 315, 345:236, (345:432 desirable). A study of the governing radiation laws. Black and real systems, geometric factors, gray enclosures, non-gray systems, gaseous radiation, radiation equipment.

**460:620. EXPERIMENTAL STRESS ANALYSIS II.**

*3 credits. (3-0).*

Prerequisite, 422/522. Dynamic strain measurement and design of transducers using electrical resistance strain gages. Techniques for measuring surface strain.

**460:621. EXPERIMENTAL STRESS ANALYSIS III.**

*3 credits. (3-0).*

Prerequisite, 422. Reflective photoelasticity. Moire fringe techniques for large strains. Special topics in experimental stress analysis.

**460:622. CONTINUUM MECHANICS.** *3 credits. (3-0).*

Analysis of stress and deformation at a point. Derivation of the fundamental equations by applying the basic laws of conservation of mass, energy and momentum in mechanics and the laws of thermodynamics. Relations between stress and strain and strain rate. Specialized laws affecting the stress-strain relationships. Extensions to polar materials.

**460:623. APPLIED STRESS ANALYSIS I.** *3 credits. (3-0).*

Prerequisite, 622. Continuation of Continuum Mechanics with specific applications to solid media. Development of energy theorems due to Reissner, Washizu and generalized Hamilton's principle. Solutions of static and dynamic problems are developed using complex variables, integral equations, integral transforms and potential theory.

**460:625. ANALYSIS OF MECHANICAL**

**COMPONENTS.** *3 credits. (3-0).*

Theories of failure. Determination of strength-static loading, fatigue, creep and stress rupture.

Determination of stress-torsion, contact stress, and thermoelastic problems.

**460:629. NON-LINEAR ENGINEERING PROBLEMS**

I. 3 credits. (3-0).

Study of non-linear ordinary differential equations governing various phenomena of mechanics. Analysis of phase space trajectories and singularities of autonomous systems. Development of approximate analytical solution procedures (perturbation techniques, method of weighted residuals, et cetera). Study of the response of nonautonomous systems. Stability considerations via standard techniques (Hill's equation, Routh-Hurwitz, Liapunov).

**460:630. MECHANICAL VIBRATIONS I.** 3 credits. (3-0).

Prerequisite, 460:431/531 or equivalent. The study of vibrations of multi-degree of freedom systems, including free and forced vibrations, damped and transient response, normal mode vibrations, and matrix iteration techniques.

**460:633. ENGINEERING DYNAMICS II.** 3 credits. (3-0).

Prerequisite, 430/530. Engineering applications of: Euler's differential equation, Hamilton's principle, the principle of Manpertuis oscillatory motion, phase space and the Hamilton-Jacobi equation.

**460:634. ENGINEERING ACOUSTICS II.** 3 credits.

Prerequisite, 425/525. Beam width and directivity of radiation sources, microphones and speakers, Huygen's principle and diffraction of sound waves, physiology and response criteria of the human ear, Fourier analysis of steady state and transient noise.

**460:640. LARGE-SCALE SYSTEMS.** 3 credits. (3-0).

Prerequisite, permission. Introduction to complex multidisciplinary systems. Concepts in modeling of large systems. Techniques in analysis, control, and optimization of interconnected hierarchical systems. Examples in such areas as physical, economic, transportation, business, ecological, educational and social systems.

**460:660. ENGINEERING ANALYSIS I.** 3 credits. (3-0).

Prerequisite, 360 or permission. Applications of differential equations to engineering problems in heat transfer, stress analysis, fluid flow, dynamics, and vibrations, including the use of Fourier series, Sturm-Liouville systems, Bessel and Legendre equations, Laplace transformations, and complex variables.

**460:680. POLYMER PROCESSING.** 3 credits. (3-0).

Prerequisite, 310 or permission. Study of process engineering in the polymer conversion industry, emphasizing the analytical treatments of heat transfer, mass flow, mixing, shaping, and molding of polymeric materials.

**460:681. DESIGN OF RUBBER COMPONENTS.**

3 credits. (3-0).

Prerequisite, permission. Study of the principles of the design of elastomeric products, emphasizing analytical treatments of the elastic behavior and mechanisms of failure of resilient mountings, springs, seals, bearings, and tires.

**460:695. SPECIAL PROBLEMS IN MECHANICAL ENGINEERING.** 1-6 credits.

Prerequisite, permission of department head. For qualified candidates for graduate degree. Supervised research in student's major field of training or experience. Credit dependent upon nature and extent of project as determined by supervisor and department head.

**460:699. MASTER'S THESIS.** 1-6 credits.

Prerequisite, permission. Research and thesis on some suitable topic in mechanical engineering.

**460:700. GAS DYNAMICS II.** 3 credits.

Prerequisite, 600 or equivalent. Continuation of 600. Oblique shocks. Axisymmetric supersonic flow. Hypersonic and transonic flow. Hodograph methods. Unsteady flow. Selected topics in advanced Gas Dynamics.

**460:708. THERMODYNAMICS II.** 3 credits.

Prerequisite, 608 or permission. Advanced topics of classical thermodynamics, statistical and irreversible thermodynamics.

**460:710. DYNAMICS OF VISCOUS FLOW II.** 3 credits.

Prerequisite, 610 or permission. Integral methods in boundary layer analysis. Introduction to turbulence. Developing flows. Turbulent boundary layers. Practical methods of solution of boundary layer problems.

**460:716. CONVECTION HEAT TRANSFER I.** 3 credits.

Prerequisite, 315, 345:236, (345:432 desirable). Study of the equations for convective heat transfer and the conditions associated with the equations. Techniques for analysis and design.

**460:717. CONVECTION HEAT TRANSFER II.** 3 credits.

Prerequisite, 716. Topics include heat transfer to liquid metals as well as high Prandtl number fluids, and hydrodynamically and thermally in steady conditions.

**460:719. ADVANCED HEAT TRANSFER.** 3 credits.

Prerequisite, permission. Special topics and problems in conduction, convection, or radiation.

**460:720. APPLIED STRESS ANALYSIS II.** 3 credits.

Prerequisite, 623. Continuation of Applied Stress Analysis I. Development of approximate solution techniques including asymptotic methods, the method of weighted residuals (Rayleigh Ritz's, Galerkin's, Trefftz's, collocation, least square, etc.) and finite elements.

**460:725. THERMOELASTICITY.** 3 credits. (3-0).

Prerequisite, 430:602. Thermoelastic equations, thermal stresses, dynamical thermal stress problems. Papkovitch potentials, variational methods.

**460:726. NON-LINEAR CONTINUUM MECHANICS.** 3 credits.

Prerequisites, 622 or permission. Finite deformation and strain, stress, constitutive equations, strain energy functions. The solution of finite deformation problems, hypoelasticity, electroelasticity and micro-polar theories.

**460:729. NON-LINEAR ENGINEERING PROBLEMS II.** 3 credits. (3-0).

Prerequisite, 629. A continuation of 629. Study of non-linear partial differential equations governing various phenomena of mechanics. Development of a variety of solution techniques, method of weighted residuals, method of lines, perturbation techniques and finite element and difference procedures.

**460:730. MECHANICAL VIBRATIONS II.** 3 credits.

Prerequisite, 630. Continuation of 630. Advanced topics concerning vibrations of damped and undamped systems. Matrix methods in vibration analysis. Approximate and numerical methods.

**460:731. RANDOM VIBRATIONS.** 3 credits.

Prerequisite, 630 or equivalent. Stationary random processes and their transmission through linear time-invariant systems. Interaction of random vibration with three mechanisms of failure.

**460:741. ADVANCED CONTROL TOPICS.**

3 credits. (3-0).

Prerequisite, 440:674, or permission. Advanced theory of control systems. Discussion of recent research such as Optimal Controls for engineering systems with time delay and dis-

tributed parameters and large-scale systems.

**460:742. STABILITY THEORY OF CONTROL SYSTEMS.** 3 credits. (3-0).

Prerequisite, 440:675 or permission. Definitions and concepts of stability. Methods of applications for control problems in engineering. Stability of engineering systems with time delays.

**460:760. ENGINEERING ANALYSIS II.** 3 credits. (3-0).

Prerequisite, 660 or permission. Analysis of engineering problems to include matrices, linear transformations, potential theory, conformal mapping, and numerical analysis.

**460:763. ADVANCED METHODS IN ENGINEERING ANALYSIS.** 3 credits.

Prerequisite, 760 or permission. Applications of numerical methods, variational methods, integral methods, and similarity transforms to complex engineering problems in heat transfer, fluid mechanics, and vibration.

**460:794 ADVANCED SEMINAR IN MECHANICAL ENGINEERING.** 1-6 credits.

Prerequisite, permission of Department Head. Advanced projects and studies in various areas of mechanical engineering. Intended for students seeking the Ph.D. in Engineering degree. May be repeated up to a maximum of 9 credits.

**460:897. PRELIMINARY RESEARCH.** 1-8 credits.

(May be repeated for a total of 8 credits.)

Prerequisite, approval of Advisory Committee. Preliminary Investigation of Ph.D. dissertation subject.

**460:898. DOCTORAL DISSERTATION.** 1-15 credits.

Prerequisite, completion of Preliminary Examination and approval of Advisory Committee. Original research by a Ph.D. candidate. May be taken more than once for credit.

**460:899. DISSERTATION PREPARATION.** 1-5 credits.

(May be repeated for a total of 5 credits.)

Prerequisite, approval of Advisory Committee. Writing of a Ph.D. dissertation by a Ph.D. candidate.

# *The College of Education*

## 510: EDUCATIONAL FOUNDATIONS

### 510:156. EDUCATION IN AMERICAN SOCIETY. 3 credits.

Nature and purposes of education in American society including description of its distinctive features and analysis of factors determining its character.

### 510:350. TESTS AND MEASUREMENTS. 3 credits.

Prerequisite, 565:157. Various methods and devices employed in comprehensive and continuous evaluation. Some attention given to treatment and interpretation of scores.

### 510:401. PROBLEMS IN EDUCATION. 4 credits.

Prerequisite, Senior status in Education. Involves the senior student in a critical approach to the more general problems of education as a scholarly discipline, as a social undertaking, and as a profession. This course, which crosses divisional boundaries, assists the preservice teacher to evaluate educational practice in the light of philosophy of education.

### 510:420. INDIVIDUALIZED INSTRUCTION IN THE SCHOOLS. 3 credits.

Patterns of individualized instruction and related research will be reviewed to establish the potential and limitations of each approach. Students will formulate programs of individualized instruction in their major subject areas.

## GRADUATE COURSES

### 510:600. PHILOSOPHIES OF EDUCATION. 4 credits.

An examination of basic philosophical problems which underlie the broad educational questions that confront society. This course provides a foundation upon which a critical understanding can be developed of fundamental questions of modern society and education.

### 510:606. COMPARATIVE EDUCATION. 3 credits.

Comparative study of philosophies, organization, administration, curricula and methods of foreign schools, including those in England, France, Germany, the Soviet Union, representative countries of the Middle East and Latin America, stressing those phases which have special significance for American education.

### 510:610. EDUCATIONAL COMMUNICATION AND TECHNOLOGY. 3 credits.

To familiarize the student with current practices and recent advances in educational communication and educational Technology, including familiarization with educational media centers, programmed learning, educational television, computer assisted instruction and computer data processing for education.

### 510:611. TOPICAL SEMINAR IN THE CULTURAL FOUNDATIONS OF EDUCATION. 4 credits.

(May be repeated for a total of 8 credits.)

Issues and subjects related to the study of educational institutions, theories and/or ideas. Different topics will be offered from time to time.

### 510:630. ADULT EDUCATION. 3 credits.

A survey course for public school teachers and administrators as well as for those engaged full time in Adult

Education. Historical background including European influences and their relation to rapid developments in the field during the last decade. Emphasis on current programs throughout the United States.

### 510:701. HISTORY OF EDUCATION IN AMERICAN SOCIETY. 4 credits.

The historical development of education in the American social order, with special emphasis on the social, political, and economic setting.

### 510:702. SEMINAR: MODERN THEORIES OF EDUCATION. 3 credits.

Prerequisite, 700 or equivalent. An examination of the major theoretical frameworks and ideologies that form the foundation of modern educational thought. Emphasis is given to modern theories and their implications for contemporary educational policy and practice.

### 510:703. EDUCATION AND SOCIAL TRENDS. 3 credits.

Study of contemporary political, economic and social trends and their effects on educational policies and practices.

### 510:705. INTERDISCIPLINARY SEMINAR. 4 credits.

Concepts, principles, and points of view derived from the areas of sociology, economics, political science, and labor-management relations, designed to strengthen the background of specialists in professional education.

### 510:709. SEMINAR: HISTORY AND PHILOSOPHY OF HIGHER EDUCATION. 4 credits.

Prerequisite, 700. History and Philosophy related to the genesis and development of higher education in the Western World, with special emphasis given to higher education's development in the United States.

### 510:740. THEORIES OF EDUCATIONAL SUPERVISION. 4 credits.

Prerequisite, 570:610; 520:732 or 530:721. Exploration and examination of various theories of supervision; sample methods which implement existing theories.

## 515: GENERAL

### 515:100. STUDENT PARTICIPATION. 1 credit.

Systematic observation and participation in the classroom.

### 515:200. STUDENT PARTICIPATION. 1 credit.

Systematic observation and participation in the classroom.

### 515:300. STUDENT PARTICIPATION. 1 credit.

Systematic observation and participation in the classroom.

### 515:305. FIELD EXPERIENCE. 1-4 credits.

Prerequisite, upper college standing. Supervised work with youngsters, individually and in groups in school and/or community settings.

### 515:360. NURSERY SCHOOL LABORATORY. 4 credits. (2-4).

Prerequisite, 740:265. Concentrated study and experience in nursery school programming under the direction of supervising teachers.

### 515:402. STUDENT TEACHING. 6-9-12 credits.

Corequisite, 403; prerequisite, 530:313 or equivalent. Student teaching under supervision of directing teacher and University supervisor.

**515:403. SEMINAR IN STUDENT TEACHING.***2 credits.*

Corequisite, 402.

**515:405. INDEPENDENT STUDY. 1-4 credits.**

Designed for students who have demonstrated high academic achievement and who wish to do special work in education.

**515:410. AUDIO-VISUAL EDUCATION. 3 credits.**

To acquaint teachers of all levels with the wide variety of visual and auditory aids available and the techniques for their respective use. Learning to operate projectors and sound reproducers, to locate materials available and to construct materials for one's own specific use.

**GRADUATE COURSES****515:690-691-692. INTERNSHIP TEACHING AND SEMINAR. 4 credits each.**

Teaching at least one-half time under supervision from the University and the school system. Includes a two-hour seminar each week.

**520: ELEMENTARY EDUCATION****520:141. HANDICRAFTS IN ELEMENTARY SCHOOL.***3 credits.*

A broad range of experiences through the manipulation of various craft mediums which will enrich the curriculum of the elementary school.

**520:286. CHILDREN'S LITERATURE. 5 credits.**

A survey of materials for children in prose, poetry and illustrations from early historical periods to modern types; criteria of selection and methods of presentation are critically examined.

**520:310. INTRODUCTION TO EARLY CHILDHOOD EDUCATION. 3 credits.**

Prerequisite, 740:265. Basic programs in early childhood education. Purposes of programs and personnel involved.

**520:311. CURRICULUM FOR PRESCHOOL LEARNING CENTERS. 3 credits.**

Prerequisite, 310. Curricular and instructional techniques in mathematics, science, language arts, social studies and music are examined with emphasis on early learning as a foundation for later growth.

**520:321. ART FOR THE GRADES. 3 credits.**

Prerequisite, 710:121. Art requirements in elementary grades; laboratory work to give teachers a knowledge of materials and mediums and skill in handling them.

**520:323. MUSIC TEACHING IN THE ELEMENTARY SCHOOL. 3 credits.**

Prerequisite, 750:253. To establish the theoretic foundations of the teaching and supervision of music in grade K-6.

**520:324. FIELD EXPERIENCE IN ELEMENTARY SCHOOL MUSIC. 3 credits.**

Prerequisite, 323. Required of all voice and piano majors in music education to prepare music specialists for organizing, teaching, and supervising music education in the elementary schools through observation-participation experience in public music classrooms.

**520:330. EARLY ELEMENTARY EDUCATION I.***3 credits.*

Prerequisite, 565:157. Aims to develop a forward-looking viewpoint in the education of young children. Materials,

techniques and practices are examined which furnish opportunities to explore Kindergarten-Primary Education.

**520:331. EARLY ELEMENTARY EDUCATION II.***3 credits.*

Prerequisite, 330. Emphasis is placed on the curricular offerings of typical Primary schools. Language Arts, Science, Social Studies are emphasized.

**520:332. EARLY ELEMENTARY EDUCATION III.***3 credits.*

Prerequisite, 331. The professional problems of teaching in the kindergarten-primary grades are explored. Small group discussion and classroom visitations are correlated to bring theory and practice into working perspective.

**520:333. SCIENCE FOR THE ELEMENTARY GRADES. 5 credits.**

Prerequisite, 565:157. For the prospective teacher of science in the elementary school; development of a point of view toward science teaching and study of methods of presenting science material.

**520:334. TEACHING ART IN THE ELEMENTARY SCHOOL. 3 credits.**

Prerequisite, art education major, junior standing; elementary education majors, 141 and 321. Visual arts in the elementary school. Art education concepts with a studio orientation including history of art education, developmental stages, curriculum and organization, methods, evaluation and research, and practical participation (classroom teaching).

**520:335. THE TEACHING OF READING. 5 credits.**

Prerequisite, 565:157. Reading program for the elementary school, together with modern methods of teaching reading at the various levels.

**520:336. TEACHING OF ELEMENTARY SCHOOL MATHEMATICS. 5 credits.**

Prerequisite, 565:157. Trends in arithmetic instruction in elementary school. Procedures for the development of mathematical concepts and skills.

**520:337. TEACHING THE LANGUAGE ARTS.***7 credits.*

Prerequisite, 565:157. Materials, grade allocations and methods for teaching oral and written expression, reading, spelling and handwriting in elementary grades.

**520:338. THE TEACHING OF SOCIAL STUDIES.***5 credits.*

Prerequisite, 565:157. Social studies program in the elementary school and the varied means of implementing the program.

**520:339. PRINCIPLES OF DIAGNOSTIC TEACHING OF READING. 5 credits.**

Nature of reading problems in a classroom setting. Methods and materials employed in a corrective reading program by the classroom teacher.

**520:365. COMPREHENSIVE MUSICIANSHIP FOR ELEMENTARY CLASSROOM TEACHERS I. 3 credits.**

Designed to afford prospective classroom teachers the opportunity to develop their individual capacity for musical expression and the technique for teaching elementary musical concepts.

**520:366. COMPREHENSIVE MUSICIANSHIP FOR ELEMENTARY CLASSROOM TEACHERS II. 3 credits.**

Prerequisite, 365. A continuation of 365 in the integration development of individual musical expression and teaching techniques.

**520:436/536. GEOMETRY AND MEASUREMENT IN ELEMENTARY SCHOOL MATHEMATICS. 4 credits.**

Prerequisite, 336. Trends in geometry and measurement instruction in the elementary school. Procedures for the development of important geometric concepts and measurement skills.

**520:437/537. STRUCTURE OF THE NUMBER SYSTEM IN ELEMENTARY SCHOOL MATHEMATICS. 4 credits.**

Prerequisite, 336. Advanced topics in mathematics and techniques in the elementary school. Procedures for the development of important arithmetic concepts and computational skills.

**520:438/538. MATERIAL AND LABORATORY TECHNIQUES IN ELEMENTARY SCHOOL MATHEMATICS. 4 credits.**

Prerequisite, 336 or permission of Instructor. Applied mathematics in the elementary school. Construction and applications of mathematical models. Procedures for the development of important mathematical concepts through the laboratory approach.

**520:439/539. PROPERTIES OF NUMBERS IN ELEMENTARY SCHOOL MATHEMATICS. 4 credits.**

Prerequisite, 336 or permission of the Instructor. An investigation of those number properties that help explain how the laws of arithmetic work. Procedures for the development of important arithmetic concepts and computational skills.

**520:440/540. CONTEMPORARY ELEMENTARY SCHOOL SCIENCE PROGRAMS. 3 credits.**

Prerequisite, 333. Contemporary elementary school science programs are critically analyzed and selected portions are used in classroom simulation.

**520:451. ELEMENTARY EDUCATION. 4 credits.**

Evaluation of recent trends and practices in elementary education. Language Arts and Social Studies will be emphasized. Required for those converting from other certificates to elementary.

## GRADUATE COURSES

**520:630. ELEMENTARY SCHOOL CURRICULUM AND INSTRUCTION. 3 credits.**

Application of the findings of recent research to curriculum building and procedures in teaching.

**520:640. THEORY AND PRACTICE IN ELEMENTARY MATHEMATICS. 3 credits.**

A comparative analysis and evaluation of the purposes and programs of experimental mathematics programs for the elementary schools with application of the findings to instructional methods and materials.

**520:645. EDUCATIONAL IMPLICATIONS OF ELEMENTARY SCIENCE. 3 credits.**

Prerequisite, graduate standing. An examination of the influence of new curricular designs in elementary science. Emphasis shall be placed on inquiry, investigation and discovery and their impact on the total elementary school curriculum. An examination of trends in elementary education and related strategies in elementary science.

**520:732. SUPERVISION OF INSTITUTION IN THE ELEMENTARY SCHOOL. 3 credits.**

A study of supervisory role of the elementary principal and other supervisory personnel. Consideration of the particular aspects of supervision at the elementary school level in relation to general supervisory practices.

**520:780. SEMINAR IN ELEMENTARY EDUCATION. 3 credits. (May be repeated.)**

An intensive examination of a particular discipline in elementary education.

## 525: READING

**525:340. DEVELOPMENTAL READING IN CONTENT AREAS. 5 credits.**

Prerequisite, 520:335 or 530:425. Nature of reading skills relating to content subjects. Methods and materials needed to promote reading achievement in content subjects by the classroom teacher.

**525:341. LABORATORY PRACTICUM IN READING. 5 credits.**

Prerequisites, 340 and 520:339. Laboratory experience with classroom, small groups and individual situations. Students diagnose, implement procedures and follow prescribed reading improvement practices; supervised practices; independent work; written reports.

## GRADUATE COURSES

**525:680. TRENDS IN READING INSTRUCTION. 3 credits.**

Prerequisite, 520:335 or 530:425 or permission. Survey and analysis of trends in reading instruction in terms of current research.

**525:681. DIAGNOSIS OF READING PROBLEMS. 5 credits.**

Prerequisites, 680 or 520:335 or permission. Relation of growth to reading development and reasons for retardation. Implementation of diagnostic techniques by developing case studies in a supervised setting.

**525:682. CORRECTION OF READING PROBLEMS. 5 credits.**

Prerequisite, 681. Incorporating formal and informal procedures for screening disabled readers. Study of materials and techniques for improving reading performance.

**525:683. CLINICAL PRACTICES IN READING I. 4 credits.**

Prerequisite, 682. The nature and etiology of reading difficulties experienced by selected children. Supervised practices and independent work with children in conjunction with staff from other related disciplines. Case study techniques and diagnostic reports will be employed.

**525:684. CLINICAL PRACTICES IN READING II. 4 credits.**

Prerequisite, 683. Students learn advanced procedures in diagnosing and correcting reading disabilities by working with referrals experiencing extreme reading retardation. Supervised practice; independent work; case study reports and lesson logs employed.

**525:692. ADVANCED STUDY AND RESEARCH IN READING INSTRUCTION. 5 credits.**

Prerequisites, 520:335 or 530:425; 590:603 and teaching experience. Surveys of research, comparison and evaluation of programs, design and development of projects in reading through group and individual study.

**525:693. SUPERVISION AND CURRICULUM DEVELOPMENT IN READING INSTRUCTION.***3 credits.*

Prerequisites, 530:619 or 520:630; teaching experience. Study of reading relative to total curriculum; procedures for developing reading program in all curriculum areas; examination of children's literature and related instructional reading by supervisors and consultants.

**530: SECONDARY EDUCATION****530:200. EXPLORATORY EXPERIENCES IN SECONDARY SCHOOLS. 1-3 credits.***(May be repeated for a maximum of 3 credits.)*

Field work with secondary school pupils, teachers and other professional personnel.

**530:310. PRINCIPLES OF SECONDARY EDUCATION. 3 credits.**

Designed to familiarize the pre-service teacher with the nature of secondary education and the act of teaching in the secondary schools.

**530:311. INSTRUCTIONAL TECHNIQUES IN SECONDARY EDUCATION. 4 credits.**

Techniques of planning, instruction and evaluation in various secondary teaching fields.

**530:314. TEACHING OF SPEECH. 3 credits.**

Prerequisite, 12 credits in speech courses. An investigation of educational methods for speech-communication specialists through examination of theories, study of teaching processes and methods and preparation of instructional materials.

**530:315. SEMINAR IN TEACHING MODERN FOREIGN LANGUAGES. 4 credits.**

Prerequisite, 565:157. An elective course for those students who major in modern foreign languages.

**530:316. METHODS IN TEACHING ART. 4 credits.**

Prerequisite, completion of the required course for art teachers and quality point ratio of 2 in the field. Study of trends and procedure in teaching and in supervision; relation of art to the home, school and community; observation in selected schools is required.

**530:321. JUNIOR HIGH AND MIDDLE SCHOOL EDUCATION. 3 credits.**

Designed to provide students with a knowledge and understanding of junior high and middle school education with ability to interpret it to other educators, to parents, and to pupils.

**530:325. GENERAL MUSIC IN THE SECONDARY SCHOOL. 2 credits.**

Prerequisite, 520:323. To establish the theoretic foundation of teaching non-public performance oriented music classes at the junior and senior high school levels, including the aesthetic approach to music, related arts programs, as well as the traditional music concept.

**530:326. FIELD EXPERIENCE IN INSTRUMENTAL MUSIC. 3 credits.**

Prerequisites, 750:253 and 750:361. Required of all instrumental majors, excluding piano majors, conducted in cooperation with area schools. Students spend a specified amount of time in observation-participation experiences in public school music classrooms.

**530:351. HOME ECONOMICS EDUCATION — CONSUMER HOMEMAKING. 4 credits.**

Organization of home economics in secondary schools.

Emphasis on Methodology, techniques, development of concepts, utilization of audio-visual materials and comprehensive evaluation procedures.

**530:374. PRINCIPLES OF SHORTHAND INSTRUCTION. 2 credits.**

Prerequisite, Shorthand 254:173 and a quality point ratio of 2 in the field. Methods of presentation in shorthand and transcription. Demonstration and observations required. A theory test in the field must be passed before credit will be given for the course.

**530:425/525. READING PROGRAMS IN SECONDARY SCHOOL. 3 credits.**

Relationship of reading to human development; materials, class organization and procedures for developing reading improvement programs for high school and college students.

**530:476/576. VOCATIONAL COOPERATIVE OFFICE EDUCATION. 3 credits.**

Principles of program construction, organization, implementation, evaluation, improvement, and development of program guides in cooperative office education.

**530:477/577. INTENSIVE VOCATIONAL OFFICE EDUCATION. 3 credits.**

Principles of program construction, organization, improvements, implementation, evaluation, and development of program guides.

**GRADUATE COURSES****530:611. FOUNDATIONS AND PRINCIPLES OF MUSIC EDUCATION. 4 credits.**

Prerequisite, permission of the instructor. A study of the basic philosophical, historical, sociological and psychological concepts around which public school music programs function.

**530:612. PRACTICES AND TRENDS IN MUSIC EDUCATION. 4 credits.**

Prerequisite, permission of the instructor. An in-depth exploration of current and innovative practices and trends in music education, the dissemination of the findings of research in music education as they are related to prevailing situations and problems in the public school music programs.

**530:619. SECONDARY SCHOOL CURRICULUM AND INSTRUCTION. 3 credits.**

Application of the findings of recent research to curriculum building and procedures in teaching.

**530:721. SUPERVISION OF INSTRUCTION IN THE SECONDARY SCHOOL. 3 credits.**

Consideration of the unique elements of the secondary school organization and purpose which make supervision of instruction within its framework a special case. Definition of the supervisory leadership role in improving instruction at the secondary school level and development of a practical theory of secondary school supervision.

**530:780. SEMINAR IN SECONDARY EDUCATION. 3 credits. (May be repeated.)**

An intensive examination of a particular area of secondary education.

**540: TECHNICAL AND VOCATIONAL EDUCATION****540:301. OCCUPATIONAL EMPLOYMENT EXPERIENCE AND SEMINAR. 2-6 credits.**

Provides the instructor with knowledge of current industrial

or business practice at a level minimally commensurate with that associated with the employment expectations of graduates of technical programs for which the prospective instructor is being prepared.

**540:405/505. VOCATIONAL EDUCATION FOR YOUTH AND ADULTS.** *3 credits.*

Principles, purposes, a brief history and operation of current vocational education for youth and adults. Includes study of the social, economic and political influences that stimulate the growth and expansion of vocational education.

**540:410/510. POSTSECONDARY TECHNICAL EDUCATION.** *3 credits.*

Designed to introduce the student with the nature, purpose, and philosophy of technical education as a part of higher education. The course includes the type of institutions offering two-year technical education programs and examines their organization, administration, curriculum, personnel, and student services.

**540:421/521. INSTRUCTIONAL TECHNIQUES IN TECHNICAL EDUCATION.** *5 credits.*

Selected topics of instructional techniques appropriate to post-secondary technical education. Emphasis is placed on instructional methods and techniques in the classroom and laboratory including tests and measurements.

**540:430/530. COURSE CONSTRUCTION IN TECHNICAL EDUCATION.** *3 credits.*

The procedure of breaking down an occupation to determine the teachable content in the laboratory and the classroom; and developing this content into an organized course of study arranged according to an instructional sequence of difficulty.

**540:451/551. HOME ECONOMICS JOB TRAINING.** *3 credits.*

Prerequisite, 530:351. Concept development in vocational home economics. Emphasis on job training, program development, operational procedures; skill and knowledge identification, training profiles, job description and analysis. Construction of individualized study guides. In-school and on-the-job observations.

**540:470/570. COOPERATIVE WORK — EXPERIENCE EDUCATION PROGRAM.** *3 credits.*

A study of cooperative work-experience education programs in secondary and post-secondary education.

## GRADUATE COURSES

**540:610. COMMUNICATION WITH BUSINESS AND INDUSTRY.** *3 credits.*

Techniques of establishing better communications between technical education and business and industry. Emphasis is placed on the advisory committee, coordination functions, and working with local professional associations in the community.

**540:661. EDUCATION FOR BUSINESS IN HIGHER EDUCATION.** *3 credits.*

An examination of the many patterns and problems of education for business in institutions of higher education; adult education technical institutes, community colleges, private business schools, collegiate schools of business, and graduate schools of business.

## 555: PHYSICAL EDUCATION

**555:103. PERSONAL HEALTH.** *3 credits.*

The application of current scientific principles and facts

pertaining to healthful, effective living. Personal health problems and needs of students — mental health, human sexuality, maintaining a healthy body, nutritional problems, disease, stimulants and depressants, and consumer health.

**555:170. ORGANIZATION AND ADMINISTRATION OF RECREATION.** *3 credits.*

Administration, budgets, management of individual playgrounds, the neighborhood recreation center and community activities.

**555:201. KINESIOLOGY.** *3 credits.*

Prerequisites, 310:147-148-149. The application of principles of anatomy to the movement of the human body in motion.

**555:202. PHYSIOLOGY OF EXERCISE.** *3 credits.*

A study of the physiological effects of exercise relative to physical education activities and athletics.

**555:211. RED CROSS FIRST AID.** *2 credits.*

Standard American Red Cross course which gives instruction and practice in the immediate and temporary care of injuries and sudden illness.

**555:302. THEORY AND TECHNIQUES OF BASKETBALL COACHING.** *2 credits.*

Theory, techniques and practice related to different systems and techniques of coaching basketball. One hour lecture, two hours laboratory.

**555:304. THEORY AND PRACTICE OF SWIMMING.** *3 credits.*

Analysis of strokes, dives and related skills; methods and practice in teaching of swimming.

**555:313. CARE AND PREVENTION OF ATHLETIC INJURIES.** *3 credits.*

Theory and practice in scientific manipulation of the muscles as related to the prevention and treatment of athletic injuries.

**555:315. ADAPTIVE PHYSICAL EDUCATION.** *3 credits.*

Prerequisite, 201 and 202. Current theories and practices relating to the needs of physically handicapped children; emphasis is given to underlying philosophy, purpose and administration.

**555:319. COMMUNITY HYGIENE.** *4 credits.*

Personal and community hygiene, nutrition, disease prevention and control, mental and emotional health and problems of medical care. For Health and Physical Education majors and minors.

**555:320. CAMPING AND OUTDOOR EDUCATION.** *3 credits.*

Camping skills and counseling techniques. Camp administration, school camping and outdoor education.

**555:321. ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION.** *3 credits.*

Organization and administration of Physical Education programs.

**555:322. ORGANIZATION AND ADMINISTRATION OF ATHLETICS.** *3 credits.*

Organization and administration of Athletic programs.

**555:325. ORGANIZATION AND ADMINISTRATION OF SCHOOL HEALTH.** *3 credits.*

Organization of health education, with special reference to national, state and local control. Staff, program, budget, health and safety, facilities and other phases of administration.

**555:333. METHODS AND MATERIALS IN TEACHING HEALTH EDUCATION.** *3 credits.*

Current materials for elementary and secondary school grades; integration and correlation of health education in

the education of school children; survey of community, state and federal agencies concerned with health of school-age children.

**555:334. GAMES AND RHYTHMS FOR ELEMENTARY GRADES.** *3 credits.*

One lecture and two laboratory periods each week. Lectures on theories of play, child development and supervision responsibilities with classroom teachers in the program of Physical Education. Laboratories give an opportunity for analysis and teaching games for the various age groups. For majors in Physical Education.

**555:335. MOVEMENT EXPERIENCES FOR ELEMENTARY CHILDREN.** *3 credits. (2-2).*

The nature of basic movement education, tumbling and gymnastics for the elementary child.

**555:436/536. ADAPTED PHYSICAL EDUCATION TASKS FOR THE LEARNING DISABLED CHILD.** *3 credits.*

Teaching methods and materials necessary to structure developmental tasks for the learning disabled child; designed for persons preparing to teach elementary school physical education and special education.

## GRADUATE COURSES

**555:601. ADMINISTRATION OF HEALTH, PHYSICAL EDUCATION ATHLETICS AND RECREATION.**

*5 credits.*

Organization, administration, and evaluation of health and physical education programs in school or community. Administrative policies and problems of athletic programs, varsity and intramural, at the elementary, secondary and collegiate levels. Organization and administration of recreation programs.

**555:603. CURRICULUM PLANNING IN HEALTH AND PHYSICAL EDUCATION.** *3 credits.*

Analysis of the objectives, procedures and trends in health and physical education curricula and the principles and procedures for developing sound programs.

**555:605. PHYSIOLOGY OF MUSCULAR ACTIVITY AND EXERCISE.** *3 credits.*

A study of the functions of body systems and the physiological effects of exercise. Laboratory experiences will accompany lectures and discussions.

**555:606. MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION.** *3 credits.*

Prerequisite, 590:603. A critical analysis of existing laboratory testing and a discussion and study of measurement and evaluation in terms of future needs.

**555:608. SUPERVISION OF PHYSICAL EDUCATION.** *3 credits.*

Principles involved in the supervision of physical education service programs. Procedure and techniques of supervision of service classes at the three levels: elementary, junior high and senior high school.

## 557: MEN'S PHYSICAL EDUCATION

**557:193-194. THEORY AND PRACTICE OF PHYSICAL EDUCATION.** *3 credits each.*

To develop personal technique and skill in presenting

calisthenics, marching, gymnastic activities and officiating in sports; history; general lesson plans suitable for elementary and secondary school programs. Observation at all school levels.

**557:245-246. BASIC COURSE IN PHYSICAL EDUCATION ACTIVITIES.** *3 credits each.*

For men majoring in Physical Education. Learning rules and skills in sports, games and activities commonly included in Physical Education programs.

**557:300. THEORY AND TECHNIQUES OF FOOTBALL COACHING.** *2 credits.*

Theory, techniques, and practices related to the different systems of coaching football. One hour lecture, two hours laboratory.

**557:301. THEORY AND TECHNIQUES OF TRACK COACHING.** *2 credits.*

Theory, techniques and practices related to the coaching of track and field. One hour lecture, two hours laboratory.

**557:303. THEORY AND TECHNIQUES OF BASEBALL COACHING.** *2 credits.*

Theory, techniques, and practice related to the different ways of coaching baseball. One hour lecture, two hours laboratory.

**557:307. THEORY AND TECHNIQUES OF SOCCER COACHING.** *2 credits.*

Theory, techniques, and practices related to the techniques of soccer coaching. One hour lecture, two hours laboratory.

**557:308. THEORY AND TECHNIQUES OF WRESTLING COACHING.** *2 credits.*

Coaching philosophy, theory, techniques, and practices related to the coaching of wrestling. One hour lecture, two hours laboratory.

## 559: WOMEN'S PHYSICAL EDUCATION

**559:147-148. BASIC COURSE IN PHYSICAL EDUCATION ACTIVITIES.** *3 credits each.*

For women majoring in Physical Education. Learning rules and skills in sports, games and activities commonly included in Physical Education programs.

**559:201. THEORY AND TECHNIQUES OF TEACHING SOCCER AND FIELD HOCKEY.** *2 credits.*

Prerequisite, 148. Current skills, knowledge, procedures and teaching methods in sports of soccer and field hockey are provided through supervised teaching and application of current rules.

**559:202. THEORY AND TECHNIQUES OF TEACHING SPEEDBALL AND VOLLEYBALL.** *2 credits.*

Prerequisite, 148. Current skills, knowledge, procedures and teaching methods in the sports of speedball and volleyball are provided through supervised teaching and application of current rules.

**559:203. THEORY AND TECHNIQUES OF TEACHING BADMINTON AND TRACK AND FIELD.** *2 credits.*

Prerequisite, 148. Current skills, knowledge, procedures and teaching methods in the sports of badminton and track and field are provided through supervised teaching and application of current rules.

**559:204. THEORY AND TECHNIQUES OF TEACHING GOLF AND TENNIS.** *2 credits.*

Prerequisite, 148. Current skills, knowledge, procedures and teaching methods in the sports of golf and tennis are

provided through supervised teaching and application of current rules.

**559:205. THEORY AND TECHNIQUES OF TEACHING ARCHERY AND BOWLING. 2 credits.**

Prerequisite, 148. Current skills, knowledge, procedures and teaching methods in the sports of archery and bowling are provided through supervised teaching and application of current rules.

**559:206. THEORY AND TECHNIQUES OF TEACHING TUMBLING. 2 credits.**

Current skills, knowledge, procedures and teaching methods in the course of tumbling are provided through supervised teaching and application of current rules.

**559:207. THEORY AND TECHNIQUES OF TEACHING GYMNASTICS APPARATUS. 2 credits.**

Current skills, knowledge, procedures and teaching methods in the course of gymnastics are provided through supervised teaching and application of current rules.

**559:208. THEORY AND TECHNIQUE OF TEACHING FOLK, SQUARE AND SOCIAL DANCE. 2 credits.**

Designed to provide the student with an opportunity for frequent practice of the various teaching approaches, materials and resources utilized in the instruction of folk, square and social dance.

**559:209. THEORY AND TECHNIQUES OF TEACHING MODERN DANCE. 2 credits.**

Designed to provide for the student the opportunity of frequent practice of the various teaching approaches, materials and resources utilized in the instruction of modern dance.

## **560: EDUCATIONAL GUIDANCE AND COUNSELING**

**560:410. PERSONNEL SERVICES IN SCHOOL AND SOCIAL WORK. 3 credits.**

Prerequisite, Senior standing. A basic introduction to the background, role and function, techniques, and selected issues in the personnel field. Particularly helpful for students who may be considering entering the field of social work, pupil personnel or college personnel at the graduate level.

**560:426. CAREER EDUCATION. 4 credits.**

Study of career education models and components (the individual and his environment, decision making, work adjustment skills, economic trends, etc.) and examination of procedures for their incorporation into regular elementary and secondary school programs.

### **GRADUATE COURSES**

**560:600. SEMINAR IN GUIDANCE. 3 credits.**

(To be taken by counseling candidates in conjunction with 602 or immediately thereafter.) A series of individual and group experiences designed to evaluate and select applicants for graduate preparation in counseling.

**560:601. STUDENT PERSONNEL SERVICES IN HIGHER EDUCATION. 3 credits.**

An overview of student personnel services in higher education; their evolution and growth, philosophy, organization; and administration.

**560:602. ORIENTATION TO GUIDANCE SERVICES. 3 credits.**

Background and development of pupil personnel services, basic concepts related to pupil personnel work, current programs in elementary and secondary schools and present status and trends in pupil personnel services.

**560:603. GUIDANCE IN THE ELEMENTARY SCHOOL. 3 credits.**

Foundation of guidance in the elementary school guidance services in the elementary school and the utilization of guidance and counseling in the elementary school.

**560:611. COUNSELING SERVICES IN HIGHER EDUCATION. 3 credits.**

Prerequisite, 601 or permission of instructor. A comprehensive and detailed study of counseling services operating in institutions of higher education, including historical development and philosophy underlying the development of counseling services in American colleges and universities; and the psychological needs and problems of the college student.

**560:616. CAREER GUIDANCE: THEORY AND PRACTICE. 4 credits.**

This course gives an overview of the world of work, educational opportunities, theories of career development, career guidance resources and career guidance programs.

**560:617. THE INTERVIEW. 3 credits.**

Prerequisite, 619, or permission. Emphasis is placed upon the characteristics and interviewing role of the guidance counselor, various counseling approaches, the counseling interview and the philosophy of counseling within an educational institution. (Should be elected preceding 621).

**560:618. COUNSELING: THEORY AND PHILOSOPHY. 3 credits.**

An examination of selected counseling theories with emphasis on their relevancy for use by the counselor in the school setting.

**560:619. TECHNIQUES OF COUNSELING. 3 credits.**

Study of the following guidance tools and techniques and their application in guidance programs, objective and subjective measurement devices, cumulative record systems, case study and case conference, the interview.

**560:620. GROUP COUNSELING. 3 credits.**

The first half of the course deals with the place of group guidance in schools, techniques the counselor uses in group guidance and materials appropriate to group guidance. The second half of the course deals with educational guidance, especially the planning of an educational program from junior high school through senior high school and college or the appropriate post-high school plan.

**560:621. PRACTICUM IN COUNSELING. 5 credits.**

Prerequisite, 619. Supervised counseling experience with individuals and small groups.

**560:623. EVALUATION AND DIAGNOSIS OF LEARNING PROBLEMS. 4 credits.**

Study and measurement of factors leading to learning problems with some attention to remedial procedures.

**560:624. CONSULTANT: COUNSELING AND SPECIAL EDUCATION. 4 credits.**

An examination of the consulting function as it relates to teachers, parents, school specialists and community agencies. Practice experiences in consulting are included.

**560:625. SEMINAR IN COUNSELING AND SPECIAL EDUCATION. 3 credits.**

An examination of the unique and shared aspects of pupil personnel and special education services with intensive consideration to multi-disciplinary team functioning.

**560:701. ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES. 3 credits.**

Study of the principles and practices in the organization and administration of pupil personnel programs, roles and functions of the counselor, school psychologist, and other

pupil personnel workers, problems peculiar to this area, and evaluation and research as it pertains to pupil personnel services.

**560:702. ADVANCED PRACTICUM IN STUDENT COUNSELING.** *3 credits.*

Supervised experiences in individual and group counseling of students in the field and in the pupil personnel center. Periodic counseling sessions with the practicum supervisor are also provided for candidates.

**560:703. SEMINAR IN SCHOOL GUIDANCE AND COUNSELING.** *4 credits.*

An examination and discussion of topics related to major areas in this field such as the counselor as a professional, the counselor as a person and issues in guidance and counseling.

**560:704-705. SEMINAR IN PUPIL PERSONNEL RESEARCH.** *3 credits each.*

Prerequisites, 590:713, approved of Doctoral Committee. Provides an extensive background in selected areas of pupil personnel services and includes criteria for evaluation and application of research findings.

**560:706-707-708. INTERNSHIP IN COUNSELING SUPERVISION.** *3 credits each.*

Experience in supervising the counseling done by master's degree candidates in guidance and counseling. Further supervised experiences in individual and group counseling of students in the field and in the pupil personnel center are also provided.

**560:709. INTERNSHIP IN FIELD RESEARCH.** *3 credits.*

Prerequisite, 705, 590:603, and approval of Doctoral Committee. Designed for Ph.D. candidates nearing completion of their program, the course provides advanced research experience related to practical problem situations in the public school system.

## 561: SPECIAL EDUCATION

**561:460/560. DEVELOPMENTAL CHARACTERISTICS OF SLOW LEARNING CHILDREN.** *5 credits.*

Comparative study of the physical, emotional, intellectual and social development of normal and slow learning children from infancy through adolescence.

**561:461/561. PRINCIPLES OF TEACHING EXCEPTIONAL CHILDREN.** *4 credits.*

Basic principles underlying the instruction of exceptional children — slow learners, gifted, physically handicapped, etc.

**561:462/562. METHODS AND MATERIALS FOR TEACHING SLOW LEARNERS.** *3 credits.*

A study of the understandings, techniques, skills and materials unique in the instruction of the slow learner.

**561:463/563. ARTS AND CRAFTS FOR THE SLOW LEARNER.** *3 credits.*

Arts and crafts especially suited to the unique characteristics of slow learners.

**561:464/564. READING AND LANGUAGE ARTS FOR THE SLOW LEARNER.** *3 credits.*

Program and techniques especially suited to slow learners; diagnosing problems and planning remedial and corrective measures.

**561:465/565. SOCIAL STUDIES FOR THE SLOW LEARNER.** *3 credits.*

A study of the methods and materials designed to meet the unique needs of a varying slow learner school population.

**561:466/566. NUMBER CONCEPTS FOR THE SLOW LEARNER.** *3 credits.*

A study of the procedures and sequential learnings appropriate for the teaching of number concepts to the slow learning child.

**561:467/567. EDUCATION OF BEHAVIORALLY DISORDERED CHILDREN.** *4 credits.*

Prerequisites, 461/561, 469/569 or 460/560. The nature and needs of the socially-emotionally disturbed child in the classroom will be studied thus enabling the teacher to understand and intervene so that the educational process can be more effective.

**561:468/568. OCCUPATIONAL ORIENTATION AND JOB TRAINING FOR EXCEPTIONAL CHILDREN.** *3 credits.*

A study of the developmental understandings related to the post-school adjustment of exceptional youth.

**561:469/569. PRACTICES IN EDUCATING CHILDREN WITH LEARNING DISORDERS.** *5 credits.*

Prerequisite, 461. A study of the multiple learning characteristics and the special education procedures advocated and practiced with children whose educational disability stems from learning and/or behavioral disorders.

**561:470/570. CLINICAL TEACHING PRACTICUM: CHILDREN WITH LEARNING PROBLEMS.** *5 credits.*

Prerequisite, permission. A supervised clinical teaching experience with individual or small groups of problem learners. The experience will be designed to familiarize and give practice to the special teacher in diagnostic and remedial teaching techniques devised in conjunction with pupil personnel resources.

**561:471/571. CLASSROOM BEHAVIOR MANAGEMENT FOR EXCEPTIONAL CHILDREN.** *4 credits.*

Prerequisite, 461/561 and 565:157. A review of behavioral management principles and the development of application models for exceptional children in the classroom.

**561:472/572. DEVELOPMENT PROCEDURES: TRAINABLE MENTALLY RETARDED.** *5 credits.*

Prerequisite, 565:157. A study of the philosophy, etiology, identification, characteristics, and training provisions for trainable mentally retarded children and adults.

**561:473/573. SUPERIOR STUDENTS — THEIR GROWTH PATTERNS AND EDUCATION.** *3 credits.*

Designed to provide students with knowledge of the developmental characteristics of superior students, unique problems they encounter in an educational setting and various dimensions of superiority.

**561:492/592. SEMINAR: INVITATIONAL STUDIES ON LEARNING DISABILITIES.** *1-3 credits.*

(May be repeated for a total of six credits.)

A quarterly topical study with a varied array of disciplinary input. Staffing will be by invited members of allied and contributing professions who are active in the management of children with learning disabilities.

## GRADUATE COURSES

**561:600. SEMINAR IN SPECIAL EDUCATION.** *3 credits.*

Prerequisite, twenty credits of graduate study in Special Education. A critical examination of practices and pertinent research related to or in special educational fields.

**561:601 SEMINAR: SPECIAL EDUCATION CURRICULUM PLANNING.** *3 credits.*

Prerequisite, Certification in an area of special education. A

study of curriculum planning practices unique to special education classes and services. Emphasis will be placed on the high incidence handicapped populations of mental retardation and learning disabilities. Appropriate curriculum objectives for selected areas of instruction as well as effective organizational programs will be examined.

**561:602. SUPERVISION OF INSTRUCTION - SPECIAL EDUCATION.** *3 credits.*

Prerequisite, Certification in an area of special education. A study of administration and supervisory practices unique to special education classes and services.

## 562: SCHOOL PSYCHOLOGY

### GRADUATE COURSES

**562:601. SEMINAR: ROLE AND FUNCTION OF THE SCHOOL PSYCHOLOGIST.** *3 credits.*

A seminar and independent study course on the role and function of the School Psychologist. Part of the course will be tailored to meet individual needs of trainees. Enrollment will be concurrent with the trainee's internship.

**562:602. COGNITIVE FUNCTION MODELS FOR PRESCRIPTIVE EDUCATIONAL PLANNING.** *4 credits.*

Prerequisite, admission to school psychology program. A review of cognitive function models and development of their application to assessment of difficulties in processing classroom instruction.

**562:604. EDUCATIONAL DIAGNOSIS FOR SCHOOL PSYCHOLOGISTS.** *4 credits.*

Prerequisites, 602 and consent of instructor. A study of current standardized tests applicable to the assessment of learning problems in individual children.

**562:679. PRACTICUM IN SCHOOL PSYCHOLOGY.** *5 credits.*

Prerequisites, 602, 604 and consent of instructor. A laboratory experience in the psycho-educational study of individual children who have learning problems in school.

**562:680-681-682. INTERNSHIP IN SCHOOL PSYCHOLOGY.** *3 credits each.*

Full-time work under the supervision of a qualified school psychologist for a complete academic year according to the provisions of the State Department of Education. Additional readings and activities required.

## 563: INNER-CITY EDUCATION

**563:401/501. PREPARATION FOR TEACHING IN INNER CITY SCHOOLS.** *4 credits.*

Designed to help prepare students to teach in the inner city. It will provide knowledge of the background and culture of inner city youth, examine the role of the teacher, consider techniques of discipline and classroom management, and explore methods, materials, motivational techniques, and ways of individualizing instruction. Special consideration will be given to sensitization and humanizing the classroom.

**563:481/581. SOCIOLOGICAL FOUNDATIONS OF INNER-CITY SCHOOL PROBLEMS.** *5 credits.*

The basic characteristics of the inner-city; deterioration, social stratifications, value patterns, etc. and their effects on the school and the educational process.

**563:482/582. CHARACTERISTICS OF INNER-CITY YOUTH.** *5 credits.*

The physical, emotional, social and intellectual traits of children in the core areas of our large metropolitan centers.

### GRADUATE COURSES

**563:686. SEMINAR: EDUCATING THE DISADVANTAGED.** *4 credits.*

A survey of the educational problems usually found in inner-city schools. Field work (tutorial, playgrounds, home visitation) with disadvantaged children will be required.

## 565: EDUCATIONAL PSYCHOLOGY

**565:157. HUMAN DEVELOPMENT AND LEARNING.** *4 credits.*

Prerequisite, 375:141. A study of the principles underlying the intellectual, emotional, social and physical growth and development of the human organism; and of the learning process with its implications for the instructional procedures.

### GRADUATE COURSES

**565:602. BEHAVIORAL BASES OF EDUCATION.** *4 credits.*

Prerequisites, 157 or equivalent, 375:141 or equivalent. An introduction to the study of principles underlying the scientific investigation of educational processes.

**565:620. SEMINAR IN HUMAN DEVELOPMENT AND EDUCATION.** *4 credits.*

(May be repeated for a total of 8 credits.)

Prerequisite, undergraduate course in human development or consent of the instructor. A study of the developmental characteristics of humans with particular emphasis upon the interaction between age levels, behavior patterns and educational factors.

**565:701. LEARNING PROCESSES.** *4 credits.*

A study of the principles underlying classroom learning processes with particular emphasis upon teaching as the means of modifying pupil behavior.

**565:710. TEACHER BEHAVIOR AND INSTRUCTION.** *4 credits.*

Prerequisite, 602, 701 recommended. An intensive survey of theoretical and empirical literature involving the teacher and conceptions of instruction. Students will formulate testable hypotheses about teacher behavior and practice systematic observation techniques in either a classroom or laboratory setting for the purpose of developing the reliability and validity required in theory construction.

## 570: SCHOOL ADMINISTRATION GRADUATE COURSES

**570:601. PRINCIPLES OF EDUCATIONAL ADMINISTRATION.** *4 credits.*

Theory and practices of educational administration in state and county systems, cities and rural district. School law, organizing, administration, finance, pupil accounting, planning and completion of school buildings.

**570:604. SCHOOL AND COMMUNITY RELATIONS.** *3 credits.*

Principles and practices in maintaining cooperative relationships between the schools and the public.

**570:605. DECISION-MAKING THEORY AND PRACTICE IN EDUCATIONAL ADMINISTRATION.** *4 credits.*

A study in the theory underlying the process of decision-

making in educational administration and an examination of some of the methods used in choosing between alternatives. This will involve delving into operations research and systems analysis, and examining such decision-making aids as PERT, PPBS, the Critical Path Method and computer analysis.

**570:606. EVALUATION OF EDUCATIONAL INSTITUTIONS.** *4 credits.*

Laboratory course in which the evaluation of educational institutions will be made by use of up-to-date techniques and criteria.

**570:607. LEGAL BASIS OF EDUCATION.** *3 credits.*

Prerequisite, 601. The legal principles underlying American education as reflected in statutory provisions and the decisions of our courts. Some specific attention given to Ohio law.

**570:608. PRINCIPLES OF SCHOOL FINANCE.**

*3 credits.*

Prerequisite, 601. Study of financial operations of school systems including tax and other income, expenditures and budgeting.

**570:610. PRINCIPLES OF EDUCATIONAL SUPERVISION.** *5 credits.*

Study of the principles, organizations and techniques of supervision with a view to the improvement of instruction.

**570:611. SUPERVISION OF STUDENT TEACHING.**

*3 credits.*

Primarily for supervising teachers in the guidance of student teachers. Topics include: readiness for student teaching; student teacher, directing teacher and college supervisor relationships, use of the conference, demonstration and observation; helping student teachers through evaluation.

**570:620. SECONDARY SCHOOL ADMINISTRATION.**

*3 credits.*

Prerequisite, 570:601. Problems, procedures and principles of organization and administration in secondary schools.

**570:621. FIELD EXPERIENCE FOR THE SECONDARY SCHOOL ADMINISTRATOR.** *1-3 credits.*

(May be repeated for a total of 3 credits.)

On the job experience in a public school system working with administrators and/or supervisors.

**570:631. ELEMENTARY SCHOOL ADMINISTRATION.**

*3 credits.*

Prerequisite, 570:601. Problems, procedures and principles of organization, administration and supervision in elementary schools.

**570:641. FIELD EXPERIENCE FOR THE SUPERINTENDENT.** *3 credits.*

Prerequisite, completion of most course work in program requirements. Designed to help students who are preparing for the superintendency to gain experience in those task areas which are in the direct responsibility of the superintendent. Students work directly in a central office position under the direction of an experienced administrator. Their tasks will constitute administrative exercises cooperatively developed by the university, the supervising administrator and the student.

**570:651. FIELD EXPERIENCE FOR SUPERVISORS.**

*3 credits.*

Prerequisite, completion of all course work except research problem. Designed to help students test and develop understandings and skills in supervision. Students will participate in selected task areas which reflect supervisory responsibilities. The tasks will be developed cooperatively

by the appropriate school administrator, college advisor, and student.

**570:661. FIELD EXPERIENCE FOR THE ELEMENTARY ADMINISTRATOR.** *1-3 credits.*

(May be repeated for a total of 3 credits.)

On the job experience in a public school system working with administrators and/or supervisors.

**570:701. SCHOOL BUILDING AND CONSTRUCTION.**

*3 credits.*

Prerequisite, 601. Designed mainly for the potential superintendent, executive head of post-Master's student in administration.

**570:702. SCHOOL BUSINESS ADMINISTRATION.**

*3 credits.*

A study of school business administration as a part of the total administrative pattern, and as a creative planning process designed to facilitate instruction.

**570:703. ADMINISTRATION OF STAFF PERSONNEL.**

*3 credits.*

Guidelines, techniques, and procedures for helping the administrator to become a democratic leader. Duties and responsibilities of the staff as participants in administrative activity.

**570:704. ADMINISTRATIVE ORGANIZATION IN EDUCATION.** *3 credits.*

The principles and theory underlying effective administration organization in the educational setting. Special attention will be directed toward communication and evaluation as organization processes.

**570:710. PRINCIPLES OF CURRICULUM DEVELOPMENT.** *4 credits.*

An overview of the instructional programs of a school in terms of basic purposes, functions and structures necessary to study and interpret these instructional programs.

**570:730. SEMINAR IN SCHOOL ADMINISTRATION.**

*4 credits.*

Prerequisites, 601 and 590:603. Focus will be on recent research in administration and educational administration theory.

**570:731. SEMINAR: PROBLEMS OF THE SCHOOL ADMINISTRATOR.** *3 credits.*

An examination of some of the major problems that face the chief administrator as he works with schools of today. Practicing educational administrators will share with the students their experiences with current educational problems and the many practical solutions of these problems.

**570:732. ORGANIZATIONAL COMMUNICATIONS AND THE SCHOOL ADMINISTRATOR.** *4 credits.*

Prerequisites, 601, 604. The relationship between formal and informal educational organization and communication needs; the contribution of communication media to communication in education and the refinement of communication skills among school administrators.

**570:733. THE EDUCATIONAL ADMINISTRATOR AND PLANNED CHANGE.** *4 credits.*

Prerequisites, 601, 704. Relationship between technological and social change and needed changes in education; theories, principles and mechanisms in planned educational change.

**570:740. THEORIES OF EDUCATIONAL SUPERVISION.** *4 credits.*

Prerequisites, 610; 520:732 or 530:721. Explanation and examination of various theories of supervision; sample models which implement existing theories.

**570:745. PRACTICUM IN EDUCATIONAL ADMINISTRATION: URBAN SETTING. 4 credits.**

Prerequisite, completion of at least three-fourths of a doctoral program. A practicum for doctoral students in Educational Administration. The focus will be on the problems of education in the inner city from the viewpoint of the educational administrator.

**570:746. POLITICS, POWER, AND THE SCHOOL ADMINISTRATION. 4 credits.**

The impact of formal and informal community power structures and of influential persons on educational planning and decision making.

**570:747. PRACTICUM: COMPETING AND COMPLEMENTARY SCHOOL SYSTEMS. 4 credits.**

Designed to bring the superintendent into direct contact with those individuals who are responsible for other community services; and to acquaint the practitioner with the various community agencies and to suggest desirable relationships between them and the school.

**570:750. FIELD EXPERIENCE IN SCHOOL PLANT PLANNING. 3 credits.**

Prerequisites, 701 or permission; resident status. Selected field experience in the art of planning school plants. Particular emphasis will be placed on the analysis of data supplied by selected school systems concerning school enrollments, evaluation of school plants and the financial status of the district. In addition, visitations will be made to school districts for curriculum consultations, building and site evaluation, and meetings with boards of education and the general public.

**570:850-851-852. INTERNSHIP IN EDUCATIONAL ADMINISTRATION. 3 credits.**

Work under a practicing administrator involving experience in optimum number of administrative tasks. Includes seminars and written work.

## 580: SPECIAL EDUCATIONAL PROGRAMS

**580:431-434/531-534. WORKSHOP. 1-4 credits each.**  
(Elementary or Secondary School).

Opportunity for individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

**580:435/535. WORKSHOP IN ECONOMIC EDUCATION. 1-4 credits.**

Opportunity for individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

**580:436/536. WORKSHOP IN READING. 1-4 credits.**

Opportunity for individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

**580:437/537. WORKSHOP IN ARITHMETIC. 1-4 credits.**

Opportunity for individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

**580:438/538. WORKSHOP ON EXCEPTIONAL CHILDREN. 1-4 credits.**

Opportunity for individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

**580:439/539. WORKSHOP IN PHYSICAL SCIENCE. 1-4 credits.**

Opportunity for individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

**580:440/540. WORKSHOP IN SOCIAL STUDIES. 1-4 credits.**

Opportunity for individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

**580:470-479/570-579. EDUCATIONAL INSTITUTES AND FOUNDATION PROGRAMS. 1-5 credits each.**

Special courses designed as in-service up-grading programs in various fields, frequently provided with the support of national foundations.

**580:480/580. INTERNATIONAL SCHOOL STUDY. 5-9 credits.**

On-the-scene study of education in foreign countries, usually by concentrating on the study of schools in one restricted geographical area.

## 585: EDUCATIONAL TECHNOLOGY

**585:100. INTRODUCTION TO PUPIL PERSONNEL WORK. 3 credits.**

Introduces the student to the broad areas of pupil personnel work. The purposes, needs, scope and character of pupil personnel services will be explored.

**585:104. SEMINAR IN PUPIL PERSONNEL. 3 credits.**

Prerequisite, to be taken by students in conjunction with or immediately after 100. A series of group experiences designed to assist the individual in answering the question, "Should I prepare to become a Pupil Personnel Technologist?"

**585:105. PUPIL PERSONNEL SERVICE ROLES. 3 credits.**

Prerequisites, 100 and 104. Emphasis will be on the educational technician in supplementing the services provided by the various professional specialties comprising pupil personnel service.

**585:120. MECHANICS OF THE LANGUAGE ARTS PROGRAM. 4 credits.**

Basic skills involved in the Elementary Language Arts Program.

**585:201. INFORMATION SERVICES IN GUIDANCE AND SPECIAL EDUCATION. 3 credits.**

Prerequisites, 100, 104 and 105. Emphasis on the organization and status of informational services as they relate to the activities of the educational technologist.

**585:207. MECHANICS OF STUDENT APPRAISAL. 3 credits.**

Introduction to group appraisal with major emphasis placed on assisting certified personnel in group test administration, scoring and the recording of test results.

**585:213. ORIENTATION OF THE EDUCATIONAL TECHNICIAN TO THE SECONDARY SCHOOL. 3 credits.**

Designed to provide the student preparing for the role of an educational technician with a framework for understanding secondary education.

**585:260. SPECIAL EDUCATION TECHNOLOGY. 3 credits.**

A survey of selected procedures and materials employed in

classrooms especially designed and operated for exceptional children.

**585:280. EDUCATION TECHNICIAN FIELD EXPERIENCE.** *5 credits.*

A supervised field experience in the school setting designed for educational technician enrollees only. The course may be repeated once.

## 590: EDUCATIONAL RESEARCH GRADUATE COURSES

**590:603. TECHNIQUES OF RESEARCH.** *5 credits.*

Research methods and techniques commonly used in education and psychology; preparation of research reports.

**590:610-611-612. FIELD EXPERIENCE — MASTERS.**

*1-3 credits each.*

On the job experience in a public school system working with administrators and/or supervisors.

**590:699. RESEARCH IN EDUCATION.**

*3 or 6 credits.*

Thorough study and analysis in depth of an educational problem; field projects in special areas; synthesis of existing knowledge in relationship to a specific topic.

**590:711. STATISTICS IN EDUCATION.** *4 credits.*

Statistical methods and techniques used in the field of measurement and by research workers in education.

**590:713. ADVANCED EDUCATIONAL STATISTICS.**

*4 credits.*

Prerequisite, 711. A second level statistics course related to quantification in the behavioral sciences. General areas included are testing of statistical hypotheses, experimental design, analysis of variance and nonvariance, factor analysis and introduction to nonparametric statistics.

**590:801. RESEARCH SEMINAR.**

*3 credits.* (May be repeated for a total of 6 credits).

Prerequisites, 603, 711, permission of Adviser and Instructor. Limited to Doctoral Students. Intensive study of designs applicable to research problems in Education. Study of problems related to proposed dissertation research.

**590:810-811-812. FIELD EXPERIENCE — DOCTORAL.**

*1-3 credits each.*

On the job experience in a public school system working with administrators and/or supervisors.

**590:890. RESEARCH PROJECTS IN SPECIAL AREAS.**

*1-3 credits.*

Study, analysis and reporting of an educational problem.

**590:899. DISSERTATION.** *15-30 credits.*

Thorough study and analysis in depth of an educational problem; field projects in special areas; synthesis of existing knowledge in relationship to a specific topic.

# *The College of Business Administration*

## **620: ACCOUNTING**

### **620:221-222. PRINCIPLES OF ACCOUNTING.** *4 credits each.*

Sequential. Accounting concepts and techniques essential to administration of a business enterprise; principles of proprietorship, partnership, and corporation accounting; analysis and interpretation of financial statements and reports.

### **620:270. MANAGERIAL ACCOUNTING.** *4 credits.*

Prerequisites, 222 and 325:246 or 325:201. For non-accounting majors only. Accounting as an information system that provides the significant financial data needed by management for decision-making, planning and control as well as for reporting to outside interests.

### **620:290. COST ACCOUNTING.** *4 credits.*

Prerequisites, 222 and 325:246 or 325:201. Theory and practice of accounting for material, labor and overhead expenses, with particular reference to budgeting and standard costs.

### **620:317-318. INTERMEDIATE ACCOUNTING.** *5 credits each.*

Sequential; prerequisite, 222. Accounting theory and problems of statement preparation and interpretation; financial statement analysis; statement of funds.

### **620:355. INTRODUCTION TO ELECTRONIC DATA PROCESSING.** *5 credits.*

An introduction to the fundamentals of data processing, including a survey of computer applications in management.

### **620:390. ADVANCED COST ACCOUNTING.** *4 credits.*

Prerequisite, 290. Emphasis on standard cost procedure and other advanced cost accounting problems.

### **620:391. BUDGETING.** *4 credits.*

Prerequisite, 401 or 290. Principles and policies for budgeting and control of expenses and capital investments.

### **620:401. ACCOUNTING SURVEY.** *5 credits.*

Primarily for postbaccalaureate students with no previous accounting background.

### **620:420/520. ADVANCED ACCOUNTING.** *5 credits.*

Prerequisite, 318. Accounting theory and advanced problems in partnerships, insolvency, estate and trusts, accounting and consolidated statements.

### **620:430-431/530-531. TAXATION.** *5 credits each.*

Sequential. Prerequisite, 318. First quarter deals with the current tax law as it applies to individuals and proprietorships. Second quarter discusses federal income tax problems of partnerships and corporations and includes a survey of state and local taxes.

### **620:440/540. AUDITING.** *5 credits.*

Prerequisites, 290, 318. A study of the problems of the auditor as a member of the staff (internal) and as an external or public accountant. Emphasis is placed on auditing standards and procedures.

### **620:454. ACCOUNTING SYSTEMS.** *5 credits.*

Prerequisites, 290, 318 and permission of instructor. Principles of the design and installation of accounting systems, procedures and methods. Emphasis is placed on data processing and systems analysis.

### **620:460. CONTROLLERSHIP PROBLEMS.** *5 credits.*

Prerequisites, 290, 318. An examination of accounting and control techniques, including budgetary control, direct costing, and problems requiring the use of advanced tools of decision making.

### **620:470/570. GOVERNMENTAL AND INSTITUTIONAL ACCOUNTING.** *5 credits.*

Prerequisite, 318. Application of accounting principles and procedures to problems of budgets, appropriations, and funds in governmental units, educational institutions, and hospitals.

### **620:480/580. ACCOUNTING PROBLEMS.** *4 credits.*

Prerequisite, 318. Individual research on an advanced accounting problem in area of student's particular interest.

### **620:488/588. CPA PROBLEMS — AUDITING.** *3 credits.*

Prerequisite, 440/540.

### **620:489/589. CPA PROBLEMS — THEORY.** *3 credits.*

Prerequisites, 430/530, 440/540. Application of auditing and accounting theory through the study of advanced problems.

### **620:490. INTERNSHIP IN ACCOUNTING.** *5 credits.*

Prerequisite, permission of instructor. On-the-job experience with cooperating industrial and public accounting firms. Individual assignment made by supervising faculty member. Weekly reports and term paper.

### **620:491. SEMINAR IN ACCOUNTING.** *1-3 credits.* Prerequisite, permission of instructor.

## **GRADUATE COURSES**

### **620:610. ACCOUNTING MANAGEMENT AND CONTROL.** *5 credits.*

Prerequisite, 401 or equivalent. Emphasis is placed on the role of accounting as a tool of management planning and control in the areas of production, finance, marketing and general administration.

### **620:637. ADVANCED ACCOUNTING THEORY.** *5 credits.*

Prerequisite, 318. This course invites a critical examination of accounting concepts and standards. Current trends are discussed.

### **620:655. INFORMATION SYSTEMS.** *5 credits.*

Prerequisites, 355 and 610. An examination of accounting information systems design theory including system elements, principles, techniques of systems review, design and implementation. Includes insight into real world data processing, sources and uses of information, information flow networks, planning and control processes and the role of the accountant as generator and communicator of information.

### **620:670. COST CONCEPTS AND CONTROL.** *5 credits.*

Prerequisite, 610. Attention is focused on the problems of determining cost data appropriate to various decisions and the examination of the efficiency of decision, particularly from the perspective of cost. Emphasis is placed on the analysis and control of costs.

**620:680. INTERNATIONAL ACCOUNTING.***5 credits.*

Prerequisite, 610. International variations in accounting standards and reporting problems; auditing problems in the multinational firm.

**620:698. SEMINAR IN ACCOUNTING. 5 credits.**

Prerequisite, 27 graduate credits in Business. This course enables the student to undertake a program of independent research and writing supervised by his faculty advisor and leads to a finished major paper which should be completed within one year from the time of enrollment in the course.

**640: FINANCE****640:314. CREDITS AND COLLECTIONS. 3 credits.**

Nature and fundamentals of credit investigation and analysis, credit extension, collection operations, collection aids and problems.

**640:318. RISK MANAGEMENT AND INSURANCE.***4 credits.*

Beginning with the concept of risk and risk management function in a firm, the principles of insurance are developed in the property, marine, casualty, and business interruption areas. The principles of life and health insurance are related to the employee benefit program of the firm.

**640:320. THE LEGAL ENVIRONMENT OF BUSINESS. 5 credits.**

A course designed to give the student a basic understanding of legal reasoning and analysis within the business system. Discussions include court systems and procedures; the various legal relationships of citizens and society; the various business organizations; commercial transactions; and the legal aspects of government regulation of business.

**640:321. BUSINESS LAW I. 5 credits.**

Descriptive and analytical materials presenting the business system within a legal framework. Discussions are designed to develop legal reasoning and understanding of the adjudicative process within the substantive areas of contractual obligation, agency relationships, partnerships, corporations, accountant's legal responsibility, federal securities regulation, and anti-trust law.

**640:322. BUSINESS LAW II. 4 credits.**

Prerequisite, 321. A continuation of descriptive and analytical materials, involving applications of law from the Uniform Commercial Code in the area of sales, commercial paper, and secured transactions. Additional discussions include legal interests in real property, wills, estates, trusts, personal property, bailments, insurance, suretyship, bankruptcy and labor law.

**640:338. FINANCIAL INTERMEDIARIES. 5 credits.**

A study is made of the flows of funds. The role of major financial intermediaries on the demand and supply side of funds is analyzed. The function of the money and capital markets is reviewed with emphasis on the outlook for changes in interest rates and their impact upon the administration of specific financial intermediaries.

**640:343. INVESTMENTS. 5 credits.**

Prerequisite, 371. The range of investment media is explored, alternative investment programs are considered and the role of securities markets through which these goals can be achieved is studied. The course includes limited discussions of analysis of securities and portfolio management.

**640:371. BUSINESS FINANCE. 5 credits.**

Prerequisites, 620:222 (or 401) and 325:247 or 325:201 and 202. A basic course dealing with the problems of the business firm from the financial manager's point of view. Topics in-

clude planning and managing the sources and uses of short-term and long-term funds, capital budgeting, and optimum financial structure.

**640:400. INVESTING IN REAL ESTATE. 5 credits.**

Prerequisite, 640:371. Real Estate: A study in real estate decision-making and analyses of real estate problems. Examines and environment and variables of the associated decision-making process, its background, the specialists on decision-making, with an emphasis on the purchase and financing decisions.

**640:425. BUSINESS AND SOCIETY. 5 credits.**

Prerequisite, senior standing. A conceptual course which considers the financial, economic, legal, and socio-political implications of business in our contemporary society. Issues involving such questions as changing social values, public policies related to business, and the economic and legal framework for business decisions are discussed.

**640:436. COMMERCIAL BANK MANAGEMENT.***5 credits.*

Prerequisite, 338. A study of administrative policy determination and decision making within the commercial bank. Policy making in the areas of liquidity, load and security investment, and sources of funds are studied through the use of the case method and a computer simulation game.

**640:447. SECURITY ANALYSIS. 5 credits.**

Prerequisite, 343. An in-depth study is made of the analytical tools used to analyze financial statements and fixed-income securities. The primary focus is on the valuation of common stocks with some theoretical models tested by the use of empirical data.

**640:479. PROBLEMS IN FINANCE. 5 credits.**

Prerequisites, 371 and senior standing. The case method is utilized to cover a variety of topics from business finance. Emphasizes the application of analytical techniques from texts and journal readings to the solution of complex problems in financial management.

**GRADUATE COURSES****640:633. MANAGEMENT OF FINANCIAL INSTITUTIONS. 5 credits.**

Prerequisite, 674. A study of the administration of financial institutions in the U.S. Economy. The focal point of study is policy determination and administrative decision making in the individual financial institution.

**640:645. INVESTMENT ANALYSIS. 5 credits.**

Prerequisite, 674. Emphasis is placed on security valuation, approaching the problem from the point of view of risk elements and by purpose to be served rather than by legal distinctions only. Investment timing and portfolio management for institutions is stressed.

**640:650. ADMINISTERING COSTS AND PRICES.***5 credits.*

Prerequisites, 371 or 325:602 or 325:611. The purpose of the course is to provide an understanding of the techniques used by managers in reaching both short and long-run decisions in these areas. The course explores the areas of decision-making on costs and prices which determine business profitability.

**640:655. GOVERNMENT AND BUSINESS. 5 credits.**

Prerequisite, 371. Public policy with regard to business institutions and issues in the United States are considered from an economic, legal, and political framework.

**640:665. COMPARATIVE INDUSTRIAL RATIONALE.***5 credits.*

Prerequisite, 674. An institutional approach to the study of

industrial organization. Consideration is given to the determinants of these industrial structures and an effort will be made to evaluate the market relationship between structure and market performance. Industrial organization under various economic and political systems will be considered.

**640:674. FINANCIAL MANAGEMENT AND POLICY.**  
*5 credits.*

Prerequisite, 371. Working capital management, controlling inventory investments, administering costs and funds, managing investment in plant and equipment, administering business income and forecasting for financial management.

**640:676. MANAGEMENT OF THE FINANCIAL STRUCTURE.** *5 credits.*

Prerequisite, 674. Emphasizes the determination of the volume and composition of the sources of funds. The primary attention is directed to the cost of capital for specific sources of financing, dividend policy and joint investment financing decision. Other topics include repurchase of securities, acquisitions and mergers and their impact on the value of the common equity.

**640:678. CAPITAL BUDGETING.** *5 credits.*

Prerequisite, 674. This course attempts to integrate the various theories of capital budgeting into a comprehensive conceptual scheme. Theoretical concepts and practical applications will be blended for a better understanding of capital problems.

**640:681. INTERNATIONAL BUSINESS FINANCE.**  
*5 credits.*

Prerequisite, 371. Financial policies and practices of companies involved in multinational operations, considers management of working capital and permanent assets, return on investment and capital budgeting for the global firm.

**640:698. SEMINAR IN FINANCE.** *5 credits.*

Prerequisites, 674 and 27 graduate credits in Business. Research projects, group reports and discussions.

## 650: MANAGEMENT

**650:263. PRODUCTION ORGANIZATION.**  
*3 credits.*

Prerequisite, sophomore standing. Principles and techniques of organization as they relate to effective production and operations management.

**650:301. WORK SYSTEM DESIGN.**  
*3 credits.*

Prerequisites, 363 and 348. A study of the systems concept in the management of activity. The nature of systems, patterns of work performance, criteria for system design, and application to design and control of various types of work systems. Use of simulation techniques.

**650:302. INDUSTRIAL PLANTS.** *3 credits.*

Prerequisite, 301. A study of the manufacturing work system in general, covering the nature of materials used in manufacturing, processes applied, and the economic considerations relevant to the management of manufacturing.

**650:303. MOTION AND TIME STUDY.** *3 credits.*

Prerequisite, 301. Study of a theory of work measurement and various methods used for the purpose, including work sampling and direct stop-watch time study. Emphasis is placed on evaluation and analysis of collected data.

**650:340. INTRODUCTION TO COMPUTER APPLICATIONS FOR BUSINESS.** *4 credits.*

Prerequisite, None (445:201 or its equivalent is re-

commended). Emphasis will be given to solving business problems through simple written programs or adaptation to more complex "canned programs." Topics included are applications of flowcharting and business language as applied to problems in the functional areas of business.

**650:348. QUANTITATIVE BUSINESS ANALYSIS I.**  
*4 credits.*

Prerequisite, 345:103. Statistical analysis applied to business data including coverage of probability theory, probability distributions, sampling, estimation, and hypothesis testing.

**650:349. QUANTITATIVE BUSINESS ANALYSIS II.**  
*4 credits.*

Prerequisite, 348. Continues coverage of quantitative methods applied to business decision-making. Topics included are Bayesian decision-making, regression and correlation analysis, time series, index numbers, analysis of variance, and nonparametric statistics. Some attention is also given to multiple regression analysis.

**650:350. PERSONNEL MANAGEMENT.** *3 credits.*

Prerequisites, two courses in psychology or sociology. Investigation of individual and group behavior in the business environment and the analysis of personnel programs and policies, communications and practices in relationship to the effect upon productivity, organizational effectiveness and the satisfaction of personal objectives.

**650:351. PERSONNEL FUNCTIONS.** *3 credits.*

Prerequisite, 350. Principles and practices of line and staff executives in managing the recruiting, interviewing, testing, selecting, developing, appraising, compensating, utilizing, and maintaining of an effective and satisfied work force.

**650:352. MANAGEMENT TRAINING AND DEVELOPMENT.** *3 credits.*

Prerequisite, 350. Investigation of the principles, objectives, methodologies and perspectives of the process of manager development and its relationships to organizational effectiveness.

**650:363. PRODUCTION MANAGEMENT.**  
*4 credits.*

Prerequisite, 325:246 or 325:201 and 202. Place of management in business; economics of industrial production; factors of production; and control of the production process.

**650:364. BUSINESS OPERATIONAL PLANNING.**  
*3 credits.*

Prerequisites, 301 and 349. The use of current statistical and economic techniques for planning the over-all operation of a business firm. Consideration is given to both internal and external factors which influence the short-run and long-range economic success of a business firm.

**650:372. MANAGEMENT-ORGANIZATION AND BEHAVIOR.** *3 credits.*

Prerequisite, two courses in psychology or sociology. The course deals with the traditional management model and the traditional organization structure. Discussion of management as a system, the behavioral model, and current organization theory including matrix organization and project management.

**650:404. PRODUCTION PLANNING AND CONTROL.**  
*3 credits.*

Prerequisites, 349 and 136 credits. Production planning and forecasting; centralized production control; scheduling; routing and dispatching; types of manufacture in relation to types of production control. Representative systems of production control. Application of quantitative methods to production control.

**650:405. QUALITY CONTROL. 3 credits.**

Prerequisites, 349 and 136 credits. Quality control and inspection in the organization structure; the inspection function; collection and use of inspection data, application of statistical methods to quality control and use of control charts.

**650:447/547. ADVANCED STATISTICS. 3 credits.**

Prerequisite, 349. Sampling theory and application, random sampling, stratified sampling, systematic and cluster sampling, area and multistage sampling, ratio estimates, sampling in time series.

**650:456/556. MANAGEMENT PROBLEMS. 4 credits.**

Prerequisite, Senior standing (or graduate standing and 371). The student applies modern management principles, practices and theory to an actual problem in industry.

**650:469/569. PERSONNEL RELATIONS. 3 credits.**

Prerequisites, 350, 325:247 or 325:201-202 or 325:243 or equivalent. Analysis of management, union and employee objectives, attitudes, and strategy, as they affect the conduct of business and the economy. Stress placed on individually assigned readings and reports.

**650:473/573. BUSINESS POLICY. 5 credits.**

Prerequisites, 160 credits and all other business core program courses. This advanced course is designed to integrate the specialized areas of business administration. The rational decision-making skills of the top manager and analytical skills are enhanced through intensive case analysis and a computer business game. Investigated are questions of business environment, strategy, objectives, evaluation, and control.

**650:499. SEMINAR IN MANAGEMENT. 1-5 credits.**

Prerequisites, Senior standing and Department Head permission. This course provides a means for individualized study in management from which the student can derive significant value.

**GRADUATE COURSES****650:640. QUANTITATIVE METHODS IN OPERATIONS MANAGEMENT. 4 credits.**

Prerequisite, 349. This course is designed to give students pursuing the MBA degree greater insight into the essential techniques of quantitative analysis with particular emphasis on the operations or production aspect of business.

**650:651. MANAGEMENT OF INTERNATIONAL OPERATIONS I. 3 credits.**

Prerequisite, 668. This course deals with the institutional environment of International Business — the parameters of the international business system which hold the system together and which the individual businessman cannot materially alter within a near or a medium range of time.

**650:652. MANAGEMENT OF INTERNATIONAL OPERATIONS II. 3 credits.**

Prerequisite, 651. A feature of this course is the use of the international operations simulation game developed at the University of Chicago and also used at Stanford. This is a major business simulation exercise oriented toward the specific problems of international business management. Modern theory of economics and political development discussed in relation to the game.

**650:663. INDUSTRIAL RELATIONS. 3 credits.**

Prerequisite, 371 or equivalent. The purpose of the course is to present the rights and duties of management in dealing with labor and the economic consequences of union and management in dealing with labor and the economic consequences of union and management policies and practices. The course also deals with administrative activity

in terms of human relationships involved.

**650. 665. EXECUTIVE DECISIONS. 3 credits.**

Prerequisite, 668. Theory underlying decision-making with particular attention to the qualification of the decision-making process.

**650:666. OPERATIONS RESEARCH. 3 credits.**

Prerequisite, 665. Operations research as viewed by the manager supervising its use and how it can be used to aid in making higher level decisions.

**650:667. MANUFACTURING AND OPERATION ANALYSIS. 3 credits.**

Prerequisite, 665. Emphasis is on analysis of economic problems of production and operations, management use of such techniques as programming, economic model building and simulation.

**650:668. ADMINISTRATIVE BEHAVIOR AND METHODS. 3 credits.**

Prerequisite, 371 or equivalent and 18 graduate level credits. Designed to direct critical thinking toward the internal goal sharing and competitive nature of hierarchical structures. To evaluate the social and behavioral science viewpoints and contributions to organizational activities. The functions of planning, directing, organizing, and control will be studied as variables in the dynamic process and psychology of working groups. Laboratory assignments.

**650:669. THE LEADERSHIP ROLE IN ORGANIZATION. 3 credits.**

Prerequisite, 668. Leadership styles as seen in classical methods, two dimensional grids, multidimensional scales and as interaction with situational factors. Training and development methods for managers in industry evaluated. Role playing, in-basket, sensitivity, T-groups, organizational labs and conflict resolution. Critical review of assessment procedures and psychology of leadership. Small group laboratory assignments.

**650:670. ORGANIZATIONAL THEORY AND POLICY FORMULATION. 3 credits.**

Prerequisite, 669. The study of organization structure and process, interactions of formal and informal systems, communications, job satisfaction and control patterns. Contemporary theories reflecting how people behave in organizations. Organizational lab assignments.

**650:675. APPLIED INDUSTRIAL STATISTICS I. 3 credits.**

Prerequisite, 447/547. A review of statistical techniques in quality control, including multiple regression and correlation.

**650:676. APPLIED INDUSTRIAL STATISTICS II. 3 credits.**

Prerequisite, 675. Analysis of variance and covariance, industrial design and analysis of experiments, introduction to response surfaces.

**650:698. GRADUATE SEMINAR IN MANAGEMENT. 2-5 credits.**

Prerequisite, 27 graduate credits in Business. This is a course for the Master's degree candidate in management during his last two quarters. It enables the student to undertake a program of independent study and reading delineated and supervised by his faculty advisor and leads to a finished major paper which should be completed within one year from the time of enrollment in the course.

**660: MARKETING****660:300. MARKETING PRINCIPLES. 4 credits.**

Prerequisite, 325:247 or 325:201-202 or permission. This

broad course integrates commodity, institutional, functional and managerial concepts of the marketing process to provide the student with a total framework of economic activity.

**660:320. PHYSICAL DISTRIBUTION. 4 credits.**

Prerequisite, 300. A basic course in the source, movement and storage of goods, including emphasis on the economics of transportation and the requirements of an effective system.

**660:330. INTERNATIONAL MARKETING.**

*4 credits.*

Prerequisite, 300. Students concentrate on principles of international trade, balances, and import and export distribution machinery. The course pinpoints characteristics and potentials of various foreign markets.

**660:340. MERCHANDISING. 4 credits.**

Prerequisite, 300. Initially reviews and applies the basic concepts of presenting merchandise to the customer, with special emphasis on the individual entrepreneur and the small, regionalized chain. Next, this course focuses on large, national firms and chains. Attention is devoted to the implications of mass marketing for the firms' resources and its impact on other functional stress.

**660:350. ADVERTISING. 4 credits.**

Prerequisite, 300. Basic principles of a marketing communication system are developed, with emphasis on media selection and feedback requirements. The roles of research and trade requirements are stressed.

**660:360. INDUSTRIAL MARKETING. 4 credits.**

Prerequisite, 300. Following principles of modern marketing management, this course focuses on the development of local, regional and national markets. Particular emphasis is placed on problems of industrial goods manufacturers.

**660:370. PURCHASING. 4 credits.**

Prerequisite, 325:246 or 325:201-202. This course deals with "marketing in reverse," and includes such topics as buying the right quantity, inspection and quality control, and sources and assurance of supply.

**660:440. RETAIL MANAGEMENT PROBLEMS.**

*4 credits.*

Prerequisite, 340. The problems and opportunities involved in the application of management principles to a broad variety of retail organizations. Environmental influences as they affect retailing are explored in depth.

**660:450. ADVERTISING CASES AND PROBLEMS.**

*4 credits.*

Prerequisite, 350. Case analysis of specific corporate experience in consumer and industrial goods, and in the institutional setting. Each student develops a contemporary case for discussion and analysis.

**660:470/570. SALES ADMINISTRATION. 4 credits.**

Prerequisite, 350 or 360. Advanced consideration of the firm's marketing mix as it is applied to and adjusted to marketing objectives and policies and their implementation and control.

**660:480/580. MARKETING CASES AND PROBLEMS.**

*4 credits.*

Prerequisite, 470 or its equivalent. Detailed case analysis of corporate marketing problems, most of which involve all of the marketing inputs and allied internal and external forces and resources.

**660:490/590. MARKETING RESEARCH. 4 credits.**

Prerequisites, 300, 650:348. Through lectures, cases and team projects, students are taught to detect and evaluate actionable forces in the marketplace. Emphasis is placed on investigation appropriate to the economics of the situation.

**660:499. SEMINAR. 1-4 credits.**

Prerequisite, permission of the instructor. This course provides a means for individualized in depth study of a marketing problem or problems from which the student can derive significant benefit.

## GRADUATE COURSES

**660:629. THE INTERNATIONAL BUSINESS ENTERPRISE. 4 credits.**

Prerequisite, 325:243 or equivalent. This first course in the program provides a comprehensive overview of International Business emphasizing the interactions between the multi-national environmental setting and the firm's decision making process. Students are assigned specific research topics.

**660:630. INTERNATIONAL MARKETING POLICIES.**

*4 credits.*

Prerequisite, 300. Within a planning framework, the course explores some of the problems in formulating and implementing multinational marketing strategies emphasizing the resolution of conflict. Students are assigned specific research papers.

**660:639. CONTEMPORARY PROBLEMS IN INTERNATIONAL BUSINESS. 4 credits.**

Prerequisite, 629 and permission of instructor. Topical problems (such as international investment and expropriation of fiscal harmonization in common markets) are selected for independent research and classroom discussion.

**660:660. MARKETING MANAGEMENT AND POLICY.**

*4 credits.*

Prerequisite, 300. This basic survey stresses company functions in relation to demand and consumer factors, and the cost of operational elements that determine profitable operation. The corporate viewpoint is emphasized, as are considerations of quantitative analysis and programming. Especially recommended for those with a limited marketing background.

**660:670. MARKETING PLANNING. 4 credits.**

Prerequisite, 660. In the context of a dynamic domestic marketing environment, students develop extensive marketing plans, both short- and long-run, for major U.S. corporations. Specific attention is directed to an appreciation of the complexity of the marketing task and its interrelationship with a wide variety of business and environmental forces.

**660:680. MARKETING THEORY. 4 credits.**

Prerequisite, 660. A course designed (1) to acquaint the student with those theoretical works from the areas of marketing, economics, psychology, sociology and cultural anthropology which have some relevance to a general theory of marketing; (2) to assess the available empirical works in terms of their theoretical implication; (3) to project the practical significance of a general marketing theory to the management of the firm; and (4) to evaluate the use of marketing as an instrument for national economic development.

**660:689. SEMINAR IN INTERNATIONAL BUSINESS.**

*4 credits.*

Prerequisite, 629 and 27 graduate credits in Business. This

course permits the MBA candidate to independently analyze a significant international business problem culminating in a major paper to be completed within one year from the time of enrollment in the course.

**660:699. SEMINAR IN MARKETING. 4 credits.**  
Prerequisite, 27 graduate credits in Business. This cap-stone

course permits the M.B.A. candidate to undertake a carefully delineated program of independent study and reading which leads to a finished major paper. Students are encouraged to share progress reports with their colleagues. The seminar work must be completed within one year from the time of enrollment in the course.

# The College of Fine and Applied Arts

## 710: ART

### 710:105. UNDERSTANDING ART. 5 credits.

A study of the uses different societies have found for art and how the social and technological levels of the society have affected the kind of art they make. The course is divided between lectures, studio activities, and field trips. No credit toward major or teaching field in art.

### 710:122. SCULPTURE I. 5 credits.

A studio course intended to develop manipulative skills and aesthetic judgment while working with several types of materials. Relatively simple tools and technologies are introduced.

### 710:131. DRAWING I. 5 credits.

Freehand drawing experience with an orientation to elements and principles of visual organization. Limited media.

### 710:444. TWO-DIMENSIONAL DESIGN. 5 credits.

Lecture and studio experience in two-dimensional design. Experimentation with systems for purposeful organization of visual elements. Study of visual theory including color theory.

### 710:191. DESIGN. 3 credits.

Basic principles of creative design and color theory. Discussion and studio. No credit toward major or teaching field in art.

### 710:200-201. SURVEY OF HISTORY OF ART.

5 credits each.

Prerequisite, Sophomore standing or permission of the instructor. Sequential: Architecture, sculpture, painting and the minor arts from Primitive sources through the Gothic time period in Europe in course 200, followed by Renaissance through contemporary art in course 201. These courses deal primarily with Western Art.

### 710:213. INTRODUCTION TO PRINTMAKING-LITHOGRAPHY. 3-5 credits.

Prerequisite, 131. Use of the lithographic stone and metal plate as printmaking media. Stone and plate preparation, lithographic drawing materials and techniques, paper registration, and the printing press will be covered. Emphasis on aesthetic theory, technique, and related history.

### 710:214. INTRODUCTION TO PRINTMAKING-SERIGRAPHY. 3 or 5 credits.

Prerequisite, 131. Silk screen printmaking. Theory and use of stencil process, registration, and printing procedures. Emphasis on aesthetic theory, technique, and related history.

### 710:215. INTRODUCTION TO PRINTMAKING-RELIEF. 3 or 5 credits.

Prerequisite, 131. Relief printmaking using found objects, synthetic materials, photo-techniques, as well as traditional woodcut and linoleum engraving. Emphasis on aesthetic theory, technique, and related history.

### 710:216. INTRODUCTION TO PRINTMAKING-INTAGLIO. 3 or 5 credits.

Prerequisite, 131. Intaglio printmaking using drypoint engraving, aquatint, and soft-ground techniques. Emphasis

on aesthetic theory, technique, and related theory.

### 710:222. SCULPTURE II. 5 credits.

Prerequisite, 122. Continuing development of knowledge of materials and tools for aesthetic purposes. Increasing emphasis on the individual's own artistic capabilities.

### 710:231. DRAWING II. 3 or 5 credits.

Prerequisite, 131. Continuation of Drawing I. In-depth exploration of a wide range of techniques and media. Attention to controlled descriptive drawing and space illusion and their aesthetic applications.

### 710:232. INSTRUMENT DRAWING. 5 credits.

Prerequisite, 131. The creative uses of mechanical drawing processes for visually descriptive purposes. Proficiency in the use of mechanical drawing instruments is stressed. Both practical and theoretical drawing styles will be undertaken.

### 710:233. LIFE DRAWING. 3 credits.

Prerequisite, 131. A study of the perceptual problems in drawing from the life model. Study of the skeletal, muscular and mechanical nature of the human figure and the application of the knowledge to the resolution of aesthetic problems using the human figure as a motif.

### 710:245. INTRODUCTION TO POLYMER ACRYLIC PAINTING. 3 or 5 credits.

Prerequisite, 131. A study of the technical and aesthetic problems involved in polymer acrylic painting. The student may pursue, through lecture and experimentation, the transparent and opaque uses of this water-based paint.

### 710:246. INTRODUCTION TO WATER COLOR PAINTING. 3 or 5 credits.

Prerequisite, 131. A studio course in the theory and technique of water color painting. A study of traditional transparent water color methods, and experimentation with less conventional approaches to aqueous media.

### 710:247. INTRODUCTION TO OIL PAINTING. 3 or 5 credits.

Prerequisite, 131. A study of the technical and aesthetic problems involved in oil painting. A painterly orientation toward the plasticity of form as mediated by color.

### 710:254. INTRODUCTION TO CERAMICS. 3 or 5 credits.

Prerequisite, 122 or 131 or 144. Clay processing, wheel throwing and hand construction techniques. Theory and use of kilns. Glazing and decorating techniques. Beginning chemistry of clay and glazes.

### 710:266. INTRODUCTION TO METALSMITHING. 3 or 5 credits.

Prerequisites, 122 or 131 or 144. A studio experience in which the student is introduced to the tools and fundamental techniques of metalworking: lost-wax casting, fabrication, chasing, and forging.

### 710:268. ENAMELING ON METAL. 3 or 5 credits.

Prerequisite, 266. A studio course in which the student investigates the inherent aesthetic qualities of color and tex-

ture resulting when molten, colored glass is applied to metal surfaces.

**710:275. INTRODUCTION TO PHOTOGRAPHY.**

*5 credits.*

Prerequisite, either 122 or 144. A lecture, studio, and laboratory course in which the student studies and experiences fundamental characteristics of photo-sensitive materials, the chemistry of photography, optical systems, and photographic equipment. Photography is studied as an art medium.

**710:283. DRAWING TECHNIQUES.** *5 credits.*

Prerequisite, 232. The course includes advanced drawing and presentation techniques commonly used in graphic design. Various presentation and design problems will be encountered stressing the use of selected drawing methods and processes.

**710:284. INTRODUCTION TO GRAPHIC DESIGN.**

*5 credits.*

Prerequisites, 131 and (231 or 144 or 233 or 245 or 246 or 247). Studio experience in the use of tools and materials of the commercial graphic artist. Elementary design problems in commercial graphic design.

**710:286. COMMERCIAL DESIGN THEORY.** *5 credits.*

Prerequisite, 284. A basic course in visual problem solving emphasizing the visual movements in, and the graphic elements of, single as well as multiple images. Equal emphasis is given to existing and created images.

**710:288. LETTER FORM AND TYPOGRAPHY.** *5 credits.*

Prerequisite, 232 and 286. Letter symbols studied in terms of communication and aesthetic awareness. History of letter forms, hand lettering, alphabet design, contemporary type faces, reproduction processes.

**710:293. WEAVING I.** *5 credits.*

Prerequisite, 144. Warping, threading, and manipulation of table and floor looms. Some off-the-loom techniques, yarn dyeing, and experimentation with types, weights, and colors of yarn.

**710:300. ART SINCE 1945.** *5 credits.*

Prerequisite, 200 or permission of the instructor. Consideration of the significant development of visual art forms since World War II in architecture, sculpture, printing, photography, metal, textile, ceramics, printmaking, and graphic design.

**710:301. ART FROM IMPRESSIONISM TO WORLD WAR II.** *5 credits.*

Prerequisite, 200 or permission of the instructor. A study of the significant developments in the visual arts from Impressionism until approximately World War II.

**710:302. ART IN EUROPE DURING THE 17TH AND 18TH CENTURIES.** *5 credits.*

Prerequisite, 200 or permission of the instructor. A study and analysis of major European examples of architecture, landscape design, painting, prints and sculpture from the beginning of the 17th century until approximately 1850.

**710:303. RENAISSANCE ART IN ITALY.** *5 credits.*

Prerequisite, 200 or permission of the instructor. A study of architecture, painting and sculpture of Italy during the thirteenth through the sixteenth centuries.

**710:317. INTERMEDIATE PRINTMAKING.**

*3 to 5 credits.*

Prerequisite, 213 or 214 or 215 or 216 in the appropriate process. A continuation of studio work in printmaking with concentration in one process designated by letter as follows: A. Lithography, B. Serigraphy, C. Relief, D. Intaglio. May be repeated for a total of 20 credits when a different process is indicated.

**710:322. SCULPTURE III.** *5 credits.*

Prerequisite, 222. A continuation of studio work in sculpture with concentration in one area of material manipulation as designated: A. Welding, B. Carving, C. Modeling, D. Construction, E. Casting. Course may be repeated when a different area is indicated.

**710:333. ADVANCED LIFE DRAWING.** *3 credits.*

Prerequisite, 233. Additional studio course in drawing from the human figure. Individual interpretation of the human figure, using numerous media and drawing techniques. Emphasis upon aesthetic structure and the formal realization of personal intention. May be repeated for a total of 9 credits.

**710:348. INTERMEDIATE PAINTING.** *3 or 5 credits.*

Prerequisites, 144 and (245 or 246 or 247 in the appropriate medium). A continuation of painting with concentration in one medium designated by letter as follows: A. Polymer Acrylic, B. Water Color, C. Oil. Course may be repeated for a total of 15 credits, but limited to a maximum of 5 credits in a given medium.

**710:354. INTERMEDIATE CERAMICS.** *3 or 5 credits.*

Prerequisite, 254. Continuing development of skills in clay and glaze manipulation and kiln control. Student is encouraged to choose either a general survey of subject matter or a concentrated area of personal interest. May be repeated for a total of 10 credits.

**710:366. INTERMEDIATE METALSMITHING.**

*3 or 5 credits.*

Prerequisite, 266. Continuation of experiences first presented in introductory course. Development of skills and expansion of technical knowledge. Production of holloware is introduced. May be repeated for a total of 10 credits.

**710:368. ADVANCED ENAMELING.** *3 or 5 credits.*

Prerequisite, 268. Continuation of enameling on metal. Development of personal aesthetic values. Advanced techniques with metal foils, champleve, cloisonne, limoge, and grisaille processes. May be repeated for a total of 15 credits.

**710:375. INTERMEDIATE PHOTOGRAPHY.**

*3 or 5 credits.*

Prerequisite 275. Projects utilizing photographic media and tools are designed to expand the student's awareness of visual qualities and order, both in the subject and in the photographic image. Student must own or have use of a camera with controllable shutter, lens diaphragm, and focus. Course may be repeated for a total of 10 credits.

**710:387. ADVERTISING DESIGN I.** *5 credits.*

Prerequisites, 275 and 288. Creative exploration of visual problems of the market place. Projects offer exercise in developing design skills from concept through final comprehensive presentation.

**710:388. ADVERTISING DESIGN II.** *5 credits.*

Prerequisites, 283, 375 and 387. Continuation from Advertis-

ing Design I. More complex projects including mechanical preparation of finished art for various printing processes.

**710:389. ADVERTISING DESIGN III.** *5 credits.*

Prerequisite, 388. Continuation from Advertising Design II. Advanced level projects including development of all visual design phases of promotional campaigns. Problem solving for specific areas of graphic design within mechanical limitations of art reproduction.

**710:393. WEAVING II.** *3 or 5 credits.*

Prerequisite, 293. Continuation of Weaving I. Advanced off-the-loom and loom techniques. Spinning. Emphasis on creative and experimental approaches. May be repeated for a total of 15 credits.

**710:400/500. ART IN THE UNITED STATES BEFORE WORLD WAR II.** *5 credits.*

Prerequisite, 200 or permission of the instructor. Consideration of the development of art in the United States from earliest evidences to approximately World War II.

**710:401. SPECIAL TOPICS IN HISTORY OF ART.**

*3 to 5 credits.*

Prerequisite, 200 or permission of instructor. A lecture course in which the subject is specified each time the course is offered. Course focuses upon an art movement, time period, the production of a single artist, or a specific art medium.

**710:405/505. HISTORY OF ART SEMINAR.**

*3 to 5 credits.*

Prerequisite, fifteen hours in Art History or permission of the instructor. Lecture, individual research and evaluation, group discussion related to a specific time period or to an artistic problem. May be repeated for credit when a different subject is indicated.

**710:409/509. SPECIAL PROBLEMS IN HISTORY OF ART.** *3 to 5 credits.*

Prerequisite, Twenty hours in Art History and permission of instructor and Department Head. Individual research in art history centered around a limited topic, such as a specific time period, the history of specific techniques, a single artist, or a movement in art history. No more than 10 credits will be counted toward major. May be repeated for credit when a different subject is indicated.

**710:418. ADVANCED PRINTMAKING.** *3 or 5 credits.*

Prerequisite, 317 in the appropriate process. Lectures, demonstrations, and experiments with more sophisticated printmaking techniques and applications. Concentration in one process designated by letter as follows: A. Lithography, B. Serigraphy, C. Relief, D. Intaglio. May be repeated for a total of 20 credits.

**710:422. SCULPTURE IV.** *5 credits.*

Prerequisite, 322 in the appropriate area. Emphasis on individual development within specific sculpture disciplines. Before a discipline new to the student may be pursued in this advanced level course the student must complete the 322, Sculpture III course in the appropriate area. May be repeated for a total of 25 credits.

**710:434. COMPREHENSIVE DRAWING.** *3 or 5 credits.*

Prerequisite, advanced standing and permission of instructor. An in-depth study of drawing for the advanced art student. Emphasis upon interpretive and inventive drawing

using the widest possible range of media and techniques. An exploration of the conceptual aspects of drawing, and their correlation with studio activity. May be repeated for a total of 15 credits.

**710:449. ADVANCED PAINTING.** *3 or 5 credits.*

Prerequisite, 348 in the appropriate medium. An advanced level painting course. An opportunity to explore polymer acrylic, or oil, or water color painting techniques, and experiment with the aesthetics of color, form, and style. Concentration in one medium designated by letter as follows: A. Polymer Acrylic, B. Water Color, C. Oil. May be repeated for a total of 15 credits.

**710:454. ADVANCED CERAMICS.** *3 or 5 credits.*

Prerequisite, 354. Instructor guided advanced study for persons wishing to develop professional competence. Student works on individual projects. May be repeated for a total of 25 credits.

**710:455. GLAY-FIBRE-METAL SEMINAR.** *3 credits.*

Prerequisite, Permission of instructor. An open format seminar designed to explore ideas in clay, fibre, and metal art through reading, discussion and production.

**710:466. ADVANCED METALSMITHING.** *3 or 5 credits.*

Prerequisite, 366. Investigation in-depth of aesthetic and technical problems of metalsmithing. Student works on individual projects under guidance from instructor. Electroforming techniques are introduced at this level. May be repeated for a total of 25 credits.

**710:475. ADVANCED PHOTOGRAPHY.** *3 or 5 credits.*

Prerequisite, 375. Photographic media, light, and photographic equipment are manipulated experimentally to produce creative graphic images. Student works under guidance of instructor on advanced individual projects. Course may be repeated for a total of 25 credits.

**710:480. ADVANCED GRAPHIC DESIGN.** *5 credits.*

Prerequisite, 389. Student works on advanced level individual projects under supervision of instructor. May be repeated for a total of 15 credits.

**710:484. ILLUSTRATION.** *5 credits.*

Prerequisite, 389 or permission of instructor. The application of painting and drawing skills and aesthetic sensitivity to specific commercial illustration and editorial art assignments.

**710:486. PACKAGING DESIGN.** *5 credits.*

Prerequisite, 389 or permission of instructor. Synthesis of two and three dimensional visual thinking. Research in materials applicable to packaging of various products. Assignment of projects stressing the development of conventional and experimental package design.

**710:488. PORTFOLIO DESIGN.** *5 credits.*

Prerequisite, To be taken during last quarter before graduation in Graphic Design. A course to help prepare the student for job interviews, and to prepare a professional portfolio.

**710:490. STUDIO PROBLEMS.** *3 or 5 credits.*

Prerequisite for art majors, advanced standing in area chosen and permission of instructor. Prerequisite for non-art majors, permission of instructor. Investigation in depth of aesthetic and technical problems within a student-selected area of specialization. Student must present in writing a pro-

posed study plan and time schedule for instructor approval. Course may be repeated for credit.

**710:491. SPECIAL TOPICS IN STUDIO ART.**

*3 or 5 credits.*

Prerequisite, Advanced standing or permission of the instructor. Group investigation of a particular phase of art which is not offered by other courses in the curriculum.

**710:499. HONORS IN ART.** *3 or 5 credits.*

To be used for research in the honors program established by the student and his advisor(s). May be repeated for a total of 15 credits.

**740: HOME ECONOMICS**

**740:121. TEXTILES.** *3 credits.*

Basic study of natural and man-made fibers. Emphasis upon physical properties, selection and care; attention given to design and manufacture.

**740:123. CLOTHING CONSTRUCTION.** *3 credits.*

Fundamental principles of pattern alteration, construction and fitting of garments. Individual preparation of portfolio illustrating various construction techniques.

**740:133. NUTRITION FUNDAMENTALS.** *3 credits.*

For students in some nursing programs and food service management. No prerequisite; not open to majors or minors in home economics. Basic nutrition principles and their application to self and others with normal needs; comparative nutritive value of various common foods. Planning well balanced diets and use of exchange list.

**740:141. FOOD FOR THE FAMILY.** *4 credits. (2-4).*

For non-majors. Application of nutrition to meal planning; problems in selecting, budgeting and preparing food; table etiquette, meal service, entertaining.

**740:147. HOME ECONOMICS SURVEY.** *2 credits.*

Survey of history and development of home economics with emphasis on current opportunities available in the profession.

**740:158. HOUSE FURNISHINGS.** *3 credits.*

Principles which contribute to the satisfactory selection and arrangement of home furnishings. Discussion of furniture, carpeting, window treatments, household textiles, storage and various accessories used in the home with relation to utilization, cost and upkeep.

**740:159. FAMILY HOUSING.** *3 credits.*

A study of various types of dwellings in relation to family values and needs. Attention given to planning and evaluating dwellings, understanding of various costs and construction methods. Evaluation of materials and services available; study of maintenance involved in various types of dwellings.

**740:200. MARRIAGE AND FAMILY RELATIONS.**

*2 credits.*

A survey of problems and trends regarding marriage and family in today's society. Development of criteria for self-identity and marriage readiness through understanding of the responsibilities involved in husband-wife and parent-child relations. Not open to Home Economics majors.

**740:201. RELATIONAL PATTERNS IN MARRIAGE AND FAMILY.** *5 credits.*

Study of interaction in various family life styles with emphasis on changing roles, developmental tasks, family life cycles and socio-economic and cultural influence upon the individual and family.

**740:204. SURVEY OF APPLIED HOME ECONOMICS**

**IN THE COMMUNITY.** *2 credits.*

Directed study and observation of on-going community programs designed to up-grade individuals and parental competencies in relation to problems of child guidance, housing, management, food and nutrition, clothing selection and care and personal development.

**740:218. HOME NURSING.** *3 credits.*

Understanding of the physical emotional and functional changes of the sick and elderly. Development of knowledge and ability needed to teach home nursing at the high school level. Emphasis on the prevention of spread of communicable diseases, mother and baby care and care of elderly. Course taught by a registered nurse.

**740:245. BASIC NUTRITION AND FOODS.**

*4 credits. (2-4).*

Basic study of food nutrients, their sources and functions; the composition of common foods, their place in the diet. Principles involved in selection, purchase and preparation of food.

**740:246. BASIC NUTRITION AND FOODS.**

*4 credits. (2-4).*

Continuation of 245.

**740:250. COMBINING MARRIAGE AND CAREER.**

*2 credits.*

Each year an increasing number of American women consider it necessary, wise or preferable to combine a career and marriage. This course is a study of the problems and/or advantage encountered in such a combination with emphasis on solutions for coping with such a life style.

**740:255. FATHERHOOD: THE PARENT ROLE.**

*2 credits.*

A study of the family life cycle and developmental task concepts as they affect the father role and his interactive relationship with other family members. Conjugal and parent-child relationships and their influences on the development of children are examined with emphasis on the male perspective.

**740:265. CHILD DEVELOPMENT.** *5 credits. (4-2).*

Physical, social, mental and emotional development of the child from pre-natal through pre-school years.

**740:275. THEORY AND GUIDANCE OF CHILDREN'S PLAY.** *3 credits.*

Prerequisite or concurrent, 265. Study of how "initiative" can be identified and fostered in each individual child as the teacher guides the indoor and outdoor play of the nursery school.

**740:285. CREATIVE EXPRESSION PROGRAMS FOR CHILD CARE CENTERS.** *3 credits.*

Prerequisite, 265, 275. An appreciation on the part of the teacher for the uses of expressive media to help a child express his individuality and communicate his ideas about himself and his world. Manipulation of materials as they are used to develop the child's inventiveness. Putting theory into practice for children ages 2-5 years.

**740:295. ADMINISTRATION OF CHILD CARE CENTERS.** *5 credits.*

Prerequisite, 265, 275, 285. The study of the principles and procedures involved in operating a child care center, including group care of infants and young children.

**740:301. CONSUMER EDUCATION.** *5 credits.*

Effective utilization of personal and family resources. Identification of alternatives and problems in family budgeting. Current trends in consumerism as they affect families in various socio-economic situations.

**740:304. ADVANCED CLOTHING. 3 credits.**

Prerequisite, 123. Advanced theory and methodology of garment construction with emphasis on custom dressmaking techniques, new fabrics. Analysis of special construction techniques and alteration problems for patterns and ready-to-wear.

**740:305. TAILORING. 3 credits.**

Prerequisite, 304. Construction of suit, coat or ensemble with lining.

**740:306. FLAT PATTERN. 3 credits.**

Prerequisite, 305. Application of principles of design and construction. Adaption of standard patterns to individual's proportions and flat pattern design. Introduction to dress designing by draping.

**740:311. CONTEMPORARY NEEDLE ARTS.**

*3 credits.*

Prerequisite, 123 or permission of instructor. A course emphasizing the use of appropriate textiles, yarns and needles in the creation of various items for purposes of enhancing leisure time or as earning skills.

**740:316. NORMAL NUTRITION. 5 credits.**

Prerequisite, 246. Composition, metabolism and physiological function of foodstuffs; nutritive requirements for individuals in various life cycles and on varied economic planes; results of dietary deficiencies.

**740:317. HISTORIC COSTUME. 3 credits.**

Chronological study of costume from ancient to modern times as a source of inspiration for contemporary dress and the theater.

**740:340. MEAL SERVICE. 3 credits. (2-4).**

Prerequisite, 246 or permission. Problems in management of resources in relation to meal preparation and service; table etiquette, appropriate forms of service for various types of meals; experience in organizing and presenting demonstrations.

**740:342. COMMUNITY INVOLVEMENT IN HOME ECONOMICS. 2-5 credits.**

Prerequisite, 204. Directed study and participation in ongoing community programs relating to child guidance, housing, home management, food and nutrition, clothing selection and care and personal development focusing upon individuals who have experienced varying degrees of deprivation.

**740:362. HOME MANAGEMENT. 3 credits.**

Operation and function of home. Theories of home management relation to utilization of human and material resources in the promotion of family well-being.

**740:401/501. FAMILY LIFE PATTERNS IN THE ECONOMICALLY DEPRIVED HOME. 3 credits.**

A visually saturated study of family life orientation and life style patterns among the economically deprived with an emphasis on the impact of socio-economic and psychological deprivation on family members throughout the family life cycles.

**740:412. INSTITUTIONAL MANAGEMENT.**

*4 credits.*

Standard for quality food service; criteria regarding food purchasing; time, cost and labor management; equipment utilization.

**740:415. EQUIPMENT. 4 credits.**

Selection, use and care of modern household equipment. Survey of commercial equipment used in home economics related professions.

**740:416. QUANTITY FOOD PREPARATION.**

*5 credits.*

Preparation of various food types; care of equipment; layout of different types of food preparation and service centers. Six hours laboratory and conference.

**740:419/519. CLOTHING COMMUNICATION.**

*3 credits.*

Study of social-psychological and economical aspects of clothing selection. Emphasis on research pertaining to personality development, social and personal identity as influenced by dress. Concerns of various age levels and various cultural groups regarding dress.

**740:420/520. EXPERIMENTAL FOODS.**

*4 credits. (2-4).*

Prerequisite, 246. Techniques and methods in experimental food preparation; group and individual experimentation.

**740:421. SPECIAL PROBLEMS IN HOME ECONOMICS. 2-5 credits.**

Additional study or apprentice experience in a specialized field of home economics. Open to seniors by permission.

**740:422. HOME MANAGEMENT RESIDENCY.**

*5 credits.*

Five weeks residence in home management home; practical problems in management of time, money and energy; experience in group living. Married students may select special managerial problems on a nonresidency basis.

**740:426. THERAPEUTIC NUTRITION. 3 credits.**

Prerequisite or corequisite, 316. Applications of principles of normal nutrition to diet in disease; construction of diets for specific disease conditions.

**740:439. FASHION. 3 credits.**

Prerequisite, senior standing. Economic and social aspects of the fashion industry including study of growth, promotion and impact of cultural influences. Review of European and American fashion scene including recent trends and developments.

**740:449. DRAPING AND DESIGN. 3 credits.**

The designing of original garments through drapery of flat material on a form. Construction of form to correspond with individual measurements.

**740:450/550. DEMONSTRATION TECHNIQUES.**

*2 credits.*

Prerequisite, permission of Instructor. This course is designed to give the student theoretical background and practical experience in the organization and performance of individual and group demonstrations in a variety of media. It is recommended for majors in Home Economics and other students who wish to develop ability and confidence in the coordination of materials, motion and speech in the art of demonstration.

**740:458. SEMINAR IN HOME FURNISHINGS.**

*3 credits.*

Prerequisite, 158. A course designed to further knowledge of traditional and contemporary interiors with emphasis upon individual application to specific learning situations. Various furniture refinishing and custom-making techniques are discussed.

**740:460/560. ORGANIZATION AND SUPERVISION OF CHILD CARE CENTERS. 3 credits.**

Prerequisite, permission of Instructor. Theory and principles for establishing and operating centers for young children.

**740:470. TECHNIQUES OF PROMOTION FOR HOME ECONOMICS. 3 credits.**

A survey of writing needs in the field of Home Economics

and actual experience in writing food and fashion columns, product interpretation for packaging, leaflet enclosures, advertising, press releases and radio-television scripts.

**740:485/585. SEMINAR IN HOME ECONOMICS.**

2-5 credits. (May be repeated to a total of 10 credits. Maximum of 3 credits in Graduate Degree Program.)

Prerequisite, permission. Exploration and evaluation of current developments, research trends and implications in specified areas of home economics. Intensive investigation of problematic areas as related to changing role of the profession and changing society. Problematic concern will be announced and described as offered.

## GRADUATE COURSES

**740:601. FAMILY IN TRANSITION. 3 credits.**

Prerequisite, 501 and 358:504. Current theories and concepts of family interaction, family breakdown and alternative patterns to family adjustment and organization. Attention given to research and trends in family life and sex education. Implications for teaching.

**740:602. FAMILY: ESTABLISHMENT AND ADJUSTMENT. 3 credits.**

Prerequisite, 601. Study of family patterns and problems during early years of marriage with emphasis on interpersonal competence, emerging family patterns and practices. Examination of theory and research.

**740:603. FAMILY: MIDDLE AND LATER YEARS.**

3 credits.

Prerequisite, 602. Study of family patterns and problems during the middle and later years of life with emphasis on psychological and biological changes and economic and social adequacy. Research and trends in gerontology.

**740:616. INFANT AND CHILD NUTRITION.**

3 credits.

Prerequisites, 265 and 316. Study emphasizes current research trends in physiology of the infant and young child in relation to nutritional requirements and feeding practices.

**740:651. FAMILY LAW. 3 credits.**

Study of laws which control and protect individuals within the family unit. Emphasis on current trends and legal rulings. Course taught by an attorney-at-law.

**740:660. PROGRAMMING FOR CHILD CARE CENTERS. 3 credits.**

Prerequisite, 460. Study of principles and procedures involved in program development for child care centers. Examination of current programs available for children from infancy through age five. Emphasis on critical review of current research and trends.

**740:665. DEVELOPMENT IN INFANCY. 3 credits.**

Prerequisite, 265, or permission. Analysis of research and theoretical framework regarding infant development from conception through first two years. Implications for guidance and education. Laboratory and seminar.

**740:682. INDIVIDUAL INVESTIGATION IN FAMILY LIFE. 2-5 credits.**

Prerequisite, permission of graduate adviser only. Individual pursuit and analysis in a specific area of student's interest and design under direction of a faculty adviser. Literary analysis, application and evaluation are stressed.

**740:683. INDIVIDUAL INVESTIGATION IN CHILD DEVELOPMENT. 2-5 credits.**

Prerequisite, permission of graduate adviser only. Individual pursuit and analysis in a specific area of student's

interest and design under direction of a faculty adviser. Literary analysis, application and evaluation are stressed.

## 750: MUSIC\*

\*Four music education courses are offered through the College of Education, numbered 520:323 and 324, 530:325 and 326.

**750:101. INTRODUCTION TO MUSIC THEORY.**

2 credits.

Credit not applicable toward degree for music majors. A course designed to correct deficiencies of background of the student anticipating Theory I. Material covered includes basic notation scales, metrical and key signatures, internal chord formation and symbols, and performance terms and symbols.

**750:104. BEGINNING CLASS PIANO I. 2 credits.**

Prerequisite, 101 or permission. Designed for students with no previous keyboard experience to learn rudimentary keyboard skills such as playing scales, chords, arpeggios and melodic patterns as well as simple music.

**750:105. CLASS PIANO II. 2 credits.**

Prerequisite, 104 or permission of the instructor. Course Description: A continuation of the work begun in Class Piano I.

**750:106. CLASS PIANO III. 2 credits.**

Prerequisite, 105 or permission of the instructor. Course Description: A continuation of the work begun in Class Piano II.

**750:107. CLASS VOICE I. 2 credits.**

Prerequisite, 101 or permission. Minimum memorization and solo singing requirement — five songs. Voice literature emphasis — folk songs, ballads, spirituals, sacred songs and easy art songs in English. (Note: the art song may be sung in the original foreign language, providing the student is thoroughly familiar with the language involved.) Practice emphasis — practice guidance, proper posture, breath support, ease, naturalness, free tone, tonal color variation, mood and style orientation through listening to and singing six suggested "basic model songs".

**750:108. CLASS VOICE II. 2 credits.**

Prerequisite, 107. Minimum memorization and solo singing requirement — five songs. Vocal literature emphasis — folk songs, ballads, spirituals, sacred songs and simple songs in English. (Note: the art song may be sung in the original foreign language providing the student is thoroughly familiar with the language involved.) Practice emphasis — legato and sostenuto, efficiency in tonal production, clarity of articulation and application of the "Principles of Production in Tonal Progression" in Lesson 16.

**750:109. CLASS VOICE III. 2 credits.**

Prerequisite, 108. Minimum memorization and solo singing requirements — six songs. Vocal literature emphasis — old Italian and old English songs, art songs in English or foreign language if the student is conversant with the language. Practice emphasis — agility and flexibility, Lyric Bel-Canto style, extending compass and dynamic range, perfecting intonation, recitative style and delivery.

**750:151-152-153. THEORY I, II, III. 3 credits each.**

Sequential; prerequisite, 101 or permission. Study and creative use of the elements of music; investigation of the music of major composers of the classic and romantic eras; introduction to earlier musical practices and contemporary music.

**750:154-155-156. MUSIC LITERATURE I, II, III.***2 credits each.*

Sequential. Familiarization of student with large body of musical material from all branches of music writing; for vocal and instrumental, solo and ensemble, symphonic and choral groups. Special attention given to style and structural procedures by principal composers. Designed for students with some musical background. (Students seeking a non-professional, music appreciation course should refer to 301, 302 and 303.)

**750:157. STUDENT RECITAL. 1 hour, 0 credit.**

(Freshmen and Sophomores).

Required each quarter of all music majors. A weekly meeting of music students with members of the faculty, providing lectures, discussion of problems in the general area of performance, and, for selected students, the opportunity for ensemble playing and singing, conducting, accompanying, solo performance and the practice of stage deportment before an audience.

**750:160-161-162. SIGHT-SINGING AND EAR TRAINING I, II, III. 2 credits each.**

Prerequisites, 101 or permission of instructor. Vocal mastery of major and minor scales, all intervals convenient to the vocal range, broken chords, problems of rhythm, meter, tempo, dynamics, modulation, and part singing. Singing will be done both with and without syllables and numbers. Aural recognition of these fundamental materials, a necessary adjunct to both accurate vocal performance and general musicianship, will be a part of the study.

**750:201. FUNDAMENTALS OF MUSIC. 3 credits.**

Introduction to the fundamentals of music as related to the elementary classroom, including ear-training, sight-singing, creativity and functional piano. This course is prerequisite for 520:322 (non-majors only).

**750:251-252-253. THEORY IV, V, VI. 3 credits each.**

Sequential; prerequisite, 153. IV: Renaissance vocal counterpoint. V: Baroque instrumental counterpoint. VI: Form and analysis of music of all eras.

**750:254-255-256. STRING INSTRUMENT TECHNIQUES. 2 credits each.**

Sequential; prerequisite, 153. Learning the fundamentals of technique, tone production, methods, and materials pertaining to the violin, viola, cello, and string bass; culminating in heterogeneous string ensemble activities.

**750:260-261-262. KEYBOARD HARMONY I, II, III.***2 credits each.*

Prerequisites, 106 or equivalency and 153. The essentials of basic theory and harmony practically applied at the keyboard, accompaniment, improvisation, transposition, modulation and sight reading.

**750:263. SERVICE PLAYING FOR ORGANISTS.***2 credits.*

Prerequisite, 261. Emphasis on performance in class by each student, with criticism and constructive comment by the instructor and other class members. Work outside class would include a minimum of reading and a maximum of practice of the skill being studied.

**750:301. MUSIC APPRECIATION: EARLY AND BAROQUE (TO 1750). 2 credits.****750:302. MUSIC APPRECIATION: CLASSICAL AND ROMANTIC (LATE 18TH AND 19TH CENTURIES).***2 credits.***750:303. MUSIC APPRECIATION: MUSIC OF OUR TIMES 20TH CENTURY. 2 credits.**

301, 302 and 303 are designed as electives for the general

student (the non-music major) to provide an introductory survey of the art of music.

**750:305. MARCHING BAND ORGANIZATION AND TECHNIQUE. 2 credits.**

Prerequisite, 751:104 or permission of instructor. This course deals with problems involved in charting a complete pre-game or half-time show for the marching band. All aspects of the band on the field are discussed including placement of instruments, systems for charting formations and drill, show planning (including sources for themes, etc.) script writing and special visual effects. Any problems a marching band director might expect to encounter while working with his band or planning shows will be discussed. Students will be required to originate a complete half-time show each week (continuity sheet only, no charts etc.) By the end of the quarter each student will be required to write a complete half-time show including script, charts, a drill, a picture formation, an entrance routine to the field, an exit from the field, a full script sheet and a prop sheet.

**750:306. MARCHING BAND ARRANGING. 2 credits.**

Prerequisite, 153 and 751:104 or permission. Learning to arrange effectively for the marching band, including optimum registration of instruments, style, and familiarity with all the problems involving sound with an outdoor marching band. The course will include a discussion of scoring for the concert band as it relates to scoring for the marching band.

**750:351-352-353. MUSIC HISTORY I, II, III.***3 credits each.*

Sequential; prerequisites, 153 and 156. Development of music from ancient to modern times; scores, recordings and live performance as illustrative material.

**750:354. WOODWIND INSTRUMENT TECHNIQUES.***2 credits.*

Prerequisite, 153. Playing of woodwind instruments. Basic techniques for clarinet, flute, oboe and bassoon are presented and practiced.

**750:355. BRASS-PERCUSSION INSTRUMENTS.***3 credits.*

Prerequisite, 153. Playing of brass and percussion instruments. Basic techniques for trumpet, French horn, trombone, tuba, snare drum, timpani, xylophone, bells, chimes, and other percussion instruments are presented and practiced.

**750:357. STUDENT RECITAL.***1 hour, 0 credit. (Juniors and Seniors).*

See 157 for description.

**750:360. CHORAL TECHNIQUES. 3 credits.**

Prerequisites, 153, 361. Techniques employed in choral conducting securing attacks, releases, dynamic and tempo changes, voice classification; methods of securing correct intonation; analysis of choral literature; developing and maintaining a choral organization.

**750:361. CONDUCTING. 3 credits.**

Prerequisite, 153. Technique and practice in conducting, including beat patterns, fermatas, tempo change, attacks and releases, score reading through the use of small and large ensembles with reference to public school music.

**750:362. CHORAL ARRANGING. 3 credits.**

Prerequisites, 253, 353, or permission of the instructor. This course is designed to provide the student with an understanding of the principles of choral arranging and composition in all idioms and styles, and to aid him in developing the knowledge and skills needed for arranging and composing choral music.

**750:371. ANALYTICAL TECHNIQUES I. 3 credits.**

Prerequisites, 251, 252, and 253. Techniques for the analysis of musical scores from all eras of western music history, with major emphasis placed upon works of the Baroque, Classical and Romantic periods. Analytical techniques involve the study of the musical parameters of pitch, duration, timbre and intensity as well as an analysis of form and texture and a knowledge of the harmonic language of a musical score.

**750:374. ANALYTICAL TECHNIQUES II. 3 credits.**

Prerequisite, 371. A continuation of 371.

**750:451/551. INTRODUCTION TO MUSICOLOGY. 3 credits.**

Prerequisite, 353. Comparative musicology; acoustics; psychology and physiology of music; aesthetics; theory of music theory; historical musicology.

**750:452. COMPOSITION. 3 credits.**

Prerequisite, 253. Study and creative use of the major styles and idioms of musical composition of the twentieth-century.

**750:453/553. BIBLIOGRAPHY AND RESEARCH. 3 credits.**

Prerequisite, 353. Examination of all types of published musical materials and publications related to music; methods of research; field trips to specialized collections; writing of research papers in areas of interest.

**750:454. ORCHESTRATION. 3 credits.**

Prerequisites, 253, 256, 354, and 355. Theory of instrumentation ranging from small ensembles to full band and orchestras.

**750:455/555. ADVANCED CONDUCTING. 3 credits.**

Prerequisites, 361, 454. Baton technique and problems relating to the practice, reading and preparation of scores; organization of orchestra and band, problems in programming and practice conducting larger instrumental ensembles.

**750:456/556. MEASUREMENT AND EVALUATION IN MUSIC. 3 credits.**

Prerequisite, 510:350 or equivalent. A course designed to make the music student aware of the principles of music aptitude and achievement, valid and reliable instruments for measuring them, elementary statistics as related to music, and basic guidelines for test construction.

**750:460/560. REPERTOIRE AND PEDAGOGY: VOICE. 4 credits.**

Prerequisite, permission of the instructor. A study in depth of subjects dealing with the teaching of voice; the physiology of the vocal instrument, principles governing vocal production and their application to vocal pedagogy; Baroque, Classical, Romantic and Contemporary Art Song and Area Literature.

**750:461/561. REPERTOIRE AND PEDAGOGY: ORGAN AND HARPSICHORD. 4 credits.**

Prerequisite, permission of the instructor. Designed for the future keyboard teacher; a study of the standard teaching repertoire and practical teaching methods: some supervised teaching of children and/or adults.

**750:462/562. REPERTOIRE AND PEDAGOGY: ORGAN. 4 credits.**

Prerequisite, permission of the instructor. A survey of organ literature with representative works from the fourteenth century to the present, including discussion of characteristic forms, historical significance, and general musical worth. The music will also be examined to illustrate principles and methods of teaching applied at various levels of organ study as well as performance practices and problems. Some

supervised teaching.

**750:463/563. REPERTOIRE AND PEDAGOGY: STRING INSTRUMENTS. 4 credits.**

Prerequisite, permission of the instructor. A study in depth of the four bowed string instruments, dealing with their teaching, and the close relationships they share. Despite the obvious difference in physical application of the cello and bass from the violin and viola, methods of bowing, sound production and coloring are closely related. Application of the four instruments to solo, chamber, and orchestral playing.

**750:471. COUNTERPOINT. 3 credits.**

Prerequisite, permission of the Instructor. Designed to give the student of theory-composition the necessary knowledge and skills for understanding the contrapuntal practices and procedures of various style periods. Music for analysis will focus upon the vocal counterpoint of the Renaissance, the instrumental counterpoint of the late Baroque, and contrapuntal practice in the nineteenth and twentieth centuries. Major composers from each period will be represented.

**750:472. ADVANCED ORCHESTRATION. 3 credits.**

Prerequisite, 454. The study of techniques of orchestration and orchestral style as found in major works from the classical orchestra of Haydn and Mozart through the modern orchestra of Stravinsky, Bartok, Berg, and Schoenberg.

**750:490. INDEPENDENT STUDY IN MUSIC.**

2-3 credits. (May be repeated to a total of 6 credits.)

Prerequisite, senior standing and permission of the head of the department. Music majors only. Independent study under the supervision of specially selected faculty members in a subject area bearing on the student's own goals.

**750:464/564. REPERTOIRE AND PEDAGOGY: WIND AND PERCUSSION INSTRUMENTS. 4 credits.**

Prerequisite, permission of the instructor. A survey of wind and percussion instrument literature with representative works from the total repertory for each instrument. Music will be examined to illustrate principles and methods of teaching applied at various levels of study as well as performance practices and problems.

## GRADUATE COURSES

**750:601. CHORAL LITERATURE. 3 credits.**

A study in depth of the style, structure, technical demands, manner of setting the text, and special performance problems found in masters-works by the great choral composers of nine centuries. The influence of extra-musical factors which are peculiar to a composer or to his age will also be considered.

**750:604. DEVELOPMENT OF OPERA. 3 credits.**

A course dealing with the growth and development of opera from its beginning, with emphasis on the social, cultural and intellectual forces that shaped it. Included will be a detailed examination of stylistic and structural changes as well as performance practices from Manteverdi's *Orfeo* to the present.

**750:605. SEMINAR IN MUSIC OF THE MIDDLE AGES AND RENAISSANCE. 3 credits.**

Prerequisite, permission of the instructor. A study in depth of the styles, structures, methods of composition, functions, performance practices, and evolution of medieval and Renaissance music. Notation, technical demands, and aesthetic principles of the music are studied with manuscript facsimiles, modern editions, recordings and live

performance of musical examples. At least two project papers are expected in areas of special interest.

**750:606. SEMINAR IN MUSIC OF THE 17TH AND 18TH CENTURIES.** 3 credits.

Prerequisite, permission of the instructor. Historical and stylistic analysis of baroque and classic music; study in depth of special examples, from recordings, scores, and live performance; continuation and synthesis of approaches normal to study of music history and music theory; selected readings related to each student's particular field of interest; project papers.

**750:607. SEMINAR IN MUSIC OF THE 19TH AND 20TH CENTURIES.** 3 credits.

Prerequisite, permission of the instructor. Historical and stylistic analysis of the music of the 19th and 20th centuries; study in depth of specific examples, from recordings, scores, and live performance; continuation and synthesis of approaches normal to study of music history and music theory; selected readings related to each student's particular fields of interest; project papers.

**750:608. SEMINAR IN MUSIC OF THE WESTERN HEMISPHERE.** 3 credits.

Prerequisite, permission of the instructor. A study of the different influences which have moulded the music of nations, geographical regions and ethnic groups of the Western Hemisphere. Designed to gain through musical insights a better understanding of the peoples of the New World and of their cultures as well as specific knowledge of the stylistic elements of their musical art. Use of phonograph recordings; study of musical examples; research in areas of specific interest to the individual student.

**750:609. TECHNIQUES OF 20TH CENTURY COMPOSITION.** 4 credits.

Prerequisite, permission of the instructor. Study of the principal styles of 20th century music by means of background reading concerning the formation, development, and significance of each style, the foremost composers and their compositions, listening to recordings or live performances, class discussion, analysis of the musical procedures and techniques involved, and finally, original composition. Emphasis on the creative approach. At the close of the course, the student will have produced ten or twelve compositions illustrating the leading types of contemporary music.

**750:611 and 530:611. FOUNDATIONS AND PRINCIPLES OF MUSIC EDUCATION.** 4 credits.

Prerequisite, permission of the instructor. A study of the basic philosophical, historical, sociological and psychological concepts around which public school music programs function.

**750:612 and 530:612. PRACTICES AND TRENDS IN MUSIC EDUCATION.** 4 credits.

Prerequisite, permission of the instructor. An in-depth exploration of current and innovative practices and trends in music education, the dissemination of the findings of research in music education as they are related to prevailing situations and problems in the public school music programs.

**750:613. MUSIC IN THE URBAN COMMUNITY.** 4 credits.

Prerequisites, graduate standing and 398:600 or 398:621 or other course recommendations determined by faculty advice in consultations with staff members in the Center for Urban Studies and the Department of Music in order to establish adequate background in urban affairs. Development of an awareness of the unique nature of the urban community and

of the techniques, methods and materials necessary for the successful teaching and supervision of music in that environment. Required observations and part-time assisting in Inner-City school music programs.

**750:648. MASTER'S THESIS.** 3 credits.

Prerequisites, completion of all other course work pertaining to the degree, the master's comprehensive examination, and permission of the Music Department graduate faculty. The selection of the supervising faculty members or member must be done with the approval of the department head. Original research in some phase of music pertaining to the candidate's major area of concentration resulting in a major work of expository writing.

**750:649. MASTER'S RECITAL.** 3 credits.

Prerequisites, completion of at least two quarters of graduate study in applied music, all other course work, the master's comprehensive examination and permission of the Music Department graduate faculty and the private instructor. A full recital on the chosen major instrument. The program must be of a decidedly advanced level of difficulty over that of the student's baccalaureate recital. The student will be expected to be knowledgeable of the materials' technical, historical, and theoretical aspects. He will also be expected to provide in a formal paper a critical analysis of the works he has chosen before undertaking the public performance.

## 751: MUSICAL ORGANIZATIONS

No fee is charged for enrollment of qualified students in music organizations. Enrollment may be repeated each semester for credit as indicated. Students seeking the B.A. or B.S. degree in Buchtel College may include only six such credits in the minimum 192 credits required for graduation.

**751:101. UNIVERSITY SINGERS.**

1 credit. (3 hours a week).

A mixed chorus. Membership by audition. Numerous appearances throughout the year, on campus, at various civic organizations, broadcasting stations and social groups, as well as public performances. Two performances annually of major choral works with the Akron Symphony Orchestra and Chorus. Previous choral experience and music-reading skill necessary.

**751:102. UNIVERSITY EVENING CHORUS.**

1 credit. (2 hours a week).

Membership by audition. Prospective members are advised to contact the Music Department at least two weeks before the beginning of the quarter. To provide musical experience as one of the options available to Evening Session students in the Fine Arts, persons registering for the course during the Evening Sessions would become part of the Akron Symphony Chorus which performs two or three times annually with the Akron Symphony Orchestra.

**751:103. UNIVERSITY SYMPHONY ORCHESTRA.**

1 credit.

An organization devoted to the study of orchestral literature; presents Fall and Spring concerts, as well as "pops" concerts; special programs, such as Christmas, Easter, and Commencement; performs with guest conductors and soloists of national reputation as well as outstanding students soloists. Membership through audition; also available for evening session students.

**751:104. UNIVERSITY BAND.** 1 credit. (6 hours a week).

The University Marching Band is organized in the fall of the year (first quarter) and plays for all football games. It is open to all qualified students, both men and women. The

Symphony Band functions after the football season and continues for the rest of the year. Membership in both the Symphony and Marching Bands through audition with the Director of Bands.

**751:105. CHORAL ENSEMBLE.**

*1 credit. (2 hours a week).*

Membership by audition. Study and performance of literature for chamber vocal ensemble from all periods of music history. Frequent public concerts. Designed for personnel with good music reading ability and previous choral experience.

**751:106. BRASS ENSEMBLE. 1 credit. (2 hours a week).**

Membership by audition. Must be a member of the University Band or Orchestra. Study and performance of literature for brass ensemble from all periods of music history. Frequent public concerts. For advanced brass players.

**751:107. STRING ENSEMBLE.**

*1 credit. (2 hours a week).*

Membership by audition. Must be a member of the University Orchestra. Study and performance of literature for string ensemble by the master composers. Designed to develop a high sense of musicianship among string players and to familiarize the student with string ensemble literature through performance.

**751:108. OPERA WORKSHOP.**

*1 credit. (2 hours a week).*

Membership by audition. Musical and dramatic group study of excerpts from the operatic repertoire. Includes an annual production of a standard opera and/or contemporary chamber work with staging, costumes, and scenery. Students must secure the approval of their University voice instructor before enrolling.

**751:109. PERCUSSION ENSEMBLE.**

*1 credit. (2 hours a week).*

Membership by audition. Must be a member of the University Band or Orchestra. Study and performance of literature for various percussion groups. Designed to develop skill in ensemble performance on a wide variety of percussion instruments, particularly in the growing modern repertory for such groups.

**751:110. WOODWIND ENSEMBLE.**

*1 credit. (2 hours a week).*

Membership by audition. Must be a member of the University Band or Orchestra. Study and performance of literature for a variety of woodwind groups; literature taken from several periods and styles in music history. Designed to develop the skills of the woodwind performer through ensemble performance and to increase his knowledge and understanding of woodwind literature.

**751:111. CHAMBER ORCHESTRA.**

*1 credit. (2 hours a week). (May be repeated for credit).*

Prerequisite, permission of instructor. An organization designed to train instrumentalists in the performance of orchestral music for small ensembles. Membership by audition, open to students with advanced ability.

**751:112. MEN'S GLEE CLUB.**

*1 credit. (2 hours a week). (May be repeated for credit).*

Prerequisite, permission of instructor. A choral organization designed to perform a wide range of compositions written for men's voices and representing various musical styles and periods. Membership by permission of the director.

**751:113. WOMEN'S GLEE CLUB.**

*1 credit. (2 hours a week). (May be repeated for credit).*

Prerequisite, permission of instructor. A choral organization designed to perform a wide range of compositions written

for women's voices and representing various musical styles and periods. Membership by permission of the director.

**751:114. KEYBOARD ENSEMBLE.**

*1 credit. (2 hours a week). (May be repeated for credit).*

Prerequisite, permission of instructor. Study and performance of a wide variety of chamber music. Designed to develop a keen sense of the musicianship required of keyboard performers in ensemble. Registration required of all music majors whose primary performance areas is piano, organ or harpsichord.

## 752: APPLIED MUSIC

*2 or 4 credits each quarter.*

(Undergraduate or Graduate)

Students must contact the Music Department and consult with the applied music instructor before registering for course work.

All music majors must perform each quarter before an applied music jury on each instrument which he studies privately for credit. The non-music major studying applied music will appear before a jury at the discretion of his private teacher.

Credit is earned on the basis of two credits per quarter for one thirty-minute lesson per week and ninety minutes practice per day. Enrollment may be repeated each quarter for credit. Students seeking the B.A. or B.S. degree in Buchtel College may include only 12 such credits in the minimum 192 credits required for graduation.

**752:121-221-321-421/521. PERCUSSION.**

**752:122-222-322-422/522. CLASSICAL GUITAR.**

**752:123-223-323-423/523. HARP.**

**752:124-224-324-424/524. VOICE.**

**752:125-225-325-425/525. PIANO.**

**752:126-226-326-426/526. ORGAN.**

**752:127-227-327-427/527. VIOLIN.**

**752:128-228-328-428/528. VIOLA.**

**752:129-229-329-429/529. CELLO.**

**752:130-230-330-430/530. STRING BASS.**

**752:131-231-331-431/531. TRUMPET OR CORNET.**

**752:132-232-332-432/532. FRENCH HORN.**

**752:133-233-333-433/533. TROMBONE.**

**752:134-234-334-434/534. BARITONE.**

**752:135-235-335-435/535. TUBA.**

**752:136-236-336-436/536. FLUTE OR PICCOLO.**

**752:137-237-337-437/537. OBOE OR ENGLISH HORN.**

**752:138-238-338-438/538. CLARINET OR BASS CLARINET.**

**752:139-239-339-439/539. BASSOON OR CONTRABASSOON.**

**752:140-240-340-440/540. SAXOPHONE.**

**752:141-241-341-441/541. HARPSICHORD.**

**752:442. PRIVATE LESSONS IN MUSIC COMPOSITION.**

*2 credits. (May be repeated for a total of 12 credits.)*

Prerequisite, 750:253 and 353. Private instruction in composition. Primarily offering the students whose concentration is in theory composition.

## 770: SPEECH PATHOLOGY AND AUDIOLOGY

### 770:135. INTRODUCTION TO PHONETICS.

4 credits.

Introduction to the use of the International Phonetic Alphabet, in General American speech. The physical, physiological and neurological bases of sound production.

### 770:136. BASES OF SPEECH. 4 credits.

Prerequisite, 135. Study of the social, linguistic, psychological, genetic and semantic bases of speech.

### 770:137. VOICE AND ARTICULATION. 3 credits.

Prerequisite, 135. Study of the principles and mechanisms of standard speech and voice.

### 770:270. INTRODUCTION TO SPEECH DISORDERS.

4 credits.

Basic concepts and principles of speech pathology. Classification and incidents of speech disorders.

### 770:276. APPLIED PHONETICS. 4 credits.

Training in acoustic phonetic transcription, analysis of dialects, distortions and sound substitutions.

### 770:278. PSYCHOLOGY OF SPEECH.

4 credits.

Prerequisites, 135 and 375:141. The nature, origins and purposes of speech. The basic psychological principles involved in the communicative process and their application to both groups and individuals.

### 770:321. LANGUAGE DEVELOPMENT PROGRAM: EVALUATION AND HABILITATION.

4 credits.

Prerequisites, 135 and 136. A detailed study of the processes used in evaluating oral language conceptualization and performance. Methods and procedures useful in assisting the language handicapped child.

### 770:335. LANGUAGE OF SIGNS. 2 credits.

Prerequisite, permission of instructor. Emphasis is on fundamental expressive and receptive skills in manual communication — essential to professional personnel or students whose field of endeavor involves contact with deaf people. Attention is also given to the nature and scope of manual communication as it relates to socio-economic, psychological, educational, communicative and other orientative aspects of deafness.

### 770:336. LANGUAGE OF SIGNS. 2 credits.

Prerequisite, permission of instructor and 335. Continuation and review of the material covered in 335 on the intermediate level. Development and improvement of conversational sign language and speed in fingerspelling skills. Guests and speakers, including the deaf, will demonstrate application of sign language.

### 770:337. LANGUAGE OF SIGNS. 2 credits.

Prerequisite, 336 and permission of instructor. Advanced work in proficiency of expressive and receptive skills in manual communication with a broader vocabulary. This course also includes comprehension, higher interpreting skills, and supplementary field experience with the deaf.

### 770:353. INTRODUCTION TO AUDIOLOGY.

4 credits.

Anatomy, physiology and acoustics of hearing. Survey of the field of audiology. The nature of hearing problems.

### 770:355. AURAL REHABILITATION. 4 credits.

Introduction to the philosophy and methods of aural rehabilitation for children and adults including methods of speechreading, auditory training, speech conversation, hearing aid use, and visual and auditory approaches.

Observation and practicum.

### 770:367. HEARING AND DEAFNESS. 4 credits.

Prerequisite, 353. This course will involve the study of hearing as it relates to the adjustment of the deafened individual to life. Emphasis will be placed upon the role of the speech pathologist in counseling the deafened individual as a part of the rehabilitation program.

### 770:420. PATHOPSYCHOLOGY OF SPEECH AND HEARING MECHANISMS. 4 credits.

Prerequisites, 310:191 and 451. Detailed study of the speech and hearing mechanisms emphasizing their function and neurological control. Theories concerning speech (phonation, velo-pharyngeal closure, language function) and hearing will be paired with the existing neurophysical facts, and with clinical syndromes.

### 770:457/557. PRINCIPLES OF AUDIOMETRY.

3 credits.

Prerequisite, 353. Hearing tests and hearing instruments. Case finding and referral. Interpretation of hearing test results. Organization of hearing conservation programs. Observation and practicum, The University of Akron Speech and Hearing Center.

### 770:470/570. SPEECH THERAPY FOR CLASSROOM TEACHERS. 4 credits.

Study of the types and nature of speech and language disorders in the classroom. Interrelationship of the teacher and speech clinician. Available for graduate credit only with approval of program director.

### 770:471/571. SPEECH PATHOLOGY I. 4 credits.

Prerequisites, 270 and 278. Study of articulation disorders, etiology, evaluation and correction. Observation and practicum, The University of Akron Speech and Hearing Center.

### 770:472/572. SPEECH PATHOLOGY II. 3 credits.

Prerequisite, 471. Study of the pathology, methods of testing and therapy for stuttering, cleft palate, voice disorders and cerebral palsy. Observation and practicum, The University of Akron Speech and Hearing Clinic.

### 770:473/573. SPEECH PATHOLOGY III. 3 credits.

Prerequisite, 472. Study of the pathology, methods of testing and therapy for adult aphasia, and children's organically based language disorders. Observation and practicum, The University of Akron Speech and Hearing Center.

### 770:474/574. CLINICAL METHODS. 4 credits.

General orientation to clinical methods, practices and procedures. An overview of therapy aids. Reports on observations made in related community agencies.

### 770:475/575. CLINICAL PRACTICES. 3 credits.

Prerequisite, 90 credits laboratory experience and permission. Laboratory experience in the University of Akron Speech and Hearing Center. Introduction to interviewing techniques used in a speech and hearing agency.

### 770:476/576. SPEECH AND LANGUAGE DEVELOPMENT. 4 credits.

Prerequisite, 136 or permission. A study of the development of speech and language in children; theories of speech and language development in the individual.

### 770:492. SPECIAL PROJECTS.

1-4 credits. (May be repeated for a total of 4 credits.)

Prerequisite, permission of the instructor. Individual or group projects related to any of the problems of communicative disorders.

### 770:495. SEMINAR — COMMUNICATIVE DISORDERS. 3 credits.

Prerequisite, senior standing. This course will provide a means for individualized study and discussion of the

various areas within the field; hearing evaluation, speech reading and auditory training, language disabilities, disorders of rhythm, etc.

## GRADUATE COURSES

### **770:620. INTERNSHIP IN SPEECH PATHOLOGY AND/OR AUDIOLOGY. 3-6 credits.**

(May be repeated for a total of 9 credits.)

Prerequisite, permission of director of program. Clinical practicum in The University of Akron Speech and Hearing Center and/or selected community centers. 275 clock hours minimum ASHA certification requirements must be fulfilled prior to the completion of the M.A. This course may be used to complete these requirements.

### **770:623. SPEECH AND HEARING PROGRAMS. 3 credits.**

3 credits.

The organization and management of speech and hearing progress in voluntary and official agencies.

### **770:625. RESEARCH METHODS IN COMMUNICATIVE DISORDERS. 3 credits.**

(May be repeated for a total of 9 credits.)

Prerequisite, statistics. Types of research problems and approaches to them in communicative disorders.

### **770:650. TOPICS IN ADVANCED AUDIOLOGY I. 3 credits. (May be repeated for a total of 9 credits.)**

3 credits. (May be repeated for a total of 9 credits.)

Prerequisite, 6 credits audiology or permission. Selected current topics in clinical and experimental audiology. Emphasis on review of current literature.

### **770:651. TOPICS IN ADVANCED AUDIOLOGY II. 3 credits. (May be repeated for a total of 9 credits.)**

3 credits. (May be repeated for a total of 9 credits.)

Prerequisite, 6 credits audiology or permission. Selected current topics in clinical and experimental audiology. Emphasis on review of current literature.

### **770:652. TOPICS IN ADVANCED AUDIOLOGY III. 3 credits. (May be repeated for a total of 9 credits.)**

3 credits. (May be repeated for a total of 9 credits.)

Prerequisite, 6 credits audiology or permission. Selected current topics in clinical and experimental audiology. Emphasis on review of current literature.

### **770:654. EXPERIMENTAL AUDIOLOGY. 3 credits.**

Prerequisite, 9 credits or permission. Principles of psychoacoustics. Review of instrumentation and research techniques. Study of significant literature in the field.

### **770:655. INSTRUMENTATION IN AUDIOLOGY. 3 credits.**

3 credits.

Prerequisite, 457. Current methodology in auditory research. Emphasis on the type of equipment used in conducting auditory research.

### **770:656. CLINICAL AUDIOLOGY I. 3 credits.**

Prerequisite, 457. Rationale and conduct of clinical programs in audiology. Observation and practicum, The University of Akron Speech and Hearing Center.

### **770:657. CLINICAL AUDIOLOGY II. 3 credits.**

### **770:658. CLINICAL AUDIOLOGY III. 3 credits.**

Current methodology in evaluation of audition of the child and adult. Emphasis on the patterns found in the various types of auditory disorders and auditory rehabilitation.

### **770:659. SEMINAR IN AUDITORY REHABILITATION. 3 credits. (May be repeated for a total of 9 credits.)**

3 credits. (May be repeated for a total of 9 credits.)

Prerequisite, 355 or permission. Current methodology in the auditory rehabilitation of the child and adult. Emphasis on the literature and current and potential areas of research.

### **770:670. SPECIAL PROBLEMS: SPEECH PATHOLOGY AND/OR AUDIOLOGY. 1-4 credits. (May be repeated for a total of 9 credits.)**

1-4 credits. (May be repeated for a total of 9 credits.)

Prerequisite, permission of instructor. Guided research or reading in selected topics in speech pathology, audiology or language disorders.

### **770:671. ADVANCED SPEECH PATHOLOGY I. 3 credits. (May be repeated once for an additional 3 credits.)**

3 credits. (May be repeated once for an additional 3 credits.) Prerequisite, 474 or permission. Historical background, current theories and research related to the etiology, diagnosis and treatment of selected speech and language disorders.

### **770:672. ADVANCED SPEECH PATHOLOGY II. 3 credits. (May be repeated once for an additional 3 credits.)**

3 credits. (May be repeated once for an additional 3 credits.) Prerequisite, 474 or permission. Historical background, current theories and research related to the etiology, diagnosis and treatment of selected speech and language disorders.

### **770:673. ADVANCED SPEECH PATHOLOGY III. 3 credits. (May be repeated once for an additional 3 credits.)**

3 credits. (May be repeated once for an additional 3 credits.) Prerequisite, 474 or permission. Historical background, current theories and research related to the etiology, diagnosis and treatment of selected speech and language disorders.

### **770:674. STUTTERING: THEORIES AND THERAPIES. 3 credits. (May be repeated once for an additional 3 credits.)**

3 credits. (May be repeated once for an additional 3 credits.) Reading and discussion of selected theories and therapies related to stuttering.

### **770:675. INSTRUMENTATION IN SPEECH PATHOLOGY. 3 credits.**

3 credits. (May be repeated for a total of 9 credits.) Prerequisite, permission. Equipment usage in the clinical setting and in field studies.

### **770:676. COMMUNICATIVE DISORDERS OF CHILDREN. 3 credits.**

3 credits. (May be repeated for a total of 9 credits.) Prerequisite, 476. Oral and aural language deviations. Their etiologies, pathologies and remediation.

### **770:677. VOICE PATHOLOGY. 4 credits.**

4 credits. (May be repeated for a total of 12 credits.) Prerequisite, 473 or permission. Background and current research related to the etiology, diagnosis and therapy for various disorders of voice.

### **770:678. TOPICS IN DIFFERENTIAL DIAGNOSIS OF SPEECH AND LANGUAGE DISORDERS. 3 credits. (May be repeated for a total of 9 credits.)**

3 credits. (May be repeated for a total of 9 credits.) Prerequisite, permission of director of Speech and Hearing program. The study and application of diagnostic procedures related to selected speech and language disorders.

### **770:694. RESEARCH AND THESIS. 3 credits. (May be repeated for a total of 9 credits.)**

3 credits. (May be repeated for a total of 9 credits.) Prerequisite, permission of the Department Head.

## 780: SPEECH AND THEATRE ARTS

### **780:121-221-321-421. CHAMBER BALLET. 2 credits each.**

(Each number may be repeated for a total of 6 credits.)

Prerequisite, permission of instructor, limited to students who are members of the Chamber Ballet. Rehearsal, general preparation, and public performance of the University Chamber Ballet.

### **780:122. BALLET TECHNIQUE I. 3 credits.**

(May be repeated for a total of 9 credits.)

Prerequisite, permission of instructor. The theory and practice of ballet, stressing fundamentals of vocabulary, structure and placement. Emphasis on individual development of style.

**780:123. BALLET LABORATORY. 1 credit.**

(May be repeated for a total of 3 credits.)

Prerequisite, permission of Instructor. Required of all ballet majors in their freshman year. A lecture and laboratory course designed to prepare the dancer to understand his body and its function in artistic performance.

**780:124. INTRODUCTION TO BALLET. 2 credits.**

(May be repeated for a total of 6 credits.)

Designed for students with little or no previous training, a course in the basic exercises of classical ballet with emphasis on body placement, rhythmic and muscular awareness and the building of strength.

**780:125-225-325-425. EXPLORING SOUND FOR CHOREOGRAPHY. 2 credits each.**

(Each course may be repeated for a total of 6 credits.)

Exploration of the relationship of sound to movement in the dance. Designed to develop hearing awareness in dancers, using on-the-spot experiments in creating movement phrases expressive of what is heard, with emphasis on musical structure. Open to ballet majors, only.

**780:129. STAGE MOVEMENT. 2 credits.**

A course in effective movement in stage performance.

**780:141. INTERCOLLEGIATE DEBATE. 1 credit.**

(May be repeated for a total of 4 credits.)

Study and practice on the current national intercollegiate debate proposition and participation in the university's forensic program.

**780:145. ORAL ARGUMENT. 2 credits.**

Emphasis on legislative debate practice, addressed to current issues, in addition to study of the theory of argument and analysis of logical processes.

**780:175. ORAL INTERPRETATION I. 4 credits.**

Oral interpretation from the printed page with special emphasis on factual prose and prose fiction.

**780:190. PUBLIC SPEAKING. 3 credits.**

Prerequisite, 110:108. Training in types of public address; performances and individual criticism.

**780:201. NEWS WRITING. 3 credits.**

Prerequisite, 110:112. Writing of news stories; applying theory through discussions, illustrative material; actual writing for publication.

**780:203. RADIO AND TELEVISION NEWS WRITING. 3 credits.**

Prerequisite, 110:112. Principles and practice in the preparation of radio and television news. Fundamentals of electronic news writing and news gathering, practice in news delivery techniques and voice control in studio situations.

**780:204. EDITING. 3 credits.**

Prerequisite, 201. Copyreading, headline writing, proofreading, makeup, type and typography, printing machines and processes, newspaper methods and systems.

**780:206. FEATURE WRITING. 3 credits.**

Prerequisite, 110:112. Short newspaper and magazine articles; preparation of articles for publication; human interest situations; extensive writing with class discussions.

**780:209. PUBLICATIONS PRODUCTION. 3 credits.**

Prerequisite, 110:112. Fundamental course for persons engaged in production of publications and those preparing for a scholastic publication supervisory position. Consideration of a variety of processes for reproducing the printed word and related illustrations including photo-engraving, lithography, letterpress, rotogravure,

mimeographing, and other forms of duplication.

**780:222. BALLET TECHNIQUE II. 3 credits.**

(May be repeated for a total of 9 credits.)

Prerequisite, permission of Instructor, and 122. Continuation of Ballet Technique I, expanding upon vocabulary and established patterns of balletic movement. Studio lectures on comparative international dance styles.

**780:226. DANCE COMPOSITION. 2 credits.**

(May be repeated for a total of 6 credits.)

Experiments in improvisation and choreography designed to acquaint students with elements of the art of making dances. Exploration of movement with respect to form, design, dynamics, rhythm, style, motivation, gesture, theme. Open to ballet majors only.

**780:245. ARGUMENTATION. 3 credits.**

Theory of argument, analysis of logical processes.

**780:250. VOICE TRAINING FOR SPEECH AND THEATRE ARTS. 3 credits.**

Prerequisite, permission. The focus of this course will be on the safe and most effective uses of the vocal instrument in its specific application to the stage, the platform, radio, television and films. It will include those particular techniques of vocal performance peculiar to the demands of the above.

**780:251. INTRODUCTION TO SPEECH COMMUNICATION. 3 credits.**

This course views man as "the animal that communicates by means of language." It attempts to present and explain the stages and varieties of speech communication involved in that view of man, and the important influences that determine and form his speech communication habits.

**780:252. ETHICAL PERSUASION. 3 credits.**

Moral responsibility of the speaker; motivational forces in persuasive discourse.

**780:261. INTRODUCTION TO THEATRE. 4 credits.**

A survey of the arts and crafts of dramatic production, evolution of theatre structures, staging, audiences. Participation in the mounting of University Theatre productions.

**780:262. STAGE AND TELEVISION MAKEUP. 3 credits.**

Facial and character analysis makeup materials; techniques for creating straight and character makeup for both television and the stage.

**780:263. SCENE PAINTING. 2 credits.**

A laboratory course designed to equip the stage designer — technician with the basic skills of effective painting for the stage.

**780:265. BASIC STAGECRAFT. 4 credits.**

Basic aspects of stagecraft in terms of production; the stage and its equipment; construction and handling of scenery; theatrical hardware; painting of scenery. Lab hours in conjunction.

**780:266. ACTING. 4 credits.**

The actor's approach to theatre: establishment of character, inner resources, stage practices, external acting techniques.

**780:275. ORAL INTERPRETATION II. 4 credits.**

Prerequisite, 175. Oral interpretation from the printed page, with special emphasis on poetry and drama, Reader's Theatre.

**780:281. INTRODUCTION TO RADIO AND TELEVISION. 4 credits.**

Prerequisite, 175. Oral interpretation from the printed page, audience analysis research. Special projects in message design and development.

**780:282. COMMUNICATION MEDIA: RADIO. 4 credits.**

Prerequisite, 281. A study of the history, nature and function of educational and commercial broadcasting.

**780:283. COMMUNICATION MEDIA: TELEVISION. 4 credits.**

4 credits.

Prerequisite, 281 or permission of instructor. The function, structure, and influence of television as a communication medium.

**780:288. COMMUNICATION MEDIA: FILM. 4 credits.**

The techniques, limitations and potentials of film production. Students will learn script writing, directing, lighting and makeup for the camera as a medium.

**780:322. BALLET TECHNIQUE III. 3 credits.**

(May be repeated for a total of 9 credits.)

Prerequisite, permission of Instructor and 122 and 222. Continuation of Ballet Technique II, emphasizing development of style and line. Special problems assigned by the instructor, with ample opportunity for experience in the performance circumstance.

**780:324. BALLET REPERTORY. 2 credits.**

(May be repeated for a total of 6 credits.)

Prerequisite, Ballet major and permission of instructor. This course is designed to acquaint the dancer with well-known ballets in the classical and modern repertory.

**780:335. PUBLICATIONS SUPERVISION. 3 credits.**

Prerequisites, 110:112. Basic course for advisers of high school and college newspapers, magazines, and yearbooks as well as those students preparing for those positions. Problems relating to staff selection and administration, supervisory techniques, business and financial operations, and mechanical functions.

**780:344. PUBLIC DISCUSSION. 4 credits.**

Techniques of discussion in terms of skills of the effective discussion leader and participant.

**780:360. CREATIVE DRAMATICS. 4 credits.**

Prerequisite, 261. Focuses on the child from ages five through eleven. Emphasis is placed on development of the child's imagination and creativity as well as the use of pantomime and improvisation.

**780:361. PLAY DIRECTING. 4 credits.**

Prerequisite, permission. A practical course in the principles and techniques of bringing a play from page to stage.

**780:362. ADVANCED STAGECRAFT. 4 credits.**

Prerequisite, permission. Backstage organization and management in terms of production; the production staff; three-dimensional scenery construction, special scenery and rigging problems. Lab hours in conjunction.

**780:364. INTRODUCTION TO STAGE DESIGN. 3 credits.**

3 credits.

Prerequisite, permission. Principles of design as applied to dramatic production.

**780:365. GRAPHIC ARTS FOR STAGE DESIGN. 3 credits.**

3 credits.

Prerequisites, 261 and 364. An investigation of drawing and painting methods and materials useful to the stage designer. Production of sketches, renderings, working drawings and models for the stage.

**780:366. ADVANCED STAGE DESIGN. 3 credits.**

Prerequisites, 261, 364, 365, 265. A laboratory-theory course surveying architectural styles as they are adapted to the theatre. Practice in applying design elements for the stage for various types and styles of dramatic presentation.

**780:367. HISTORY OF THEATRE: GREEK THROUGH PRE-ELIZABETHAN PERIOD. 4 credits.**

Prerequisite, 261 or permission of instructor. The physical

stage, scene design, styles in acting and production, stage lighting, theatrical convention, dramaturgy and influences on modern theatre.

**780:368. HISTORY OF THEATRE: ELIZABETHAN PERIOD THROUGH THE 18TH CENTURY. 4 credits.**

Prerequisite, 261 or permission of instructor. The physical stage, scene design, styles in acting and production, stage lighting, theatrical conventions, dramaturgy and influences on modern theatre.

**780:369. HISTORY OF THEATRE: 19TH CENTURY TO PRESENT. 4 credits.**

Prerequisite, 261 or permission of instructor. The physical stage, scene design, styles in acting and production, stage lighting, theatrical convention, dramaturgy and influences on modern theatre.

**780:384. SPEECH-COMMUNICATION RESEARCH I. 4 credits.**

The role of mass media as they relate to modern communication theory. Special projects in research.

**780:390. INTRODUCTION TO RHETORICAL THEORY. 3 credits.**

Prerequisite, 131 or equivalent. This course lays the foundation for courses requiring students to make rhetorical criticism of oral disclosure. The course considers the *Rhetoric* of Aristotle, the Ciceronian canon and selected contemporary notions of rhetorical theory.

**780:392. CONTEMPORARY SPEECHES. 3 credits.**

A survey and critical review of speakers, their speeches, and audience reactions on significant issues since WW II.

**780:410. ORGANIZATIONAL COMMUNICATION. 4 credits.**

An introduction to the communication problems inherent in a complex organization. Each student will (1) design a communication study of a complex organization, (2) implement this design through an actual organization and (3) report findings and draw conclusions about the communication structure of that organization.

**780:422. BALLET TECHNIQUE IV. 3 credits.**

(May be repeated for a total of 9 credits.)

Prerequisite, Ballet major and permission of instructor. The fourth year of training will bring dancers up to a professional level of technique and will arrive at the point where technique and interpretation are woven together to produce the artist.

**780:423. HISTORY OF THE DANCE. 2 credits.**

Prerequisite, Ballet major and permission of instructor. A survey of the most important historical developments in the dance, with emphasis on dance in the theatre.

**780:424. MODERN DANCE SEMINAR. 3 credits.**

Prerequisite, Ballet major and permission of instructor. An investigation of the many different styles and techniques of modern dance and their influence on present-day choreography.

**780:426. TECHNIQUES OF TEACHING BALLET. 3 credits.**

Prerequisite, Ballet major and permission of instructor. A lecture course combined with practical work in the classroom, in the basic principles of teaching classical ballet, with emphasis on elementary training.

**780:434. SPEECH SEMINAR. 4 credits.**

An overview of the field of Speech Communication and theatre arts.

**780:439. SPEECH AND THEATRE ARTS PRACTICUM. 1-18 credits. (May be repeated for a total of 18 credits.)**

Prerequisite, permission of department head. The practicum

provides the advanced senior student with the opportunity to undertake a complex special project, under the direction of a full-time faculty member, on or off campus. Specific hours are assigned by adviser with approval of the department head.

**780:440/540. DIRECTION OF FORENSIC ACTIVITIES.** *3 credits.*

Prerequisite, 145 or 245. This course centers about instituting organizing and managing forensic activities including, for example: debating, original oratory, extempore speaking, and interpretive reading. The content includes discussion of such matters as team organization and tournament management.

**780:445/545. THEORY OF ARGUMENT.** *3 credits.*

Prerequisite, 245. This course centers about a rigorous treatment of the theory and practice of argument in human oral discourse. Lectures and discussions center about specialized topics including: the enthymeme, the meaning identification persuasion sequence, and the Toulmin model.

**780:454/554. GROUP PROCESSES AND CONFERENCE LEADERSHIP.** *4 credits.*

Group Communication theory and conference leadership as applied to individual projects and seminar reports.

**780:460/560. DRAMATIC CRITICISM.** *4 credits.*

Prerequisites, 367, 368, 369 or permission of instructor. Detailed study of the major documents of dramatic criticism with special emphasis on the relevance of this criticism today.

**780:461. THE BLACK IN AMERICAN THEATRE.**

*3 credits.*

An historical and contemporary study of Black playwrights, theatre crafts, actors and producing organization in American Theatre.

**780:462/562. PLAYWRITING.** *3 credits.*

Prerequisite, permission of instructor. Principles of dramatic construction through (a) an analysis of the playwright's art and (b) the writing of a short play by the individual student.

**780:463. ADVANCED ACTING.** *4 credits.*

Prerequisite, 266. Acting styles and techniques for the more demanding serious and comic roles in both contemporary and classic plays.

**780:464. STAGE LIGHTING.** *3 credits.*

The history of stage lighting; theories and practices of stage illumination.

**780:466/566. ADVANCED PROBLEMS IN LIGHTING.**

*3 credits.*

Prerequisites, 464 and permission of instructor. A study of problems confronting the advanced lighting designer and technician.

**780:467/567. CONTEMPORARY THEATRE STYLES.**

*4 credits.*

The emergence of Modern Contemporary Theatre: selected examples of 18th and 20th Century plays; writing, scene design and production practices; the departures from Realism.

**780:468/568. CHILDREN'S THEATRE WORKSHOP.**

*4 credits. (May be repeated for a total of 8 credits.)*

A study of theatre for the child audience: play selection, scene design and construction, acting, directing. A full-length play for children, produced by the class, culminates the course.

**780:481. PERSUASION AND PROPAGANDA ANALYSIS.** *3 credits.*

Prerequisite, 252 or permission of instructor. The theory and analysis of oral communication as designed to modify attitudes and behavior. Emphasis on recognition and understanding of propaganda.

**780:483. SURVEY OF BROADCAST STATION DEPARTMENTS.** *4 credits.*

Prerequisites, 282 and 283 or permission. This course is designed to give the senior student an understanding of the several departments in a radio/television station; how they function, how they relate to one another, and how each contributes to program development.

**780:488/588. CINEMATOGRAPHY WORKSHOP.** *5 credits.*

This course is designed to give filming experience to 12 carefully selected students. The point of emphasis is on communication through film, color and sound. It is not a technical course in camera maintenance.

**780:490/590. INTRODUCTION TO ANALYSIS OF PUBLIC DISCOURSE.** *4 credits.*

Study of the goals and philosophy of rhetorical evaluation. Available for graduate credit only with approval of Head of Department.

## GRADUATE COURSES

**780:600. INTRODUCTION TO GRADUATE STUDIES IN SPEECH AND THEATRE ARTS.** *3 credits.*

A study of the basic research methods used in Speech and Theatre Arts. Students will present oral seminar reports and written research papers to indicate competence in the several research methods.

**780:601. INTRODUCTION TO QUANTITATIVE RESEARCH IN SPEECH COMMUNICATION.** *4 credits.*

Prerequisite, 345:671. Corequisite, 345:672. This course is designed to introduce graduate students in the Theatre and the Communication Arts to the application of empirical and statistical methods to their field of study. The course presents basic principles of design and execution in quantitative studies of the variables pertinent to aesthetic and public discourse.

**780:605. GRADUATE RESEARCH IN SPEECH AND THEATRE ARTS.** *3 credits.*

(May be repeated for a total of 9 credits.)

Prerequisite, 600. Performance of research on problems found in speech and theatre arts. Each student designs and conducts an original study concentrating on one of the major tools of research.

**780:606. COMMUNICATION PROBLEMS IN THE BASIC SPEECH COURSE.** *1 credit.*

This course is designed to train graduate students in the methods and materials of the introductory speech course. Required of all teaching graduate assistants.

**780:610. SEMINAR IN COMMUNICATION PROBLEMS.**

*3 credits. (May be repeated for a total of 6 credits.)*

This course examines major areas of concern in communication theory and practice. Instruction emphasizes concentrated research in organizational communication, psychology of the audience, and cross-cultural communication.

**780:631. SPEECH-COMMUNICATION FOR THE EDUCATIONAL ADMINISTRATOR.** *4 credits.*

A survey of theory applicable to interpersonal speech-

communication and a practical application of speech-communication skills. The student will use case studies comparing successful speech-communications situations. Students will practice skills in speaking situations.

**780:636. SPECIAL PROBLEMS IN ORAL INTERPRETATION.** *4 credits.*

Prerequisite, permission. A study of complex problems in both theory and practice faced by the oral interpreter.

**780:641. PROBLEMS IN DIRECTING.** *4 credits.*

An advanced directing course, with special emphasis on complex staging problems from all periods of dramatic literature.

**780:642. PROBLEMS IN CONTEMPORARY ACTING.** *4 credits.*

A study of problems confronting the advanced actor in such areas as environmental theatre, mixed media, non-verbal productions and participatory theatre.

**780:660. ADVANCED TECHNICAL THEATRE.** *3 credits.*

Prerequisite, permission of instructor. Detailed problems in mounting plays on secondary school or university stages.

**780:662-663-664-665. THEATRE SEMINARS.** *3 credits each.*

(Accumulative to 12 credits.)

**780:662. Musical Theatre.**

**780:663. American Theatre.**

**780:664. Comedia dell'arte**

**780:665. Theatre Audiences.**

**780:667-668-669. STUDIES IN DRAMATIC PRACTICE.** *3 credits each.*

Detailed and selective studies in theatre, with emphasis on dramaturgy, social influences on theatre, auditoria and staging areas technical elements and acting techniques.

**780:667. Pre-Elizabethan Theatre.**

**780:668. Theatre: Elizabethan through 18th century.**

**780:669. Theatre: 19th and 20th centuries.**

**780:680. SPECIAL PROBLEMS IN COMMUNICATION AND MASS MEDIA.** *3 credits.*

(May be repeated for a total of 6 credits.)

Problem analysis, investigation and evaluation of a major interest area related to communication theory, the mass media, or interpersonal communication.

**780:681. ADVANCED PERSUASION AND PROPAGANDA ANALYSIS.** *3 credits.*

Prerequisite, 481 or permission of the instructor. Detailed analysis of complex systems in persuasion and propaganda, particularly as related to information control.

**780:683. MASS MEDIA RESEARCH SEMINAR.** *3 credits.*

A study of experimental design in mass media, its development and use. Students will study the research literature on experiments in mass media. Students will be expected to develop and administer an experimental study, related to educational or commercial radio-tv or films.

**780:684. SURVEY OF COMMUNICATION THEORY.** *3 credits.*

A study of the dimensions of the field of communication: information analysis, social interaction and semantic analysis.

**780:685. SCHOOL ADMINISTRATOR COMMUNICATION DESIGN IN THE MASS MEDIA.** *4 credits.*

This course is designed to teach the school administrator communication development for the media in order to take full advantage of the potentialities of radio, tv, and films for message impact.

**780:686-687-688. STUDIES IN COMMUNICATIONS MEDIA.** *4 credits each.*

Practicum in communication media with emphasis on production, message design and impact analysis. These courses are designed to give the students an opportunity to experiment with new production and message concepts which are not extensively used in the media today.

**780:690. CLASSICAL RHETORICAL THEORY.** *3 credits.*

Studies in classical and medieval rhetoric.

**780:691-692. CRITICAL STUDIES IN AMERICAN PUBLIC ADDRESS I, II.** *3 credits each.*

Prerequisite, 490/590. Rhetoric criticism of speeches of American orators from the colonial period to the present.

**780:695. SEMINAR IN RHETORICAL CRITICISM.** *4 credits. (May be repeated for a total of 8 credits.)*

This is a variable content seminar which may be repeated for 8 credits total. Each quarter will devote study to rhetorical implications of some specific topic, period or movement, e.g. the Attic Oratory, or the rhetoric of the 1972 Presidential campaign. This course provides the opportunity for close study of a wide variety of discourse and allows maximum flexibility responsive to the special interests of both students and faculty.

**780:696. SEMINAR IN MODERN AND CONTEMPORARY RHETORICAL THEORY.** *3 credits. (May be repeated for a total of 6 credits.)*

Prerequisite, 690.

**780:699. RESEARCH AND THESIS.** *3 credits. (May be repeated for a total of 9 credits.)*

Prerequisite, permission of the department head.

# *The College of Nursing*

## **820: NURSING**

### **820:273. GENERAL NURSING. 4 credits.**

Prerequisites, 375:141, 385:100, 315:131 and permission. The course includes concepts that are fundamental to the nursing process. Philosophical, sociological and historical factors basic to the commitment to professional nursing are initiated. Points of emphasis are the importance of the human person with needs and behavior in health and illness throughout the life cycle and the role of the nurse in local, community and world health problems.

### **820:274. GENERAL NURSING. 6 credits.**

Prerequisites, 273, 310:307, 310:361 and permission. Knowledge and skills essential to the care of the patient in any clinical setting are accorded with the opportunities for application of theory in relationship to interviewing techniques, nutrition, hygiene, teaching varied aspects of comfort measures and rehabilitation. The facets of assessing of patients' needs, planning, implementing and evaluating nursing care are introduced.

### **820:275. GENERAL NURSING. 6 credits.**

Prerequisites, 274, 310:362 and permission. Basic knowledge and skills are enhanced by the introduction of the human behavior of the child and the application of principles and concepts in nursing care, demonstrating the similarity in nursing situations, such as the admission-discharge of patients, interviewing and administration of medications. The problem-solving method in meeting patients' needs is continued. Rehabilitation measures and the use of community resources available for the continuum of care are expanded.

### **820:321-322-323. ADULT NURSING. 7 credits each.**

Prerequisites, 273, 274, 275. The purpose of these courses is to increase understanding in the ability to adapt and develop the basic core of nursing. Points of reference are common and special health conditions in adult life and nursing practice in various types of health agencies. Preventive, curative and rehabilitative functions of nursing that focus upon the patient as a human person and a member of a family unit are emphasized.

### **820:331-332-333. MATERNAL AND CHILD NURSING.**

*7 credits each.*

Prerequisites, 273, 274, 275. The basic concepts of nursing

and human behavior are applied to the care of mothers and children in the family setting. The courses begin with the adolescent as a potential parent and includes the psychological, anatomical and physiological aspects of child-bearing. It considers the changes in a family beginning with the newborn and continuing through childhood and adolescence. Nursing principles are applied to abnormal conditions and diseases in mothers and children.

### **820:341. COMMUNITY NURSING (PSYCHIATRIC ASPECTS). 10 credits.**

Prerequisites, 321-322-323, 331-332-333. Social and community aspects of psychiatry are explored with special attention given to behavioral theories, personality difficulties and clinical application in the care of disturbed patients.

### **820:451. COMMUNITY NURSING (HEALTH AND WELFARE TEAMS). 10 credits.**

Prerequisites, 321-322-323, 331-332-333. Concepts of public health philosophy, administration, epidemiology and biostatistics are developed. Particular consideration is given to the health needs of the person, the family, and groups of people in the home, the school, at work and in the community.

### **820:461. ISSUES IN NURSING. 3 credits.**

Content in this course is intended to orient the student to current economic, social and educational trends with their influence on contemporary nursing. Nursing organizations and nursing opportunities, legal and professional relationships with their responsibilities are included.

### **820:471. SEMINAR IN NURSING. 8 credits.**

Prerequisites, 321-322-323, 331-332-333. An identification and investigation of the major problems in nursing in order to provide an opportunity to increase depth in nursing theory and facilitate the application of all previous learning experiences. Performance of nursing functions of a beginning position, and orientation to the organizational and operational aspects of nursing practice are included.

### **820:490. INDEPENDENT STUDY. 3-5 credits.**

Prerequisites, senior standing and the permission of the instructor. The course provides an opportunity to develop greater depth in an area of nursing through methodology specific to the discipline of nursing.

# The School of Law

## 920: LAW

### 920:602. DEVELOPMENT OF LAW AND LEGAL INSTITUTIONS. 4 credits.

A historical introduction to the development of the Anglo-American legal system.

### 920:603. LEGAL PROCESS. 4 credits.

Law making by private parties, courts, legislatures and administrative agencies. Statutory interpretation. Coordination of law making techniques.

### 920:604. MOOT COURT. 2 credits.

Credit is awarded to participants in the National Moot Court Competition, the Philip C. Jessup International Law Moot Court Competition, or other approved moot court project, who satisfy the requirement of either a brief or written argument. Finalists in the foregoing competitions shall be required to represent the School of Law in regional and national competitions, if any. Credit earned in this course shall count toward the maximum allowable credit of ten hours established for course 920:655. Not more than two credits may be awarded for course 920:604, and the course shall not be open to first year students. A "Credit" or "No Credit" grade shall be entered.

### 920:605. CONTRACTS I. 4 credits.

Formation of simple contracts. Consideration. Discharge. Seal and written obligation. Mistake, Statute of frauds. Parole evidence rule.

### 920:606. CONTRACTS II. 4 credits.

Prerequisite, 605. Impossibility. Frustration. Conditions. Breach. Beneficiaries. Assignments.

### 920:607. INSURANCE LAW I. 2 credits.

Fundamental legal principles of insurance of person and property, such as insurable interest, measure of recovery, subrogation, rights of assignees and beneficiaries, warranty, concealment, representation and fraud. Adjustment of claims. Regulation.

### 920:608. INSURANCE LAW II. 2 credits.

Prerequisite, 607. Continuation of 607.

### 920:614. PROPERTY I. 4 credits.

Possession. Means by which title may be obtained. Fixtures. Emblements.

### 920:617. TORTS I. 4 credits.

A survey of basic tort law with consideration given to the impact of insurance and modern notions of allocating the cost of unintentionally caused harm on tort doctrines keyed to negligence.

### 920:618. TORTS II. 4 credits.

Prerequisite, 617. Continuation of 617.

### 920:619. BASIC BUSINESS ASSOCIATIONS I. 2 credits.

Vicarious liability. Relationships of master and servant, principal and agent and problems of the independent contractor. Scope of employment. Authority and apparent authority. Misrepresentation by an agent. Undisclosed principal. Ratification. Elements of Partnership.

### 920:620. BASIC BUSINESS ASSOCIATIONS II. 2 credits.

Prerequisite, 619. Continuation of 619.

### 920:622. ADMINISTRATIVE PROCESS. 4 credits.

Prerequisite, 686. Traditional politico-legal theories of separation of powers and the administrative process; procedure for rule-making and adjudication; conclusiveness of administrative determination.

### 920:623. LEGAL RESEARCH AND ADVOCACY I.

1 credit.

Development and integration of skills in legal research, argumentation, writing, and advocacy, through lectures, small group tutorials, writing of legal memorandum and brief, and oral argument.

### 920:624. LEGAL RESEARCH AND ADVOCACY II.

1 credit.

Prerequisite, 623. Continuation of 623.

### 920:625. PROPERTY II. 3 credits.

Prerequisite, 614. History of land law (beginning with the Norman Conquest); the types of estates in land, freehold and nonfreehold; concurrent ownership; future interests before and after the Statute of Uses; Statute of Frauds; methods of conveyance; the mortgage of real estate; recording, title registration; covenants; adverse possession.

### 920:626. PROPERTY III. 3 credits.

Prerequisite, 625. Landlord-tenant relationship, the scope and character of legislation restricting land use, easements, profits, licenses, rights incident to land ownership and law applicable to the insuring of real estate.

### 920:628. LEGAL PROFESSION I. 1 credit.

The legal profession as an institution. Professional responsibilities of lawyers. Duties and privileges of members of the legal profession. Professional qualifications.

### 920:629. LEGAL PROFESSION II. 1 credit.

Prerequisite, 628. Continuation of 628.

### 920:631. COMMERCIAL TRANSACTIONS: NEGOTIABLE INSTRUMENTS. 4 credits.

A study of commercial paper and bank deposits and collections under Articles 3 and 4 of the Uniform Commercial Code. Prior uniform acts are studied where relevant to an understanding of the modern law of commercial paper.

### 920:632. COMMERCIAL TRANSACTIONS: SALES.

3 credits.

A study of the law of sales of personal property with emphasis on Article 2 of the Uniform Commercial Code. Prior uniform acts are studied where relevant to an understanding of the modern law of sales.

### 920:633. EVIDENCE I. 3 credits.

Determination of facts: judicial notice, burden of proof and presumptions. Problems of remoteness and prejudice. Examination of witnesses. Competency and privilege. Opinion evidence. Hearsay rule and its exceptions. Principles relating to writings, Parole evidence rule. Illegally obtained evidence.

### 920:634. EVIDENCE II. 3 credits.

Prerequisite, 633. Continuation of 633.

### 920:638. CRIMINAL LAW. 4 credits.

Nature and source of criminal liability. The act. Mental conditions requisite to criminal responsibility. Specific crimes and defenses thereto. These materials are studied in the light of modern trends and needs.

### 920:640. ADMINISTRATION OF CRIMINAL JUSTICE. 3 credits.

A study of the administration of criminal justice relating processes of criminal law to the objectives of criminal correction.

**920:641. CIVIL PROCEDURE I. 4 credits.**

Survey of civil procedure in state and federal courts with emphasis on jurisdiction of tribunals.

**920:642. CIVIL PROCEDURE II. 3 credits.**

Prerequisite, 641. Survey of civil procedure in state and federal courts with emphasis on pleadings, demures, motions and joinder of parties and causes of action.

**920:643. CIVIL PROCEDURE III. 3 credits.**

Prerequisite, 642. Survey of trial and appellate practice in state and federal courts. Effect of judgments.

**920:644. FEDERAL JURISDICTION AND PROCEDURE. 4 credits.**

Prerequisite, 643. Operation of the federal courts, Jurisdictional problems regarding the subject matter of the action, amount in controversy and removal of actions from state courts. Relationships between state and federal courts. Special procedural problems regarding process, venue and joinder of parties and claims. Appellate jurisdiction and procedure. Original jurisdiction of the Supreme Court.

**920:645. PROBLEMS IN TRIAL ADVOCACY. 2 credits.**

Assigned problems requiring the application of rules of procedure and professional considerations in typical trial contexts.

**920:647. AIR LAW. 4 credits.**

The law of modern air transportation in both international and domestic flight. Domestic statutes regulating the use of air space for guided flight and the control of aircraft such as the Federal Aviation Act of 1958 and the Federal Airport Act are considered. Multilateral Conventions such as the Convention on International Civil Aviation and the Convention relating the liability of scheduled aircraft carriers are also analyzed. The growth of decisional law in the field of Torts, Conflict of Laws, and Public International Law as it impacts upon the use of air space is reviewed, and its relation to the emerging area of Outer Space is developed.

**920:649. LAW OF CONSUMER CREDIT. 3 credits.**

Prerequisite, 631. Recommended Prerequisite, 632. Study of consumer sale and consumer credit transactions and their regulation, with special attention given to the Consumer Credit Protection Act of 1968, the proposed Uniform Consumer Credit Code, the National Consumer Act, and administrative approaches dealing with problem of individual consumers and classes of consumers.

**920:650. SEMINAR IN PRODUCT LIABILITY. 3 credits.**

Prerequisite, 618. Recommended Prerequisite, 632. A research and writing course devoted to the study of legal issues associated with liability for defective products and the developing legal theories and remedies. Examination of government regulation of dangerous and defective products.

**920:652. CREDITORS' RIGHTS. 4 credits.**

Enforcement of judgments. Execution, attachment and garnishment. Creditors' bills. Fraudulent conveyances. General assignments for benefit of creditors. Creditors' agreements. Bankruptcy.

**920:653. LOCAL GOVERNMENT LAW. 3 credits.**

Nature of municipal corporation. Home rule. Creation. Annexation. Powers. Officers. Zoning Rights of abutters. Contractual and delictual liability. Dissolution.

**920:654. DOMESTIC RELATIONS. 3 credits.**

To instruct the student in the major areas of family law and to acquaint him with the theories that have influenced its

development. Functions performed by various agencies which seek to effect a nonjudicial settlement of domestic problems.

**920:655. INDIVIDUAL STUDIES AND RESEARCH. 1-5 credits. (May be repeated.)**

With permission of the Dean, special problems, projects, or research may be taken for credit under the supervision of a member of the faculty. Credit varies in proportion to the magnitude of the project.

**920:658. SEMINAR IN BUSINESS PLANNING I. 3 credits.**

Prerequisite, 920:672 and 920:688. An advanced course using the problem approach in the planning of business transactions in the light of the applicable corporate, tax, and securities law consideration. (May be taken independent of 920:659.)

**920:659. SEMINAR IN BUSINESS PLANNING II. 2 credits.**

Prerequisite, 920:658. An advanced course using the problem approach in the planning of business transactions in the light of the applicable corporate, tax, and securities law considerations.

**920:660. SEMINAR IN SELECTED LEGAL PROBLEMS. 1-4 credits. (May be repeated.)**

Analysis of special or current problems arising in the field of law from time to time offering opportunities for legal research, effective integration of legal and relevant nonlegal materials, and expository legal writing.

**920:661. SEMINAR IN POLITICAL AND CIVIL RIGHTS. 3 credits.**

Prerequisite, 686. A study of some of the basic problems in the relationship of the individual to government and in the protection of rights of minority groups.

**920:662. SEMINAR IN ESTATE PLANNING. 4 credits.**

Prerequisite, 673, 674, 687, 688. Analysis of relevant tax and nontax problems in planning of estates and an examination of dispositive devices in accomplishing the objectives of estate planning.

**920:663. PATENT, TRADEMARK AND COPYRIGHT LAW. 3 credits.**

A study of the prerequisites to federal protection of patents, trademarks and copyrights, registration procedures, appeals from administrative actions, rights of patentees, trademark owners and copyright holders, grants, licenses and assignments, infringements, plagiarism and unfair competition.

**920:665. LAND USE PLANNING. 3 credits.**

Prerequisite, 626. Examination of the assumptions, doctrines, and implications of city planning laws, is to enable the student to analyze effectively the legal and administrative problems involved in allocating and developing land located in metropolitan areas.

**920:666. SEMINAR IN JURISPRUDENCE. 4 credits.**

Examination and evaluation of principal theories of legal philosophy. Theories are frequently considered in connection with concrete problems and are evaluated in the light of various goal values.

**920:667. SEMINAR IN COMPARATIVE LEGAL SYSTEMS. 3 credits.**

A study of contemporary foreign legal systems by a discussion of basic problems in specific areas on a comparative basis.

**920:668. LABOR LAW. 4 credits.**

Establishment of collective bargaining processes. Representation procedures under the Labor-Management Relations Act. Duty to bargain. Unfair labor practices of labor and management. Legal limitations on economic pressures by management and labor. Illegal processes involved in strikes, picketing, boycotts, lockouts. Jurisdictional disputes. Reporting procedures. Wage and hour provisions. Internal union practices.

**920:670. SEMINAR IN LEGAL PROBLEMS OF THE POOR. 3 credits.**

Study of theoretical and practical problems of legal representation of the poor, in contexts of administration of public welfare, public housing, public education, landlord-tenant relationships, low income buyer, mental illness, the family, civil rights and enforcement of criminal law. Complements field work undertaken in legal aid, but may be taken independent of it.

**920:671. CORPORATIONS I. 3 credits.**

An introduction to the law relating to the conduct of the business enterprise. Emphasis is on the control, management, financing, and governmental regulation of corporations, whether publicly owned or closely held. Management benefits and hazards, asset distributions to shareholders, dissolution and reorganization.

**920:672. CORPORATIONS II. 3 credits.**

Prerequisite, 671. Continuation of 671.

**920:673. WILLS. 3 credits.**

Statutes of descent and distribution; making, revocation, republication and revival; lapsed, void, adeemed and satisfied legacies and devices.

**920:674. TRUSTS AND ESTATES I. 3 credits.**

Nature, creation and elements of a trust; resulting and constructive trusts; termination of a trust; gifts to charity; will substitutes. Nature, characteristics and distinguishing features of reversions; vested and contingent remainders; executory interests; possibilities of reverter and powers of termination; application and significance of the destructibility rule, rule in Shelley's case, and the worthier title doctrine; powers of appointment, construction of limitations in wills and deeds, class gifts, restraints on alienation of property and the rule against perpetuities.

**920:675. TRUSTS AND ESTATES II. 3 credits.**

Prerequisite, 674. Continuation of 674.

**920:676. PROBLEMS IN LABOR LAW. 4 credits.**

Prerequisite, 668. Problems relating to procedures of the National Labor Relations Board, analysis and mechanics of arbitration, individual and the union, and labor relations of public employees.

**920:678. SEMINAR IN INTERNATIONAL TRANSACTIONS AND RELATIONS. 4 credits.**

Legal problems involved in doing business abroad. Entry, holding, property, economic activity and choice of corporate form. Implications of interacting legal systems in such areas as restrictive practices, currency and exchange. The European Common Market: its fundamental legal structure and process. Relations between developed and developing countries are studied reflecting the need for the legal removal of barriers and the promotion of cooperation.

**920:679. PROBLEMS IN SECURED TRANSACTIONS. 4 credits.**

Problems of security interests in personal property (chattel mortgages, pledges, trust receipts, etc.) with special emphasis on the Uniform Commercial Code. Selected sections of the Bankruptcy Act are covered where they affect the rights of secured parties. As time permits, a discussion of the

problem of priority between security interests and federal tax liens.

**920:681. SEMINAR IN JUDICIAL ADMINISTRATION. 3 credits.**

A study of problems and practices in selection, tenure and removal of judges, selection and responsibilities of court administrators, the effects of devices and procedures used to expedite movement of cases through the litigation process, and analysis of suggested reforms.

**920:682. ACCOUNTING FOR LAWYERS. 3 credits.**

Examination of accounting principles in selected legal contexts such as taxation, corporate enterprise and regulation of economic activity, with emphasis on income determination, measurement and evaluation of business capital, and interpretation of accounting statements.

**920:683. CONFLICT OF LAWS I. 3 credits.**

Problems of application of private law in jural relationships containing one or more foreign law elements.

**920:684. CONFLICT OF LAWS II. 3 credits.**

Prerequisite, 683. Continuation of 683.

**920:685. CONSTITUTIONAL LAW I. 3 credits.**

Governmental authority and its distribution under the Constitution, with an introduction to individual rights and liberties.

**920:686. CONSTITUTIONAL LAW II. 3 credits.**

Prerequisite, 685. Continuation of 685.

**920:687. FEDERAL INCOME TAXATION I. 3 credits.**

Survey of federal income tax law with primary emphasis on individual income.

**920:688. FEDERAL INCOME TAXATION II. 3 credits.**

Prerequisite, 687. Survey of federal income with primary emphasis on taxation of business units.

**920:689. FEDERAL ESTATE AND GIFT TAXATION. 4 credits.**

A survey of federal estate and gift taxation; relation between federal income tax and the federal taxes on gratuitous transfers; the place of federal taxes in estate planning.

**920:690. ANTITRUST LAW. 4 credits.**

Fundamentals of antitrust, including horizontal restraints, vertical restraints, unlawful monopolization and mergers, questions of evidence in price-fixing and boycotts under the Sherman Act, resale restrictions and tie-ins, economics in mergers under the Celler-Kaufman Act, scope of antitrust law and certain exemptions from its application, dealing primarily with patent misuse. That topic will also encompass foreign commerce, regulated industries, and organized labor as time permits.

**920:691. LEGAL REGULATION OF COMPETITION. 4 credits.**

Principals of regulated and unregulated sectors of industry aside from antitrust law as such, law of pricing practices in services for the regulated sector and in commodities for the unregulated sector, regulation of entry and rates and an examination of the pertinent public interest and accounting standards, Robinson-Patman Act, including jurisdictional elements and defenses. As time permits,

particular regulated industries will be discussed to illustrate variations in types of regulation, and state fair sales and fair trade acts will be compared to the Robinson-Patman Act and the manner of its enforcement.

**920:692. ADMINISTRATION OF LAW RELATING TO JUVENILES.** *3 credits.*

Legal and social aspects of the administration of laws relating to juvenile neglect, dependency, and delinquency. Organization and functions of juvenile courts, role of the attorney, and practice, before such courts.

**920:677. LEGAL PROBLEMS IN BUSINESS PLANNING.** *5 credits.*

Prerequisites, 672 and 688. An advanced course using the problem approach in the planning of business transactions in the light of the applicable corporate, tax, and securities law considerations.

**920:693. REMEDIES I.** *3 credits.*

A comparison of the relief afforded through actions traditionally designated as at law and in equity; the relationships among actions for damages, for restitution (including quasi-contract, constructive trust, equitable lien, and equitable and legal accounting), for specific performance, injunction, rescission, reformation, bill of peace, interpleader, quiet title, and declaratory judgment.

**920:694. REMEDIES II.** *2 credits.*

Prerequisite, 693. Continuation of 693.

**920:695. LEGAL AID.** *3 credits.*

Prerequisite, successful completion of forty-two (42) credits and permission of the instructor. This course, which may be repeated once for credit, is designed to provide the student with the opportunity to work in one or more of the following service areas: (1) Summit County Legal Aid Society, (2) Summit County Prosecuting Attorney, and (3) University of Akron School of Law Appellate Review Office. Close supervision by, and consultation with, a faculty member and/or a practicing attorney associated with the above agencies will be a primary goal. A student who successfully completes this course receives academic credit but no letter grade.

**920:696. LAW REVIEW.** *1 credit.*

Prerequisite, acceptance on the Staff of Board of Editors of the *Akron Law Review*. This course, which may be repeated for credit up to a maximum of six (6) times, entails service on the Staff or Board of Editors of the *Akron Law Review* and the writing of a Student Comment, Student Note, Case Note, or Book Review deemed publishable by the Board of Editors and by one faculty member (selected by the Faculty Advisor of the *Akron Law Review*). Legal research, legal writing, case analysis, and statutory interpretation. A student who successfully completes this course receives academic credit but no letter grade.

**920:697. LEGAL CONTROL OF THE ENVIRONMENT.** *4 credits.*

Examination of substantive and procedural problems in area of legal control of air and water pollution and effect upon the individual, property, and life. Readings and discussion on common law precedents, federal statutory law, state statutory law, federal administrative agencies, civil actions, constitutional considerations and federal tax incentives.

**920:698. INTERNATIONAL LAW.** *4 credits.*

Note: This course may be taken independent of 699. Nature and breadth of international law; its sources and subjects, and its relation to municipal law, to individuals, and to international organizations.

**920:699. SELECTED PROBLEMS, INTERNATIONAL LAW.** *3 credits.*

Prerequisite, 698. Intended for students who wish to analyze in depth topical international problems and to develop a working facility with international law research materials in dealing with concrete international legal problems. In contrast with 698, the emphasis is on the practical rather than the jurisprudential aspects of international law, and is designed to stimulate the student to question traditional approaches to international law and to improve his capability to analyze and prepare short legal opinions within a limited time frame. Such topical subjects as the legal basis for the use of force in limited armed conflicts, the role of the United Nations in peace-keeping operations, and the function of subsidiary and regional organizations within the International Community will be evaluated.

## ***Interdisciplinary Programs***

### **1010: AFRO-AMERICAN STUDIES**

#### **1010:401. GENERAL SEMINAR IN AFRO-AMERICAN STUDIES. 4 credits.**

Prerequisite, 340:220 or permission. The exploration and intensive examination of a variety of issues related to role and minority group relations which normally stand outside the compass of any one subject matter area.

### **1030: ENVIRONMENTAL STUDIES**

#### **1030:201. MAN AND THE ENVIRONMENT. 3 credits.**

A study of man's relationship with nature, his dependence upon his environment, and his control over it. An interdisciplinary approach, with lectures from various University departments, government,

and industry describing their approaches to the environment. This course will not apply toward the major.

#### **1030:401. SEMINAR IN ENVIRONMENTAL STUDIES. 3 credits.**

The Seminar will cover a specific environmental topic or topics from an interdisciplinary viewpoint each quarter. The topics selected will be of current interest and will be studied from varying viewpoints. The Environmental Studies Director will coordinate the course and resource persons will be drawn from the University and the surrounding community.

### **1060: PEACE STUDIES**

#### **1060:301. VALUE CONCEPTS ON PEACE AND WAR. 4 credits.**

An interdisciplinary study of attitudes, concepts, and realities regarding war and peace issues.

# *VII. University Directory*

## ***Board of Trustees***

APRIL 1974

- Mr. Ray C. Bliss ..... 2535 Addyston Road, Akron, Ohio 44313  
(Term expires 1974)
- Mr. W. Howard Fort ..... 1928 Oakridge Drive, Akron, Ohio 44313  
(Term expires 1978)
- Mr. Vincent H. Johnson ..... 380 W. Fairlawn Blvd., Akron, Ohio 44313  
(Term expires 1979)
- Mr. Robert J. Kidney ..... 2993 Vincent Road, Silver Lake, Cuyahoga Falls, Ohio 44224  
(Term expires 1981)
- Mr. Joseph M. Leyden ..... 345 Greenwood Avenue, Akron, Ohio 44320  
(Term expires 1975)
- Mr. Ben Maidenburg ..... 2046 Wyndham Road, Akron, Ohio 44303  
(Term expires 1977)
- Miss Frances McGovern ..... 550 Woodside Drive, Akron, Ohio 44303  
(Term expires 1982)
- Mr. Bernard I. Rosen ..... 277 Hollywood, Akron, Ohio 44313  
(Term expires 1980)
- Mr. E. J. Thomas ..... 812 Mayfair Road, Akron, Ohio 44303  
(Term expires 1976)
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## Administrative Officers and Assistants

### UNIVERSITY ADMINISTRATION

D. J. Guzzetta, Ed.D., LL.D., D.S.Sc., L.H.D. . . . . . *President of the University*  
 Noel L. Leathers, Ph.D. . . . . . *Vice President for Academic Affairs*  
 R. Wayne Duff, LL.B. . . . . . *Vice President for Business and Finance*  
 Ian R. MacGregor, Ph.D. . . . . . *Vice President for Planning*  
 Richard L. Hansford, M.A.Ed. . . . . . *Vice President and Dean of Student Services*  
 George W. Ball, B.A. . . . . . *Executive Director of University Relations and Development*

### ACADEMIC DEANS

Robert A. Oetjen, Ph.D. . . . . . *Dean of the Buchtel College of Arts and Sciences*  
 Coleman J. Major, Ph.D. . . . . . *Dean of the College of Engineering*  
 H. Kenneth Barker, Ph.D. . . . . . *Dean of the College of Education and Dean of International Programs*  
 James W. Dunlap, Ph.D. . . . . . *Dean of the College of Business Administration*  
 Ray H. Sandefur, Ph.D. . . . . . *Dean of the College of Fine and Applied Arts*  
 Stanley A. Samad, J.S.D. . . . . . *Dean of the School of Law*  
 Estelle B. Naes, Ph.D. . . . . . *Dean of the College of Nursing*  
 . . . . . *Dean of the Community and Technical College*  
 Edwin L. Lively, Ph.D. . . . . . *Dean of Graduate Studies and Research*  
 William A. Rogers, Ed.D. . . . . . *Executive Dean of Continuing Education and Public Services*  
 Caesar A. Carrino, Ph.D. . . . . . *Dean of Evening College and Summer Sessions*  
 Thomas Sumner, Ph.D. . . . . . *Dean of General College*

### OTHER UNIVERSITY OFFICIALS

Howard R. Baldwin, M.Ed. . . . . . *Registrar*  
 James P. Banks, B.S. . . . . . *Development Officer*  
 Robert C. Berry, B.S.B.A. . . . . . *Director of Placement*  
 Clark Biggins, B.S.C. . . . . . *Director of Purchasing*  
 Donald L. Bowles, B.S.I.M., B.S.Ed. . . . . . *Assistant to the Vice President for Planning*  
 Allen M. Boyer, B.A. . . . . . *Director of Alumni Relations and Development Officer*  
 Thomas O. Brown, Ph.D. . . . . . *Director of Testing and Counseling Bureau*  
 Robert G. Corbett, Ph.D. . . . . . *Coordinator of Research*  
 William M. Doyle . . . . . *Director of Staff Personnel*  
 Russel Giersch, B.M.E. . . . . . *Director of Physical Plant*  
 John G. Hedrick, M.A. . . . . . *Director of Wayne General and Technical College*  
 Alberta R. Hensley, B.S. . . . . . *Assistant to the Executive Director of University Relations and Development*  
 Jay R. Hershey, M.Ed. . . . . . *Director of Residence Halls*  
 Dudley C. Johnson, Jr., M.S.Ed. . . . . . *Director of Counseling and Advising*  
 Robert W. Larson, B.S.B.A. . . . . . *Director of Student Financial Aids*  
 Thomas T. Miles, Ph.D. . . . . . *Coordinator of Instructional Media*  
 Henry Nettling, B.S.B.A. . . . . . *Controller*  
 Mrs. Mary O'Neil, B.A. . . . . . *Director of University News Service*  
 James O. Oswald, B.S.Ed., B.A. . . . . . *Director of University Publications*  
 John W. Owen, M.A. . . . . . *Director of Admissions*  
 Charles F. Poston, Ph.D. . . . . . *Director of Institutional Research and Systems Development*  
 George E. Raymer, M.A.Ed. . . . . . *Director of Radio and Television Information*  
 Donald E. Sabatino, M.A.Ed. . . . . . *Director of the Gardner Student Center*  
 H. Paul Schrank, Jr., M.S. . . . . . *University Librarian*  
 Frank B. Thomas, M.A. . . . . . *Director of the Computer Center*  
 Mrs. Kathryn Vegso, M.S.Ed. . . . . . *Assistant to the Vice President and Dean of Student Services*  
 John S. Watt, Ph.D. . . . . . *Assistant to the Vice President for Academic Affairs*  
 W. Richard Wright, B.A. . . . . . *Assistant to the President - Off-Campus*

**University Emeritus Faculty**

APRIL, 1974

- NORMAN P. AUBURN, *President Emeritus of the University, Professor Emeritus of Political Science and Consultant* (1951)  
B.A., University of Cincinnati, 1927; LL.D., Parsons College, 1945; LL.D., University of Cincinnati, 1952; D.Sc., University of Tulsa, 1957; LL.D., University of Liberia (West Africa), 1959; Litt.D., Washburn University of Topeka, 1961; L.H.D., College of Wooster, 1963; LL.D., The University of Akron, 1971.
- PAUL ACQUARONE, *Professor Emeritus of Botany and Geology* (1931)  
B.S., Pennsylvania State College; Ph.D., Johns Hopkins University, 1929.
- DAVID E. ANDERSON, *Associate Professor Emeritus of Engineering Materials* (1923)  
B.A., Augustana College; M.S., University of Chicago, 1923.
- MRS. HELEN MAE ARNETT, *Associate Professor Emeritus of Bibliography* (1953)  
B.A., The University of Akron; B.S.L.S., Case Western Reserve University; M.A., San Jose State College (California); Ph.D., Case Western Reserve University, 1965.
- IRENE C. BEAR, *Professor Emeritus of Home Economics* (1944)  
B.S., Illinois Wesleyan University, M.A., Texas State College for Women, 1937.
- HELEN BECKER, *Associate Professor Emeritus of Primary Education* (1949)  
B.S., M.A., Ed.D., Columbia University Teachers College, 1949.
- CHARLES BULGER, *Dean Emeritus of the Buchtel College of Liberal Arts and Professor Emeritus of Modern Languages* (February 1910)  
Ph.B., Buchtel College; M.A., Ph.D., University of Wisconsin, 1925; Litt.D., The University of Akron, 1953.
- RENA NANCY CABLE, *Associate Professor Emeritus of Art* (1927)  
B.F., M.Ed., The University of Akron, 1931.
- KENNETH COCHRANE, *Professor Emeritus of Physical Education* (1948)  
B.E. The University of Akron; M.Ed., University of Pittsburgh, 1941.
- EMILY DAVIS, *Professor Emeritus of Art* (1945)  
B.A. The Ohio State University; M.A., Columbia University, Teachers College; Ph.D., The Ohio State University, 1936.
- HJALMER W. DISTAD, *Professor Emeritus of Education* (1934)  
B.S.Ed., M.A., Ph.D., University of Minnesota, 1926.
- ELDORA FLINT, *Associate Professor Emeritus of Secretarial Science* (1929)  
B.E., The University of Akron; M.S.Ed., Syracuse University, 1935.
- VAUGHN W. FLOUTZ, *Professor Emeritus of Chemistry* (1941)  
B.A., Olivet College; M.A., Ph.D., University of Colorado, 1932.
- OMER R. FOUTS, *Associate Professor Emeritus of Physics* (1926)  
B.A., Wittenberg University; M.A., The Ohio State University, 1925.
- DONFRED H. GARDNER, *Vice President and Dean of Administration Emeritus* (1924)  
B.A., M.A., Princeton University, 1923; L.H.D., The University of Akron, 1963.
- OSSIAN GRUBER, *Assistant Professor Emeritus of Business Administration* (1946)  
B.A., University of Minnesota; M.B.A., Northwestern University, 1928.
- EMILE GRUNBERG, *Professor Emeritus of Economics* (1946) (1956)  
A.M., M.A., Ph.D., University of Frankfurt, 1930.
- DOROTHY HAMLIN, *Professor Emeritus of Bibliography* (February 1937)  
B.A., The University of Akron; B.S.L.S., Case Western Reserve University, 1942.
- E. K. HAMLIN, *Associate Professor Emeritus of Coordination* (March 1946)  
M.E., The University of Akron, 1928; P.E., Ohio.
- LESLIE P. HARDY, *Financial Vice President Emeritus* (1934)  
B.S.Ed., Kent State University; M.S.Ed., The University of Akron, 1935; L.H.D., The University of Akron.
- IRENE HORNING, *Assistant Professor Emeritus of Biology* (1946)  
St. John's Hospital School of Nursing, R.N., 1928; B.S.N., Western Reserve University, 1934.
- PAUL O. HUSS, *Professor Emeritus of Electrical Engineering* (January 1941)  
B.S.Ed., B.S.E., M.S.Ed., D.Sc., University of Michigan, 1935; P.E., Ohio
- DONATO INTERNOSCIA, *Professor Emeritus of Modern Languages* (1938)  
B.A., Broadview College; M.A., Ph.D., Northwestern University, 1938.
- ROBERT T. ITTNER, *Professor Emeritus of Modern Languages* (1950)  
B.A., Ph.D., University of Illinois, 1937.
- ALFRED H. JOHNSON, *Associate Professor Emeritus of Education* (1956)  
B.S., College of Wooster; M.S., Ph.D., University of Wisconsin, 1956.
- DON A. KEISTER, *Distinguished Professor Emeritus of English* (1931)  
B.A., M.A., The University of Akron; Ph.D., Western Reserve University, 1947.
- DAVID KING, *Associate Professor Emeritus of Political Science* (1927)  
B.A., Maryville College; M.A., University of Chicago, 1925.
- R. D. LANDON, *Professor Emeritus of Civil Engineering* (February 1946)  
C.E., M.S., University of Cincinnati, 1927; P.E., Ohio.

- WARREN W. LEIGH, *Dean Emeritus of the College of Business Administration and Professor of Commerce and Business Administration* (1926)  
B.A., University of Utah; M.B.A., Ph.D., Northwestern University, 1936.
- WILL LIPSCOMBE, *Associate Professor Emeritus of Mathematics* (1921)  
B.S., Florida State College; M.S., The Ohio State University, 1926.
- MARGARET EVELYN MAUCH, *Professor Emeritus of Mathematics* (1945)  
B.S., Huron College; M.S., Ph.D., University of Chicago, 1938.
- SAMUEL C. NEWMAN, *Professor Emeritus of Sociology* (1951)  
B.A., University of Pittsburgh; M.A., Oberlin College; Ph.D., The Ohio State University, 1939.
- GENIE J. PRESTON, *Associate Professor Emeritus of Bibliography* (1939)  
B.A., Northwestern University; M.A., University of Illinois, 1936.
- MRS. RUTH PUTMAN, *Assistant Professor Emeritus of English* (1934)  
B.A., Howard College; M.A., Western Reserve University, 1938.
- MABEL RIEDINGER, *Distinguished Professor Emeritus of Education* (February 1947)  
B.A., Mount Union College; M.A., University of Chicago; Ed.D., Columbia University, Teachers College, 1946  
L.H.D., Mount Union College, 1955.
- EDGAR C. ROBERTS, *Assistant Professor Emeritus of English* (1926)  
B.S.Ed., M.A., The Ohio State University, 1924.
- CLARA G. ROE, *Professor Emeritus of History* (1947)  
B.A., University of Michigan; M.A., University of Chicago; Ph.D., University of Michigan, 1943.
- CECIL A. ROGERS, *University Auditor Emeritus* (1932)  
B.S.B.A., The University of Akron, 1932.
- CHARLES ROGLER, *Professor Emeritus of Sociology* (1949)  
B.A., M.A., University of Michigan; Ph.D., University of Kansas, 1935.
- MRS. MARGARET F. ROGLER, *Assistant Professor Emeritus of Marketing* (1948)  
B.S., University of Nebraska; M.S., University of Denver, 1944.
- FREDERICK S. SEFTON, *Professor Emeritus of Physical Education* (1915)  
B.S., Colgate University; M.Ed., Harvard University, 1925.
- SAMUEL SELBY, *Distinguished Professor Emeritus of Mathematics* (1927)  
B.A., M.A., University of Manitoba (Canada); Ph.D., University of Chicago, 1929.
- ROY V. SHERMAN, *Professor Emeritus of Political Science* (1929)  
B.A., M.A., Ph.D., State University of Iowa, 1927.
- MARY VERNON SLUSHER, *Associate Professor Emeritus of Accounting* (1947) (1954)  
B.S., M.S., Virginia Polytechnic Institute, 1931; C.P.A. Virginia.
- PAUL C. SMITH, *Associate Professor Emeritus of Electrical Engineering* (1925)  
B.S.E.E., Purdue University, 1917; P.E., Ohio.
- ERNEST A. TABLER, *Associate Professor Emeritus of Mathematics* (1935)  
B.S., Kent State University; M.A., Western Reserve University, 1933.
- ERNEST R. THACKERAY, *Distinguished Professor Emeritus of Physics* (1949)  
B.A., M.A., University of Saskatchewan (Canada); Ph.D., University of Wisconsin, 1948.
- MRS. AUDRA TUCKER, *Associate Professor Emeritus of Secretarial Science* (1926)  
B.A., The University of Akron; M.A., New York University, 1936.
- PAUL E. TWINING, *Professor Emeritus of Psychology* (November 1941)  
B.S., Ottawa University; M.A., University of Kansas; Ph.D., University of Chicago, 1938.
- DONALD S. VARIAN, *Associate Professor Emeritus of Speech* (1934)  
B.A., M.A., University of Wisconsin, 1934.
- MRS. FLORENCE N. WHITNEY, *Associate Professor Emeritus of English* (1936)  
B.A., Dakota Wesleyan University; M.A., Columbia University, 1913.
- EARL R. WILSON, *Associate Professor Emeritus of Mechanical Engineering* (1929)  
B.M.E., The Ohio State University, 1916; P.E., Ohio.
- MARY H. WILSON, *Assistant Professor Emeritus of Home Economics* (April 1943)  
B.S., Iowa State College, 1932.

NOTE: The dates in parentheses indicate the beginning of service at Buchtel College of The University of Akron; unless otherwise stated, service began in the month of September.

**University Faculty and Administration\***

APRIL, 1974

FULL-TIME

- D. J. GUZZETTA, *President of the University and Professor of Higher Education* (1954-1971)  
B.A., Ed.M., Ed.D., University of Buffalo, 1953; LL.D., The University of Akron, 1968; D.S.Sc., Marian College, 1971;  
LL.D., Kent State University, 1971; L.H.D., Walsh College (Canton, O.), 1972.
- NORMAN P. AUBURN, *Consultant, President Emeritus of the University, and Professor Emeritus of Political Science*  
(1951)  
B.A., University of Cincinnati, 1927; LL.D., Parsons College, 1945; LL.D., University of Cincinnati, 1952; D.Sc., University  
of Tulsa, 1957; LL.D., University of Liberia (West Africa), 1959; Litt.D., Washburn University of Topeka, 1961; L.H.D.,  
College of Wooster, 1963; LL.D., The University of Akron, 1971.
- PAUL ABERCROMBIE, *Assistant Director of Purchasing* (1971)  
B.S., B.S.Ed., M.Ed., Miami University (Ohio), 1960.
- IRVING ACHORN, *Associate Professor of Art* (1955)  
B.S., M.A., Kent State University, (1965)
- ALEXANDER L. ADAMS, *Instructor of Physical Education and Coordinator of Urban Education Programs* (1970)  
B.S.Ed., M.S.Ed., The University of Akron, 1970.
- HOBART W. ADAMS, *Associate Professor of Accounting* (1969)  
B.S., Kent State University; M.B.A., D.B.A., Indiana University, 1967.
- JON L. ADAMS, *Instructor in Art* (1973)  
B.F.A., Bowling Green State Univ., 1966.
- RONNIE G. ADAMS, *Assistant Professor in the Community and Technical College* (1969)  
B.C.E., Cleveland State University; M.S.C.E., Lehigh University, 1963.
- JOHN THOMAS ADOLPH, *Assistant Professor of Physical Education* (1969)  
B.A., The University of Akron; M.Ed., Ohio University; Ph.D., The Ohio State University, 1969.
- MRS. DORIS ALDRICH, *Assistant Professor of Home Economics* (1973)  
B.S., Kent State University, 1972.
- RALPH A. ALEXANDER, *Assistant Professor of Psychology* (1973)  
B.A., M.A., Arizona State University, University of Rochester, 1972.
- RONALD E. ALEXANDER, *Assistant Professor of Law* (1973)  
B.A., J.D., Ohio State University, 1971.
- HOLLIS ALLAN, *Associate Professor of Law* (1972)  
B.A., The University of Akron; J.D., University of Michigan Law School, 1949.
- MRS. VIRGINIA ALLANSON, *Instructor in Bibliography and Research Librarian* (October 1968)  
B.S., Purdue University; M.L.S., Kent State University, 1967.
- DONALD ALLCORN, *Assistant Professor of Music* (January 1971)  
B.M.E., Baldwin-Wallace College, 1955.
- ABDUL AMIR AL-RUBAIY, *Assistant Professor of Education* (1972)  
B.S., M.A., Eastern Michigan University; Ph.D., Kent State University, 1972.
- BARBARA S. ANANDAM, *Assistant Professor of Nursing* (1973)  
B.S., M.S., Boston University, 1964.
- LASCELLES F. ANDERSON, *Assistant Professor of Economics and Director of Afro-American Studies* (1966)  
B.A., Howard University; M.A., Ph.D., New School for Social Research (New York), 1971.
- ALEXIS M. ANIKEEFF, *Professor of Psychology* (1967)  
A.B., A.M., University of Michigan; Ph.D., Purdue University, 1949.
- JOHN ARENDT, *Instructor in the Community and Technical College* (February 1967)  
B.S.M.E., Cleveland State University, 1944.
- WALTER E. ARMS, *Associate Professor of Education* (1968)  
B.S., Northwest Missouri State College; M.Ed., University of South Dakota; Ed.D., Indiana University, 1968.
- MRS. BARBARA N. ARMSTRONG, *Associate Professor of Home Economics* (1972)  
B.S., M.S., West Virginia University; Ph.D., Ohio State University, 1970.
- BRUCE R. ARMSTRONG, *Assistant Professor of Art* (1971)  
B.F.A., California Institute of the Arts; M.F.A., Washington State University, 1968.
- WILLIAM J. ARN, *Associate Professor of Education* (1967)  
B.S., Ohio Northern University; M.S., Bowling Green State University; Ph.D., Kent State University, 1967.
- MRS. ROBIN DIANE ARNOLD, *Assistant Professor at Wayne General and Technical College* (1972)  
B.S., University of Maryland; M.A., Ohio State University, 1966.
- JOHN H. ASHLEY, *Producer/Director for Television Services* (1973)  
B.S., Southern Illinois University; M.S., Indiana University, 1973.
- GLENN A. ATWOOD, *Associate Professor of Chemical Engineering* (1965)  
B.S.Ch.E., M.S.Ch.E., Iowa State University; Ph.D., University of Washington, 1963.

\*NOTE: The dates in parentheses indicate the beginning of service at The University of Akron; unless otherwise stated, service began in the month of September.

- MRS. MARY ELLEN ATWOOD, *Assistant Professor of Education and of Home Economics, Director of University Nursery School* (1969)  
B.S., Iowa State College; M.S., The University of Akron, 1968.
- JOHN BACHMANN, *Professor of Chemistry* (February 1961)  
B.Ch.E., Ph.D., University of Minnesota, 1939.
- WILLIAM A. BACHMANN, *Assistant Professor of Law* (1973)  
B.S.B.A., The University of Akron; J.D., University of Pennsylvania, 1970.
- MRS. GERTRUDE BADGER, *Assistant Professor of Education* (1965)  
B.S.Ed., B.A., The Ohio State University; M.Ed., Kent State University, 1960.
- EVELYN BAER, *Associate Professor of Speech and Associate Director of the Speech and Hearing Center* (1966)  
B.A., University of Chicago; M.A., The University of Akron, 1948.
- JAMES BAGNOLA, *Assistant Director of Student Financial Aids* (1971)  
B.A., The University of Akron, 1971.
- ROGER BAIN, *Assistant Professor of Geology* (1970)  
B.S., M.S., University of Wisconsin; Ph.D., Brigham Young University, 1968.
- DONALD E. BAKER, *Instructor at Wayne General and Technical College* (1973)  
B.S.Ed., M.S., Bowling Green State University, 1973.
- J. WAYNE BAKER, *Assistant Professor of History* (1968)  
B.A., Western Baptist Bible College; B.D., Talbot Theological Seminary; B.A., Pepperdine College; M.A., Ph.D., University of Iowa, 1970.
- FRANK V. BALDO, *Professor of Marketing* (1969)  
B.B.A., Fenn College; M.B.A., Case Western Reserve University; Ph.D., Pennsylvania State University, 1968.
- HOWARD R. BALDWIN, *Registrar* (July 1967)  
B.P.S.M., Mount Union College; M.Ed., Kent State University, 1960.
- GEORGE W. BALL, *Executive Director of University Relations and Development* (1957)  
B.A., Mount Union College, 1943.
- A. FREDERIC BANDA, *Professor of Finance* (1968)  
B.S., City College of New York; M.B.A., Ph.D., New York University, 1964.
- H. KENNETH BARKER, *Dean of the College of Education, Dean of International Programs and Professor of Education* (1966)  
B.A., M.A., University of Louisville; Ph.D., University of Michigan, 1959.
- MRS. ANITRA BARKLEY, *Instructor in Speech* (March 1969)  
B.A., M.A., The University of Akron, 1969.
- MRS. ANNA P. BARNUM, *Instructor in the Community and Technical College* (1970)  
B.A., Middlebury College; M.A., University of Vermont, 1969.
- DAVID G. BARR, *Assistant Professor of Education* (1967)  
B.S., M.A., Kent State University, 1966.
- CHARLES M. BARRESI, *Professor of Sociology* (1966)  
B.A., M.A., Ph.D., State University of New York at Buffalo, 1965.
- GERALD V. BARRETT, *Professor of Psychology* (1973)  
B.A., Wittenberg University; M.S., Ph.D., Case Western University, 1962.
- PHILLIP E. BARTLETT, *Planning Aide*  
B.A., Kent State University, 1963.
- WALTER BARZDITIS, JR., *Manager of Parking Systems* (April 1970)  
B.A., University of Wisconsin, 1950.
- MRS. MARIAN E. BAUER, *Associate Professor of Nursing* (1969)  
B.A., Maryville College; M.N., Western Reserve University, 1941. R.N.
- BENOYD STEPHEN BAYLESS, JR., *Professor of Art* (1972)  
B.S., Eastern Oregon College at LaGrande; M.S., Southern Oregon College; Ed.D., Washington State University, 1962.
- DONALD E. BECKER, *Assistant Professor of Management* (1959)  
B.A., M.A., Oberlin College, 1948.
- CLARE BEDILLION, *Associate Professor in the Community and Technical College* (1968)  
B.A., Woman's College of Georgia; M.A., New York University, 1944; Ph.D., University of Michigan, 1974.
- JOHN D. BEE, *Assistant Professor of Speech* (1969)  
B.A., Ohio University; M.A., Ph.D., University of Wisconsin, 1972.
- JACK E. BEIDLEMAN, *Lecturer in Physical Education* (January 1973)  
B.S., The University of Akron, 1972.
- JAMES D. BELL, *Instructor in the Community and Technical College* (1970)  
B.S., M.Ed., Kent State University, 1970.
- MRS. JUTTA T. BENDREMER, *Instructor in English* (1967)  
B.A., Hunter College; M.A., Brooklyn College, 1951.
- EUGENE MOSS BENEDICT, *Assistant Professor in the Community and Technical College* (January 1969)  
S.T.B., Boston University School of Theology; B.A.Ed., M.A., The University of Akron, 1964.
- DAVID S. BERNSTEIN, *Assistant Professor of Music* (1972)  
B.M., M.M., Florida State University, 1966.
- DONALD K. BERQUIST, *Assistant Professor of Accounting* (1968)  
B.S.B.A., Youngstown University; M.Acc., The Ohio State University, 1964; C.P.A., Ohio.

- ROBERT C. BERRY, *Director of Placement* (August 1946)  
B.S.B.A., The University of Akron, 1942.
- SANDRA LEE BERRY, *Adviser of Students* (1971)  
B.A., M.A., Michigan State University, 1971.
- CARL A. BERSANI, *Associate Professor of Sociology* (1965)  
B.A., Eastern Michigan University; M.A., University of Michigan; Ph.D., Iowa State University, 1965.
- WILLIAM H. BEYER, *Professor of Mathematics* (1961)  
B.S., The University of Akron; M.S., Ph.D., Virginia Polytechnic Institute, 1961.
- MICHAEL BEZBATCHENKO, *Professor of Mechanical Engineering* (June 1949)  
B.M.E., The University of Akron; M.S., Case Western Reserve University, 1954; P.E., Ohio.
- CLARK E. BIGGINS, *Director of Purchasing* (April 1967)  
B.S.C., Ohio University, 1957.
- VINCENT J. BIONDO, *Assistant Professor of Education* (1968)  
B.A., M.A., M.A.Ed., The University of Akron, 1957.
- PAUL MARTIN BISS, *Assistant Professor of Music* (1972)  
B.M., Indiana University; M.S., Julliard School of Music, 1968.
- ROBERT R. BLACK, *Associate Professor of Economics* (1958)  
B.A., Carleton College; M.B.A., University of Chicago; Ph.D., University of California at Berkley, 1963.
- MRS. PATSY B. BLACKWELL, *Assistant Professor of Speech* (1973)  
B.S.Ed., Mississippi College; M.A., Louisiana State University, 1971.
- RALPH O. BLACKWOOD, *Professor of Education* (1967)  
B.A., Muskingum College; M.A., Ph.D., The Ohio State University, 1962.
- C. ROBERT BLANKENSHIP, *Instructor in Education and Director of Audio-Visual Services* (1952) (July 1956)  
B.S.B.A., The University of Akron; M.S.Ed., Indiana University, 1963.
- BORIS BLICK, *Associate Professor of History* (1964)  
B.A., Brooklyn College; M.A., Ph.D., University of Wisconsin, 1958.
- GERALD J. BLUMENFELD, *Associate Professor of Education* (1970)  
B.A., Harris Teachers College; M.A., Ed.D., Washington University (St. Louis), 1966.
- MRS. PERRY JANE BOMAR, *Assistant Professor of Nursing* (1972)  
B.S., The University of Akron; M.S., Case Western Reserve University, 1972; R.N.
- RICHARD K. BONNELL, *Assistant to the Dean of the Evening College* (1969)  
B.A., M.A., The University of Akron, 1972.
- GEORGE MARTIN BOSELA, *EDP Systems/Programming Project Leader, Computer Center* (November 1972)  
B.S.Ed., Youngstown University, 1966.
- DONALD L. BOWLES, *Assistant to the Vice President for Planning* (February 1959)  
B.S.I.M., B.S.Ed., The University of Akron, 1959.
- ALLEN M. BOYER, *Director of Alumni Relations and Development Officer* (November 1966)  
B.A., The University of Akron, 1942.
- LARRY G. BRADLEY, *Associate Professor of Education* (1969)  
B.A., Muskingum College; M.A., West Virginia University; Ph.D., Ohio University, 1969.
- FRANK BRADSHAW, *Assistant Professor of Music* (1968)  
B.A., M.A., Bob Jones University, 1950.
- IRVIN W. BRANDEL, *Counselor, Testing and Counseling Bureau* (1969)  
B.S., Bowling Green State University; M.A., Michigan State University, 1968.
- MARKO BRDAR, *Assistant Professor in the Community and Technical College* (1967)  
B.S., M.A., Case Western Reserve University, 1954.
- ROBERT L. BRIECHLE, *Manager, Academic Systems and Programming, Computer Center* (1971)  
B.S.E.E., University of Connecticut; M.S., Rensselaer Polytechnic Institute, 1967.
- MERLIN G. BRINER, *Associate Professor of Law* (1970)  
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- THOMAS M. BRITAIN, *Professor of Mechanical Engineering* (February 1965)  
B.M.E., The University of Akron; M.S., Ph.D., University of Illinois, 1966.
- HAROLD CLIFFORD BROWN, *Assistant Professor of English* (1971)  
B.A., Duke University; M.A., Ph.D., University of Virginia, 1970.
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B.S.Ed., M.S.Ed., The University of Akron, 1969.
- THOMAS O. BROWN, *Adjunct Assistant Professor of Education and Director of the Testing and Counseling* (July 1964)  
B.S., M.Ed., Mississippi State University; Ph.D., Kent State University, 1968.
- ANGELA ROSE BRUNO, *Assistant Professor of Education* (1969)  
B.S., Seton Hill College; M.Ed., Indiana University of Pennsylvania; Ed.D., Pennsylvania State University, 1969.
- STANLEY B. BRUNS, *Instructor in the Community and Technical College* (1970)  
B.S., Fort Hays Kansas State College; M.A., Central Michigan University, 1970.
- JAMES BUCHANAN, *Assistant Professor of Philosophy* (1971)  
B.A., M.A., Ohio University; Ph.D., Pennsylvania State University, 1970.
- DAVID BUCHTHAL, *Assistant Professor of Mathematics* (1971)  
B.S., Loyola University; M.S., Ph.D., Purdue University, 1971.
- HERMAN M. BUERSCHEN, *Adviser of Students* (1971)  
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- ARTHUR BURFORD, *Professor of Geology* (1968)  
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- DONALD R. BURROWBRIDGE, *Associate Professor of Coordination and Director of the Cooperative Program, College of Engineering* (July 1965)  
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B.A.Ed., The University of Akron, 1965.
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B.S.B.A., American International College; M.S., Kent State University, 1969.
- LARRY D. CALHOUN, *Associate Professor of Art* (1970)  
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B.A., Westminster College (Pa.), 1961.
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B.S.Ed., Mount Union College, 1969.
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B.A., Miami University; M.S., The University of Akron; Ph.D., Virginia Polytechnic Institute, 1970.
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B.S., M.S., The University of Akron, 1970.
- MARJORIE M. CAPOTOSTO, *Associate Director of Admissions* (1968)  
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- MARY CAPOTOSTO, *Assistant Professor of Speech* (1968)  
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- NATHAN F. CARDARELLI, *Associate Professor in the Community and Technical College* (1968)  
B.S., B.A., M.S., M.A., The University of Akron, 1961.
- NICHOLAS J. CARPAS, *Administrative Specialist in the College of Education* (1973)  
B.A.Ed., The University of Akron, 1971.
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B.S., M.A., University of Alabama; Ph.D., University of North Carolina, 1973.
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B.S., M.S.Ed., The University of Akron, 1972.
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B.S., Baldwin-Wallace College; M.S., The University of Akron; Ph.D., Case Western Reserve University, 1965.
- ROBERT C. CARSON, *Associate Professor of Mathematics* (July 1963)  
B.S., M.S., Purdue University; Ph.D., University of Wisconsin, 1953.
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B.A., Hillsdale College; M.B.A., University of Michigan; Ph.D., Michigan State University, 1964.
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- FRANK L. CHLAD, *Administrative Assistant, Department of Chemistry* (January 1967)  
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- HARRY CHU, *Associate Professor of Physics* (1969)  
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B.A., Ph.D., Case Western Reserve University, 1951.
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B.S., University of Wisconsin; M.A., Ph.D., Columbia University, 1959.
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B.A., University of Wisconsin; M.A., The University of Akron; Ph.D., Case Western Reserve University, 1972.
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B.A., Allegheny College; M.L.L., University of Pittsburgh; Ph.D., The Ohio State University, 1967.
- JAMES L. DENNISON, *Assistant Professor of Physical Education* (1965)  
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B.A., Yale University; LL.B., Harvard University; LL.M., McGill Institute of International Air Law, 1953.
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B.S., Central Missouri State College; M.A., Ph.D., University of Kansas City, 1963.
- DORESE L. DILLEY, *Associate Professor of Nursing* (1972)  
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B.B.A., Cleveland State University, 1952.
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R.N., St. Elizabeth Hospital School of Nursing; B.S., St. Louis University; M.Ed., Columbia University, 1965.
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B.S.Ed., Central Missouri State College; M.A., Ph.D., Washington University, 1963.
- DAVID T. DOLAN, *Assistant Professor in the Community and Technical College* (1965)  
B.A., M. Ret. Adv., University of Pittsburgh, 1957; Ph.D., The University of Akron, 1973.
- HELMAR DOLLWET, *Assistant Professor of Biology* (1970)  
B.S., University of Michigan and Technische Hochschule, Munich; M.S., Ph.D., University of California at Riverside, 1969.
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B.A., M.A., The University of Akron, 1968.
- JAMES E. DOVERSPIKE, *Professor of Education* (1960)  
B.S., Indiana State College; M.Ed., Ed.D., Pennsylvania State University, 1961.
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B.S.B.A., Kent State University, 1949.
- GENEVIEVE DREWS, *Senior University Physician* (1966)  
B.S., The St. Mary College; M.A., Colorado College; M.D., University of Colorado School of Medicine, 1961.
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B.A., Oberlin College; LL.B., Cleveland-Marshall Law School, 1951.
- THEODORE DUKE, *Distinguished Professor of Latin and Greek* (1946)  
B.A., The University of Akron; M.A., Case Western Reserve University; Ph.D., Johns Hopkins University, 1946.
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- JAMES F. DUNLAP, *Professor of Speech* (1955)  
B.S.Ed., Wilmington College; M.A., Ph.D., The Ohio State University, 1954.
- JAMES W. DUNLAP, *Dean of the College of Business Administration and Professor of Finance* (1963)  
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- KENNETH A. DUNNING, *Assistant Professor of Management* (1973)  
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- JOSEPH A. EDMINISTER, *Associate Professor of Electrical Engineering and Assistant to the Dean of the College of Engineering* (May 1957)  
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B.A., St. Joseph's College; M.A., University of Notre Dame, 1969.
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B.S., Case Western Reserve University; M.S., Ph.D., The Ohio State University, 1964.
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- EUGENE FLAUMENHAFT, *Associate Professor of Biology* (1963)  
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- ALAN N. GENT, *Professor of Polymer Physics and Assistant Director of the Institute of Polymer Science* (April 1961)  
B.S., (General) B.S., (Special Physics), Ph.D., University of London, 1955.
- PHILIP M. GERHART, *Assistant Professor of Mechanical Engineering* (1971)  
B.S.M.E., Rose Polytechnic Institute; M.S.M.E., Ph.D., University of Illinois, 1971.
- DON R. GERLACH, *Professor of History* (1962)  
B.S.Ed., M.A., Ph.D., University of Nebraska, 1961.
- THOMAS E. GETZINGER, *University Auditor* (1969)  
B.S.B.A., The University of Akron; M.B.A., Kent State University, 1966; C.P.A.
- RICHARD G. GEYER, *Assistant Professor of Geology* (1973)  
B.S., Michigan State University; Ph.D., Colorado School of Mines, 1970.
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St. Agnes School of Nursing; B.S., University of Baltimore; M.S., University of Maryland, 1969; R.N.
- RUSSEL N. GIERSCH, *Director of the Physical Plant* (1966)  
B.M.E., Cleveland State University, 1954.
- RICHARD J. GIGLIOTTI, *Assistant Professor of Sociology* (1972)  
B.A., St. John Fisher College; M.A., Ph.D., Michigan State University, 1972.
- JAMES R. GILLHAM, *Assistant Professor of Sociology* (1972)  
B.A., Kalamazoo College; M.A., Ph.D., University of Illinois, 1972.

- PETER J. GINGO, *Associate Professor of Mathematics* (1969)  
B.S., The University of Akron; M.A., Ph.D., University of California at Los Angeles, 1966.
- BERTRAM C. GIRE, *Associate Professor of Law, Law Librarian* (July 1970)  
B.S., LL.B., University of Minnesota; M.S.L.S., University of Michigan, 1970.
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B.A., Wilson College; M.A.L.S., University of Michigan, 1970.
- ELTON A. GLASER, II, *Instructor in English* (1972)  
B.A., M.A., Louisiana State University; M.F.A., University of California, 1972.
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B.S.C.E., Michigan Technical University; M.S.C.E., University of Michigan, 1956; P.E., Ohio, Michigan and District of Columbia.
- THEODORE L. B. GLOECKLER, *Assistant Professor of Education* (1972)  
B.A., Lycoming College; M.A., Colorado State College, 1961; Ph.D., University of Michigan, 1973.
- MRS. PATRICIA PUTNAM GODFREY, *Associate Professor of Nursing* (January 1969)  
B.S.N., M.A.Ed., Case Western Reserve University, 1964; R.N.
- LATHARDUS GOGGINS, *Assistant Professor of Geography* (1969)  
B.A., Central State University; M.A., The Ohio State University; Ph.D., St. John's University, 1973.
- LARRY GOLD, *Supervisor of Freshman Chemistry Laboratories* (1973)  
B.S., M.S., The University of Akron, 1971.
- LAWRENCE G. GOLDEN, *Assistant Professor in the Community and Technical College* (1968)  
B.S., Case Western Reserve University; M.B.A., Wharton School of Finance and Commerce, 1968.
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B.A., Baldwin-Wallace College, 1963.
- DENNIS GORDON, *Professor of Accounting* (1946)  
A.B., M.B.A., University of Chicago, 1938; C.P.A., Ohio.
- DAVID A. GOSHEN, *Assistant to Dean of General College* (October 1972)  
B.A., The University of Akron, 1972.
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B.A., Simpson College; M.A., Ph.D., University of Missouri, 1970.
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B.S., University of Pennsylvania; LL.B., Stanford University; LL.M., Georgetown University, 1967.
- HAROLD L. GREENBERG, *Editor, University News Service* (January 1973)  
B.S., M.A., Kent State University, 1972.
- HOWARD L. GREENE, *Associate Professor of Chemical Engineering* (1965)  
B.Ch.E., M.Ch.E., Ph.D., Cornell University, 1966.
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B.A.Ed., The University of Akron, 1973.
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B.S., M.S., Texas Technological College; Ph.D., The Ohio State University, 1964.
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B.A., M.A., DePauw University; Ph.D., The Ohio State University, 1968.
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B.S.N.Ed., M.S.Ed., The University of Akron, 1967; R.N.
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B.S.M.E., University of Pittsburgh; M.S.M.E., Ph.D., Carnegie Institute of Technology, 1967.
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B.A., M.A., The University of Akron, 1967.
- ROBERT GRUMBACH, *Associate Professor of Electrical Engineering and Assistant to the Director of Cooperative Program in the College of Engineering* (1961)  
B.S.E.E., Case Western Reserve University; M.S.E.E., West Virginia University, 1951.
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B.M.E., The University of Akron, 1950.
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B.S., State University College at Fredonia; M.S., State University College at Cortland; Ph.D., State University of New York at Buffalo, 1972.
- JOHN F. GWINN, *Assistant Professor of Biology* (1970)  
B.A., Manchester College; M.S., Purdue University; Ph.D., Kent State University, 1972.
- MRS. RUTH T. HADDOCK, *Instructor in Mathematics* (1968)  
B.C.E., M.A., University of Louisville, 1967.
- SCOTT D. HAGEN, *Assistant Professor at Wayne General and Technical College* (1966)  
B.S., Kansas State University; M.S., Kansas State Teachers College, 1964.
- GORDON A. HAGERMAN, *Coordinator of Developmental Education* (July 1941)  
B.A., The University of Akron, 1941.
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- PETER J. HAMPTON, *Associate Professor of Psychology and Director of Developmental Programs* (August 1954)  
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- RICHARD L. HANSFORD, *Vice President and Dean of Student Services* (August 1949)  
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B.S., M.S., Indiana University, 1964.
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B.S.Ed., Mills College; M.A., University of Connecticut, 1972.
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B.A., Fordham University; M.S., Syracuse University, 1971.
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B.A., Central State College; M.S., Case Western Reserve University, 1971.
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B.J., University of Missouri; M.A., Ph.D., Stanford University, 1971.
- JOHN J. HIRSCHBUHL, *Assistant Professor of Education and Coordinator of CAI* (1971)  
B.S., M.S., Temple University; Ph.D., Pennsylvania State University, 1971.
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B.S.Ed., The University of Akron; M.A., Kent State University; Ed.D., Case Western Reserve University, 1963.
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B.S., Indiana Central College; M.A., Ball State University; Ed.D., Indiana University, 1968.
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B.S., State University of New York, (Buffalo); M.S., Ph.D., University of Wisconsin, 1960.
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B.S., Franklin and Marshall College; M.D., Jefferson Medical College, 1950.
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B.S.Ed., M.A., M.S., West Virginia University, 1958.
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B.A., University of Rochester; M.A., Ph.D., University of Michigan, 1972.
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B.F.A., M.A., The Ohio State University, 1965.
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B.S.N.E., Saint Louis University; M.S.Ed., The University of Akron, 1963; R.N.
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B.A., Kent State University; M.A., The University of Akron, 1972.
- MARTHA HOSFELT, *Instructor in English* (1961)  
B.A., The University of Akron, 1959.
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B.A., Hiram College; M.E., Kent State University, 1955.
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B.A., Butler University; M.A., Indiana University, 1964.
- JOHN J. HOUSER, *Assistant Professor of Chemistry* (1965)  
B.S., Villanova University; Ph.D., Pennsylvania State University, 1964.
- ELMORE HOUSTON, *Instructor at Wayne General and Technical College* (1972)  
B.A., Purdue University; M.A., The University of Akron, 1968.
- LOWELL HOYT, *Assistant Professor in the Community and Technical College* (1967)  
B.A., Bryan College; B.D., Th.M., Grace Theological Seminary; M.S., University of South Carolina, 1964.
- ANTHONY E. HROMCO, *Lecturer in Education* (1973)  
B.A., Kent State University; M.A.Ed., The University of Akron, 1973.
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B.A., Saint Francis College; M.B.A., University of Colorado, 1970.
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B.A., The University of Akron; M.A., Case Western Reserve University, 1950.
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B.A., College of Steubenville; M.Ed., Ph.D., Kent State University, 1970.
- STEVEN T. HURTT, *Adviser of Students* (1971)  
B.A., Heidelberg College; M.A., Michigan State University, 1970.
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B.S., Bowling Green State University, 1951.
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M.B., Lawrence Conservatory of Music; S.M.M., S.M.D., School of Sacred Music, Union Theological Seminary, 1951.
- JAMES E. INMAN, *Assistant Professor of Business Law* (1966)  
B.A., Baldwin-Wallace College; M.B.A., The Ohio State University; J.D., The University of Akron, 1971.
- MRS. SYS S. INMAN, *Instructor in Modern Languages* (1968)  
B.A., Baldwin-Wallace College; M.A., The University of Akron, 1968.
- RICHARD JACKOBOICE, *Associate Professor of Music and Director of the University Band* (July 1967)  
B.M., M.M., University of Michigan, 1965.
- DALE L. JACKSON, *Professor of Biology* (1961)  
B.S., Ph.D., University of Durham (England), 1959.
- DONALD M. JACKSON, *Assistant Professor of Marketing* (1969)  
B.A., M.B.A., Cornell University, 1951.
- JIM L. JACKSON, *Assistant Professor of Geology* (1967)  
B.S., Kent State University; M.S., Case Western Reserve University; Ph.D., The Ohio State University, 1970.
- DAVID L. JAMISON, *Assistant Professor of Speech* (1972)  
B.A., Muskingum College; M.A., J.D., University of Michigan, 1969.
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- DONALD M. JENKINS, *Associate Professor of Law* (1965)  
B.A., J.D., The University of Akron, 1964.
- TIMOTHY C. JOCHIM, *Instructor in the Community and Technical College* (1970)  
B.A., M.A., University of North Dakota, 1970.
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B.S., University of Vermont; M.S.Ed., University of Southern California, 1961.
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A.A., North Park Junior College; B.S., University of Minnesota; M.Ed., Kent State University, 1968.
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B.S.E., St. John College; M.S., Case Western Reserve University, 1969.
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B.A., M.A., Ph.D., Harvard University, 1958.
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B.A., M.A., Ph.D., University of Illinois, 1957.
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B.S., The University of Akron; M.D., The Ohio State University, 1931.
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- GARY W. KANE, *Assistant Professor of Education* (1972)  
A.A., Santa Ana College; B.S., M.Ed., State University College at New Paltz; Ed.D., University of Rochester, 1970.
- ARTHUR D. KARLIN, *Associate Professor of Accounting* (1971)  
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B.A., Jammu Kashmir University; B.E., Rajasthan University; M.S.E., University of Detroit; Ph.D., University of Michigan, 1969.
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- AZMI KAYA, *Assistant Professor of Mechanical Engineering* (1970)  
Diploma, Technical College for Men (Turkey); M.S.M.E., University of Wisconsin; M.S.E.E., Ph.D., University of Minnesota, 1970.
- BRIAN D. KAYSER, *Assistant Professor of Sociology* (1972)  
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B.S., M.B.A., The Ohio State University; Ph.D., University of Illinois, 1964.
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B.S., University of New Hampshire; Ph.D., Michigan State University, 1953.
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B.S., University of Budapest; M.B.A., Rutgers University; Ph.D., University of Vienna, 1954.
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B.A., M.A., The University of Akron, 1972.
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B.S., M.S., The University of Akron, 1968.
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- FRED R. LEFFLER, *Assistant Professor of Electrical Engineering* (1970)  
B.S.E.E., University of Denver; M.S.E.E., Ph.D., Oregon State University, 1970; P.E., Colorado.
- WALTER D. LEHRMAN, *Assistant Professor of English* (1956)  
B.S., M.A., Columbia University; Ph.D., Case Western Reserve University, 1972.
- JAMES V. LENA VITT, *Assistant Professor of Art* (1969)  
B.F.A., M.F.A., Ohio University, 1969.
- JOHN P. LENCZYK, *Assistant Professor of Chemical Engineering* (1970)  
B.S., M.S., Ph.D., State University of New York at Buffalo, 1970.
- JOSEPH R. LENTINI, *Assistant Professor in the Community and Technical College* (1969)  
B.A., State College at Bridgewater (Massachusetts); M.S., The University of Akron, 1971.

- MRS. JANET E. LEON, *Counselor, Testing and Counseling Bureau* (1972)  
B.A., New York University; M.A., Ph.D., Case Western Reserve University, 1972.
- ARNO K. LEPKE, *Professor of Modern Language and Chairman of the Division of Humanities and Director of International Studies* (1961)  
University of Greifswald (Germany); Ph.D., University of Marbury (Germany), 1947.
- JOSEPH F. LESTINGI, *Associate Professor of Civil Engineering* (1967)  
B.C.E., Manhattan College; M.S., Virginia Polytechnic Institute; Ph.D., Yale University, 1966; P.E., Ohio, New Jersey.
- GERALD H. LEVIN, *Professor of English* (1960)  
B.A., Vanderbilt University; M.A., University of Chicago; Ph.D., University of Michigan, 1956.
- RUTH B. LEWIS, *Associate Professor of Speech* (1966)  
B.S., Wittenberg University; M.A., Ph.D., The Ohio State University, 1961.
- MARTHA CATHERINE LEYDEN, *Assistant Professor of Education* (1971)  
B.S., St. John College; M.Ed., Kent State University; Ed.D., Columbia University, 1971.
- ALVIN H. LIEBERMAN, *Assistant Professor of Accounting* (1969)  
B.S., J.D., M.B.A., The University of Akron, 1969.
- CARL LIEBERMAN, *Assistant Professor of Political Science* (1967)  
B.A., Temple University; M.A., Ph.D., University of Pittsburgh, 1969.
- MRS. MARTHA LIERHAUS, *Assistant Professor of Mathematics* (January 1967)  
B.A., B.S.Ed., M.A., Kent State University, 1963.
- HUGO LIJERON, *Associate Professor of Modern Languages* (1963)  
B.A., LaSalle University (Bolivia); LL.D., Universidad San Francisco Xavier de Chuquisaca (Bolivia); M.A., Middlebury College; Ph.D., University of Madrid (Spain), 1965.
- MRS. JOY S. LINDBECK, *Associate Professor of Education* (1967)  
B.S., Carnegie Institute of Technology; M.S.Ch., M.Ed., D.Ed., University of Pittsburgh, 1964.
- MARIANNE R. LIPPS, *Instructor in Adult Nursing* (1971)  
B.S., The University of Akron, 1970; R.N.
- SHELDON B. LISS, *Professor of History* (1967)  
B.A., American University; M.A., Duquesne University; Ph.D., American University, 1964.
- MICHAEL P. LITKA, *Associate Professor of Business Law* (1971)  
B.A., Grinnell College; M.A., J.D., University of Iowa, 1958.
- EDWIN L. LIVELY, *Dean of Graduate Studies and Research and Professor of Sociology* (1963)  
B.A.Ed., Fairmont State College (W. Va.); M.A., Ph.D., The Ohio State University, 1959.
- MRS. HELEN P. LIVINGSTON, *Assistant Professor of Bibliography and Head of Library Serials* (February 1970)  
B.A., Bishop's University; M.S., Simmons College, 1954.
- MRS. KRIEMHILDE I. R. LIVINGSTON, *Instructor in Modern Languages* (1968)  
Diploma, University of Munich; Diploma, Bavarian Interpreter School, 1947.
- JUNE M. LOMBARDINI, *Instructor in Education* (1973)  
B.A.Ed., M.A.Ed., Western Michigan University, 1972.
- MRS. MARIAN LOTT, *Associate Professor of Music* (1967)  
B.M., M.M., Chicago Musical College, 1951.
- DAVID J. LOUSCHER, *Assistant Professor of Political Science* (1970)  
B.A., Morningside College; M.A., American University; M.A., Ph.D., University of Wisconsin, 1972.
- RICHARD B. LOWRY, *Instructor in Physical Education* (1971)  
B.S., Baldwin-Wallace College; M.Ed., Kent State University, 1960.
- LLOYD B. LUEPTOW, *Associate Professor of Sociology* (1967)  
B.S., M.S., Ph.D., University of Wisconsin, 1964.
- RICHARD C. LUTZ, *Associate Professor of Management* (January 1973)  
B.S., M.S., Southern Illinois University; D.B.A., Texas Technical University, 1972.
- WILLIAM D. LYON, *Assistant Professor of Chemistry* (1967)  
B.S. Chem., University of Illinois; Ph.D., University of Wisconsin, 1967.
- LAURENCE J. C. MA, *Assistant Professor of Geography* (1971)  
B.A., National Taiwan University; M.A.L.S., George Peabody College; M.A., Kent State University; Ph.D., University of Michigan, 1971.
- MRS. MARY JO MACCRACKEN, *Instructor in Physical Education* (1968)  
B.A., College of Wooster; M.A., The University of Akron, 1969.
- MRS. ALICE MACDONALD, *Instructor in English* (1969)  
B.A., M.A., The University of Akron, 1969.
- JOHN A. MACDONALD, *Professor of Music* (1959)  
B.M.Ed., Oberlin College; M.A., Musicology; Ph.D., University of Michigan, 1964.
- KENNETH E. MACDONALD, *Director of Sports Information* (January 1965)  
B.S., The University of Akron, 1963.
- MRS. BARBARA J. MACGREGOR, *Assistant Professor of Music* (1970)  
B.M., The University of Akron; M.M., Cleveland Institute of Music, 1967.
- IAN R. MACGREGOR, *Vice President for Planning and Professor of Chemistry* (1961)  
B.A., M.S., Ph.D., University of Cincinnati, 1945.
- LAZARUS W. MACIOR, *Professor of Biology* (1967)  
B.A., M.A., Columbia University; Ph.D., University of Wisconsin, 1959.

- THEODORE MACKIW, *Professor of Modern Languages* (1962)  
Ph.D., University of Frankfurt (Germany), 1951.
- MRS. JUDITH HELEN MAFFETT, *Assistant Professor of Physical Education* (1968)  
B.S., M.Ed., Kent State University, 1962.
- EUGENE MAIO, *Associate Professor of Modern Languages* (1970)  
B.A., Ph.L., M.A., S.T.L., St. Louis University; Ph.D., University of California at Los Angeles, 1967.
- COLEMAN J. MAJOR, *Dean of the College of Engineering and Professor of Chemical Engineering* (1964)  
B.S., University of Illinois; Ph.D., Cornell University, 1941; P.E., Ohio, California.
- GEORGE J. MAKAR, *Associate Professor in the Community and Technical College* (1973)  
B.S., Pennsylvania State University; M.Ed., Duquesne University; Ed.D., University of Pittsburgh, 1973.
- YOGENDRA K. MALIK, *Professor of Political Science* (1969)  
B.A., M.A., Punjab University; M.A., Ph.D., University of Florida, 1966.
- TED A. MALLO, *Director of Student Legal Programs* (1969)  
B.S., M.S., J.D., The University of Akron, 1972.
- ANDREW MALUKE, *Associate Professor of Physical Education* (February 1946)  
B.S.Ed., The University of Akron; M.A., Kent State University, 1949.
- MRS. KAREN A. MALYUK, *Accountant* (November 1973)  
B.S.A., The University of Akron, 1969.
- EUGENE R. MANCINI, *Associate Professor of Music* (1967)  
B.M., M.M., Cleveland Institute of Music, 1953.
- GEORGE P. MANOS, *Associate Professor of Civil Engineering* (1957)  
B.Ch.E., The Ohio State University; M.S.E., West Virginia University; Ph.D., University of Cincinnati, 1971; P.E., Ohio.
- PHILIP S. MANTHEY, *Staff Assistant to the Academic Vice President* (November 1965)  
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B.A., The University of Akron, 1968.
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B.S.N., Case Western Reserve University; M.A., University of Washington; M.A.Ed., University of Santa Clara, 1965.
- JESSE F. MARQUETT, *Assistant Professor of Political Science* (1971)  
B.A., M.A., Ph.D., University of Florida, 1971.
- RODNEY S. MARSHALL, *Senior Academic Programmer/Analyst* (1972)  
B.S.B.A., Bowling Green State University, 1965.
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B.S., Erskine College; M.S., Re.D., Indiana University, 1972.
- JOHN P. MARWITT, *Assistant Professor of Anthropology* (1971)  
B.S., Florida State University; Ph.D., University of Utah, 1971.
- KENNETH E. MAST, *Instructor in Marketing* (1970)  
B.A., M.B.A., The Ohio State University, 1960.
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B.S., Rajasthan University; I.C.R.A., New Delhi; M.Econ., North Carolina State University, 1967.
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- THOMAS H. MAXWELL, *Assistant Professor of Education* (1969)  
B.A., College of the Holy Cross; M.Ed., Ed.D., University of Rochester, 1969.
- STELLA M. McCLEARY, *Assistant Professor at Wayne General and Technical College* (1972)  
B.S., State College at Bloomsburg (Pa.); M.A., Kent State University, 1964.
- McKEE J. McCLENDON, *Assistant Professor of Sociology* (1972)  
B.A., M.A., Ph.D., University of Kansas, 1972.
- KENNETH L. J. McCORMICK, *Assistant Professor in the Community and Technical College* (1973)  
B.S., Michigan State University; M.A., Central Michigan University, 1972.
- EDWARD E. McDONALD, *Instructor in the Community and Technical College* (1972)  
B.S.M.E., The University of Akron, 1961; P.E., Ohio.
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B.A., M.A., Kent State University, 1969.
- WILLIAM McGUCKEN, *Associate Professor of History* (1968)  
B.S., M.A., Queens University, Belfast (N. Ireland); Ph.D., The University of Pennsylvania, 1968.
- ALLAN J. McINTYRE, *Associate Professor of Modern Languages* (1967) (1969)  
B.A., Williams College; M.A., Columbia University; Ph.D., University of Pennsylvania, 1967.
- DONALD McINTYRE, *Professor of Chemistry, Professor of Polymer Science and Research Associate in the Institute of Polymer Science* (1966)  
B.A., Lafayette College; Ph.D., Cornell University, 1954.

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B.S., M.Ed., Ed.D., Penn State University, 1971.
- JAMES McLAIN, *Associate Professor of Economics* (1946)  
B.A., The University of Akron; M.A., Western Reserve University; Ph.D., The Ohio State University, 1959.
- WILLIAM McMAHON, *Assistant Professor of Philosophy* (1969)  
B.A., University of Notre Dame; M.A., Brown University; Ph.D., University of Notre Dame, 1970.
- ROBERT C. McNEIL, *Assistant Professor of Classics* (1963)  
B.A., The University of Akron; Ph.D., University of Pennsylvania, 1970.
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B.A., M.A., University of Maine; Ph.D., Indiana University, 1949.
- CLAUDE Y. MEADE, *Professor of Modern Languages* (1964)  
B.A., M.A., University of Minnesota; Ph.D., University of California, 1957.
- LAVERNE J. MECONI, *Associate Professor of Education* (1967)  
B.S., West Chester State College (Pennsylvania); M.A., University of Pennsylvania; Ph.D., The Ohio State University, 1966.
- GARY E. MEEK, *Assistant Professor of Management* (1971)  
B.S., Cleveland State University; Ph.D., Case Western Reserve University, 1970.
- EBERHARD A. MEINECKE, *Professor of Mechanical Engineering, Professor of Polymer Science and Research Associate in the Institute of Polymer Science* (October 1963)  
D.Eng., Braunschweig Institute of Technology (Germany), 1960.
- WARNER D. MENDENHALL, *Assistant Professor at Wayne General and Technical College* (1972)  
B.S., Davidson College; M.A., Duke University, 1960.
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B.A., Ohio University; M.A., Case Western Reserve University, 1958.
- R. PAUL MERRIX, *Associate Professor of English* (1966)  
B.A., M.A., Butler University; Ph.D., University of Cincinnati, 1966.
- MRS. RUTH MESSENGER, *Instructor in English* (1968)  
B.A., Wellesley College; M.A., Western Reserve University; M.A., The University of Akron, 1968.
- DONALD J. METZGER, *Assistant Professor of Sociology* (1968)  
B.A., Youngstown University; Ph.D., University of Pittsburgh, 1968.
- CHRISTOPHER P. MEYER, *Instructor in Art* (1972)  
B.A., Washington and Lee University; M.F.A., Ohio State University, 1972.
- DENNIS MEYER, *Assistant Professor of Art* (1969)  
B.A., St. Norbert College; M.F.A., Ohio University, 1969.
- FRITZ M. MEYER, *Instructor in Physical Education* (1973)  
B.S.Ed., University of Cincinnati; M.A.Ed., Xavier University, 1970.
- THOMAS T. MILES, *Assistant Professor of Elementary Education and Coordinator of Instructional Media* (October 1972)  
B.S., M.S., Ed.A., Indiana State University; Ph.D., University of Iowa, 1973.
- MRS. ANN LEE MILLER, *Adviser of Students* (April 1971)  
B.A., Hanover College; M.A., The University of Akron, 1970.
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B.A., Franklin and Marshall College; M.A., University of Delaware, 1965.
- RODNEY N. MILLER, *Assistant Professor of Music* (1973)  
B.M., Birmingham Southern College; M.M., University of Illinois, 1973.
- WILLIAM I. MILLER, *Assistant Professor of Modern Languages* (1970)  
B.A., Wittenberg University; Ph.D., University of Florida, 1970.
- ALOYSIUS E. MISKO, *Professor of Secretarial Science, Director of the Office for Career Planning in the Community and Technical College* (1962)  
B.S., Central Michigan University; M.S., Ed.D., University of Michigan, 1962.
- TONY MISKO, JR., *Instructor at Wayne General and Technical College* (1972)  
B.S., M.A., Kent State University; M.A., West Virginia University, 1965.
- MARTY L. MITCHELL, *Instructor in Nursing* (1972)  
B.S.N., The University of Akron, 1971. R.N.
- JOHN B. MONROE, *Assistant Professor in the Community and Technical College* (1966)  
B.A., College of Wooster; M.A., Rutgers University, 1963.
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B.A., Randolph Macon Woman's College; B.A.L.S., Emory University; M.S.L.S., University of North Carolina, 1957.
- CHARLES K. MOORE, JR., *Assistant Professor of Accounting* (January 1973)  
A.A., Angelo State University; B.B.A., M.B.A., D.B.A., Texas Technical University, 1972. C.P.A., 1967.
- MARVIN M. MOORE, *Professor of Law* (July 1960)  
B.A., Wayne State University; LL.B., LL.M., J.S.D., Duke University, 1968.
- PAMELA J. MOORE, *Instructor in Nursing* (1973)  
B.S.N., The University of Akron, 1972.
- MAURICE MORTON, *Regents' Professor of Polymer Chemistry and Director of the Institute of Polymer Science* (October 1948)  
B.S., Ph.D., McGill University (Canada), 1945.

- RICHARD MOSTARDI, *Assistant Professor in Biology* (1967)  
B.S.Ed., M.Ed., Kent State University; Ph.D., The Ohio State University, 1968.
- EARL J. MOTZ, *Assistant Professor of History* (1971)  
B.S.Ed., M.A., Ohio University; Ph.D., Michigan State University, 1971.
- JUDITH MOWERY, *Assistant Professor of Bibliography and Research Librarian* (May 1967)  
B.A., Ohio University; M.S.L.S., Case Western Reserve University; M.A., The University of Akron, 1972.
- FREDERICK W. MOYER, *Professor of Finance* (March 1970)  
B.S., M.A., Ph.D., The Ohio State University, 1949.
- ROBERT J. MRVETZ, *Assistant Professor of Physical Education* (1970)  
B.S.Ed., Miami University; M.Ed., Ohio University; Ph.D., The Ohio State University, 1970.
- SAMUEL A. MUELLER, *Associate Professor of Sociology* (1973)  
B.A., Valparaiso University; M.A., Roosevelt University; Ph.D., Northwestern University, 1970.
- MRS. BEVERLY MUGRAGE, *Instructor at Wayne General and Technical College* (1972)  
B.S., Kent State University; M.S., The University of Akron, 1970.
- JOHN MULHAUSER, *Assistant Professor of Geography* (1966)  
B.A., M.A., Kent State University, 1961.
- FRED L. MULLEN, *Assistant Professor in the Community and Technical College* (1967)  
B.S.E.E., Case Western Reserve University; M.S.E., The University of Akron, 1966. P.E., Ohio.
- JOSEPH C. MULLIN, *Instructor in the Community and Technical College* (1970)  
B.S., Delta State College, 1951.
- MRS. RUTH C. MURRAY, *Rubber Division Literature Chemist* (July 1970)  
B.S., Chatham College, 1944.
- JEROME MUSHKAT, *Associate Professor of History* (1962)  
B.A., M.A., D.S.S., Syracuse University, 1964.
- MRS. LOIS MYERS, *Assistant Professor of Bibliography and Assistant Librarian for Public Services* (1946)  
B.A., Wittenberg University; B.S.L.S., Carnegie Institute of Technology, 1939.
- ROBERT H. MYERS, *Professor of Education* (1966)  
B.S.Ed., M.A., Ph.D., The Ohio State University, 1964.
- ESTELLE B. NAES, *Dean of the College of Nursing and Professor of Nursing* (June 1966)  
B.S.N., M.S.N.E., Ph.D., Saint Louis University, 1962. R.N.
- THOMAS NASH, *Assistant Professor of Geography* (1967)  
B.A., M.A., Ph.D., Kent State University, 1973.
- RICHARD NEAL, *Affirmative Action Officer* (March 1970)  
B.S., The University of Akron, 1961.
- WALLACE B. NEEL, *Instructor in Physical Education* (March 1973)  
B.S.Ed., M.S.Ed., Ohio University, 1966.
- DANIEL NELSON, *Associate Professor of History* (1970)  
B.A., Ohio Wesleyan University; M.A., The Ohio State University; Ph.D., University of Wisconsin, 1967.
- HENRY NETTLING, *Controller* (February 1964)  
B.S.B.A., The University of Akron, 1959.
- WILLIAM A. NEUMANN, *Associate Professor of Art* (1970)  
B.F.A., Cleveland Institute of Art; M.F.A., Syracuse University, 1970.
- DANIEL M. NEWLAND, *Adviser of Students* (1971)  
B.A., Coe College (Iowa); M.S., Indiana University, 1971.
- ISADORE NEWMAN, *Assistant Professor of Education* (1971)  
B.A., University of Miami; M.A., New School for Social Research (New York); Ph.D., Southern Illinois University, 1971.
- DAVID L. NICHOLS, *Assistant Professor of Accounting* (1971)  
B.B.A., M.B.A., University of Houston, 1957. C.P.A., 1954.
- ALLEN G. NOBLE, *Professor of Geography* (1964)  
B.A., Syracuse University; M.A., University of Maryland; Ph.D., University of Illinois, 1957.
- JUDITH A. NOBLE, *Assistant Professor of Education* (1970)  
B.S., M.A., Central Michigan University; Ph.D., Michigan State University, 1971.
- RICHARD F. NOKES, *Associate Professor of Biology* (January 1962)  
B.S., D.V.M., Michigan State University, 1958.
- WALLACE NOLIN, *Associate Professor of Music* (1969)  
B.S., Muskingum College; M.M.Ed., Kent State University; Ph.D., The Ohio State University, 1969.
- JAMES W. NOLTE, *Instructor in the Community and Technical College* (1972)  
B.A., M.A., The University of Akron, 1972.
- CLINTON E. NORTON, *Managing Director of the E. J. Thomas Performing Arts Hall* (July 1973)  
B.M., University of Rochester, 1950.
- DOROTHY M. NUNN, *Associate Professor of Biology* (1967)  
B.S., Med. Tech., Ph.D., University of Cincinnati, 1962.
- ALICE E. NUTTALL, *Instructor in the Community and Technical College* (1971)  
B.A., University of Michigan; M.A.T., Wayne State University, 1971.
- DAVID J. O'BRIEN, *Assistant Professor of Sociology* (1972)  
B.A., Boston College; M.A., University of Notre Dame; Ph.D., Indiana University, 1972.
- OLIVER OCASEK, *Associate Professor of Education* (January 1961)  
B.S.Ed., M.A., Kent State University, 1950.

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B.A., Western Illinois University; M.A., School for International Training.
- ROBERT A. OETJEN, *Dean of the Buchtel College of Arts and Sciences and Professor of Physics* (1970)  
B.A., Asbury College; M.S., Ph.D., University of Michigan, 1942.
- JOHN H. OLIVE, *Associate Professor of Biology* (1970)  
B.S., The Ohio State University; M.A., Ph.D., Kent State University, 1964.
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B.A., University of Nebraska, 1942.
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B.A.Ed., M.A.Ed., The University of Akron, 1969.
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B.S., M.S., Ph.D., Cornell University, 1969.
- SARAH ORLINOFF, *Associate Professor of Education* (1963)  
B.A., M.A.Ed., The University of Akron; Ph.D., Case Western Reserve University, 1963.
- JAMES O. OSWALD, *Director of Publications* (October 1971)  
B.S.Ed., Central State University; B.A., Cedarville College, 1967.
- JOHN W. OWEN, *Director of Admissions* (June 1965)  
B.A., John Hopkins University; M.A., The University of Akron, 1973.
- MARC C. OZANICH, *Assistant Professor of Ballet* (1973)  
B.A., University of California at Santa Barbara; A.A., Bakersfield College; M.A., University of California at Santa Barbara, 1968.
- JOSEPH PADOVAN, *Assistant Professor of Mechanical Engineering* (1970)  
B.S.M.E., M.S.M.E., Ph.D., Polytechnic Institute of Brooklyn, 1969.
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B.A., University of South Carolina; M.A., University of Texas; Ph.D., University of Nebraska; J.D., The University of Akron, 1967.
- ROBERT M. PARSONS, *Instructor in Education* (1973)  
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B.A., University of North Carolina; M.A., University of Florida; Ph.D., Kent State University, 1969.
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- JOHN S. PHILLIPSON, *Associate Professor of English* (1961)  
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- FRANK T. PHIPPS, *Professor of English* (1953)  
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- HARRY T. PINNICK, *Associate Professor of Physics* (1964)  
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- ARTHUR R. POLLOCK, JR., *Assistant Professor in the Community and Technical College* (1967)  
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- LESTER N. POPE, *Editor, University News Service* (November 1972)  
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- JOHN A. POPPLESTONE, *Professor of Psychology and Director of the Archives of the History of American Psychology* (1961)  
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B.S.E.E., M.S.E.E., Ph.D.E.E., University of Texas, 1970. P.E., Texas.
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B.S., M.S., The University of Akron, 1970.
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Licentiate, King's College in Sussex (England), 1929; Fellowship, Trinity College in London.
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B.A., The University of Akron; M.A., Western Reserve University, 1945.
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B.S., M.S., The University of Akron, 1969.
- THOMAS DEWITT WEBB, *Instructor in Art* (1970)  
B.F.A., M.F.A., University of Michigan, 1970.
- WILLIAM V. WEBB, *Assistant Professor in the Community and Technical College* (1968)  
B.A., University of Notre Dame; M.S., John Carroll University, 1960.
- WYATT M. WEBB, *Assistant Professor of Physical Education* (1967)  
B.S., The University of Akron; M.S.Ed., University of Cincinnati; Ph.D., The Ohio State University, 1967.
- PAUL A. WEIDNER, *Professor of Political Science* (1960)  
B.A., M.A., University of Cincinnati; Ph.D., University of Michigan, 1959.
- RUSSELL WEINGARTNER, *Associate Professor of Modern Languages* (1970)  
B.A., University of Cincinnati; M.A., Ph.D., Princeton University, 1968.
- MRS. EDITH K. WEINSTEIN, *Assistant Professor in the Community and Technical College* (1969)  
B.A., M.A.Ed., University of Akron, 1968.
- DAVID M. WEIS, *Associate Professor of Education* (1967)  
B.A., Loras College; M.Ed., Ohio University; Ph.D., The Ohio State University, 1967.
- JOHN T. WELCH, JR., *Assistant Professor of Electrical Engineering* (1973)  
B.S., M.S., Ph.D., North Carolina State University, 1964.
- FRANCIS J. WERNER, *Instructor in Psychology and Counselor in Testing and Counseling Bureau* (August 1950)  
B.A., M.A., The University of Akron, 1952.
- MRS. ANNE H. WEST, *Assistant Professor in the Community and Technical College* (1971)  
B.S., Salem College; M.S.Ed., Madison College, 1965.
- KENNETH N. WEXLEY, *Assistant Professor of Psychology* (1969)  
B.A., State University of New York at Buffalo; M.A., Temple University; Ph.D., University of Tennessee, 1969.
- ROBERT C. WEYRICK, *Assistant Dean and Associate Professor in the Community and Technical College* (1964)  
B.E.E., The University of Akron; M.S., Case Institute of Technology, 1964. P.E., Ohio.
- JOHN WIANDT, *Senior Accountant* (July 1967)  
B.S.Bus.Ed., Kent State University, 1965.
- MRS. JEAN WILLIAMS, *Instructor in Home Economics* (January 1973)  
B.S., Iowa State University; M.S., The University of Akron, 1972.
- JOHN D. WILLIAMS, *Associate Professor of Finance* (1969)  
B.S., Westminster College; M.B.A., D.B.A., Kent State University, 1971.
- J. GREGORY WILLIAMS, *Assistant Professor of Sociology* (1972)  
B.A., M.A., Miami University; Ph.D., University of Texas, 1972.
- MAURICE G. WILLIAMS, *Professor of Education* (1966)  
B.A., The University of Akron; M.E., Kent State University; Ed.D., Western Reserve University, 1962.
- RICHARD A. WILLIAMS, *Associate Professor of Electrical Engineering* (1968)  
B.S., M.S., Ph.D., The Ohio State University, 1965. P.E., Ohio.
- MAX S. WILLIS, JR., *Professor of Chemical Engineering* (1968)  
B.S., Pennsylvania State University; M.S., Ph.D., Iowa State University of Science and Technology, 1962.
- CHARLES W. WILSON, III, *Professor of Physics, Professor of Polymer Science and Research Associate in the Institute of Polymer Science* (1965)  
B.S.E., M.S., University of Michigan; Ph.D., Washington University, 1952.
- JOHN WESLEY WILSON, *Associate Director of Afro-American Studies and Instructor in Education* (July 1970)  
B.S., Albany State College; M.S.Ed., The University of Akron, 1970.
- PAUL S. WINGARD, *Associate Dean of Buchtel College of Arts and Sciences and Professor of Geology* (February 1966)  
A.B., M.S., Miami University; Ph.D., University of Illinois, 1960.
- DAVID WINKLER, *Research Chemist* (October 1969)  
B.S., Ashland College, 1967.
- ROBERT K. WINN, *Assistant Professor of Electrical Engineering* (1973)  
B.S.E.E., New Mexico State University; M.S.E.E., Ph.D., University of Washington, 1973.
- JAMES L. WITHEROW, *Assistant Professor at Wayne General and Technical College* (1972)  
B.S., M.Ed., Kent State University, 1956.
- MRS. MARY O. WITWER, *Assistant Professor in the Community and Technical College* (1971) (1972)  
B.S., The University of Akron; M.E., Ohio University, 1951.
- NEAL WOLFE, *Instructor in the Community and Technical College* (July 1966)  
B.S., The University of Akron, 1965.
- CHARLES L. WOOD, *Associate Professor of Education* (1966)  
B.A., Simpson College; M.A., Ph.D., University of Iowa, 1966.
- W. RICHARD WRIGHT, *Assistant to the President - Off-Campus* (June 1967)  
B.A., The University of Akron, 1937.
- WALTER H. YODER, JR., *Assistant Professor of Education* (1971)  
B.A., Tufts University; M.A., New York University; Ed.D., Indiana University, 1971.
- MRS. EDITH I. YOUNG, *Instructor in Nursing* (1973)  
B.A., Manchester College, 1943.
- ROBERT L. ZANGRANDO, *Associate Professor of History* (1971)  
B.A., Union College; M.A., Ph.D., University of Pennsylvania, 1963.

HANS ZBINDEN, *Assistant Professor of Modern Languages* (1965)

B.A., Wittenberg University; M.A., University of Pennsylvania; Ph.D., Penn State University, 1971.

DONALD A. ZIMMERMAN, *Instructor in the Community and Technical College* (1973)

B.S.B.A., Defiance College; M.B.A., University of Pennsylvania, 1968.

## **Part-Time Faculty**

(CREDIT COURSES)

October, 1972

- MRS. CAROL J. ADAMS, *Lecturer in Art*  
B.F.A., Bowling Green State University; M.A., Case Western Reserve University, 1970.
- GEORGE H. ADAMS, *Lecturer in Engineering Technology*  
B.S.M.E., Illinois Institute of Technology, 1948.
- JON L. ADAMS, *Lecturer in Art*  
B.F.A., Bowling Green State University, 1966.
- JOSEPH ADATO, *Lecturer in Music*  
B.S., Juilliard School of Music; M.A., Columbia Teachers College, 1961.
- STANLEY AKERS, *Lecturer in Education*  
B.S.Ed., The University of Akron, 1967.
- MRS. DORIS ALDRICH, *Lecturer in Home Economics*  
B.S., M.Ed., Kent State University, 1972.
- MRS. SANDRA AMITAY, *Lecturer in Art*  
B.F.A., M.A., Kent State University, 1963.
- FARAJ ARDALAN, *Lecturer in General Studies*  
B.A., Howard University; M.A., The University of Akron, 1968.
- ROBERT ASKEW, *Lecturer at Wayne General and Technical College*  
A.A., B.S., The University of Akron, 1972.
- ORLANDO J. BARBACCI, *Lecturer in Electronic Technology*  
B.S.E.E., Tri-State College; M.S.E., The University of Akron, 1963.
- MYRON J. BARDEN, *Lecturer in Accounting*  
B.S.B.A., M.B.A., The University of Akron, 1961.
- WALTER A. BARTASHUS, *Lecturer in Associate Studies*  
B.A., LaSalle College; M.S., The University of Akron, 1971.
- RAMULA BASU, *Lecturer in History*  
B.A., Jogamaya Devi College; M.A., Calcutta University, 1966.
- MRS. MARTHA ANN BELL, *Lecturer in Secretarial Science*  
B.S.Ed., The University of Akron, 1970.
- WILLIAM W. BICKETT, *Lecturer in Law Enforcement Technology*  
Case Western Reserve University; University of California at Los Angeles.
- MRS. PATRICIA BISHOP, *Lecturer in Education*  
B.S., The University of Akron, 1966.
- RONALD BISHOP, *Lecturer in Music*  
B.M., Eastman School of Music; M.S., University of Illinois, 1960.
- EARNEST L. BIZZELL, *Lecturer in Mechanical Technology*  
B.S., Alabama A & M University; M.S., Ohio University, 1971.
- JAMES G. BLACKSTOCK, *Lecturer in Development Programs*  
B.S.Ed., M.Ed., Kent State University, 1953.
- MRS. UNABELLE BLACKWOOD, *Lecturer in the Community and Technical College*  
B.A., Berea College; M.A., Columbia University; Ph.D., University of Maryland, 1958.
- MRS. JEAN BLAIR, *Lecturer in Music*
- BARRIE BODDEN, *Lecturer in General Studies*  
B.A., Birmingham-Southern; B.D., McCormick Theological Seminary, 1955.
- PATRICIA A. BOERGER, *Lecturer in Modern Languages*  
B.A., Capital University, 1970.
- CHARLES BOND, *Lecturer in Management*  
B.A., Capital University; M.B.A., The University of Toledo, 1963.
- MRS. JANET BOTZUM, *Lecturer in Home Economics*  
B.S.Ed., M.A., Kent State University, 1970.
- LESLIE J. BOWSER, *Lecturer in Finance*  
B.A., Dartmouth College; M.B.A., The University of Akron, 1969.
- MRS. SALLY BRATANOV, *Lecturer in Education*  
B.S., M.S., The University of Akron, 1970.
- RICHARD BRINKER, *Lecturer in Speech*  
B.A., Ohio University, 1971.
- RICHARD L. BUCHANAN, *Lecturer in Electronic Technology*  
B.S.E.E., M.S.E.E., The University of Akron, 1969.
- MRS. BETH CALKINS, *Lecturer in Music*  
B.A., Westminster College; B.S.Ed., The University of Akron, 1968.
- ROBERT S. CARABELL, *Lecturer in Law*  
B.A., Cornell University; J.D., The University of Akron, 1967.
- KENNETH J. CATANZARITE, *Lecturer in Commerce and in Secretarial Science*  
B.S.B.A., The University of Akron, 1971.

- MRS. NORMA J. CHARLES, *Lecturer in Secretarial Science*  
A.S., B.B.A., Marshall University, 1965.
- PATRICIA CHERPAS, *Lecturer in English*  
B.A., The University of Akron, 1970.
- MRS. SUZANNE CLARK, *Lecturer in General Studies*  
B.A., The University of Akron, 1968.
- THOMAS H. CONNORS, *Lecturer in Chemistry*  
B.S., The Ohio State University, 1964.
- MRS. ROSEMARY COOKSEY, *Lecturer in Education*  
B.A., San Jose State College; M.A., San Francisco State College, 1970.
- CYNTHIA CORON, *Lecturer in Geology*  
B.S., The Ohio State University; M.S., University of North Carolina, 1971.
- MRS. CAROLYN W. COX, *Lecturer in Developmental Programs*
- MRS. LOUIS COX, *Lecturer in Education*  
B.Ed., Kent State University, 1938.
- ROGER A. CRAWFORD, *Lecturer in Chemistry*  
B.S., University of Illinois; M.S., Ph.D., Oregon State University, 1959.
- DANIEL W. CROGHAN, *Lecturer in Associate Studies*  
B.S., Kent State University; M.A., The University of Akron, 1968.
- ROBERT CROWLEY, *Lecturer in Speech*  
B.A., The University of Akron, 1970.
- MRS. SUANNE CROWLEY, *Lecturer in Speech and Theatre Arts*  
B.A., University of Missouri; M.A., The University of Akron, 1972.
- DOUGLAS CRUSH, *Lecturer in Psychology*  
B.A., Ohio University, 1969.
- EMERY CSEJTEY, *Lecturer in Art*  
B.A., Youngstown University; M.S., The University of Akron, 1971.
- JOHN T. CUNNINGHAM, *Lecturer in Law Enforcement Technology*  
F.B.I. National Academy, 1970.
- GERRIT DAAMS, *Lecturer in Philosophy*  
B.S., M.S., California Institute of Technology; Ph.D., Columbia University, 1952.
- JOHN A. DAILY, *Lecturer in Management*  
B.S., LL.B., The University of Akron; M.B.A., Wharton School of Finance at the University of Pennsylvania, 1964.
- MRS. PATRICIA L. DAY, *Lecturer in Art*  
B.S., The University of Akron, 1970.
- GEORGE V. DEAL, *Lecturer in Transportation*  
Ph.B., University of Chicago; M.S., Northwestern University, 1934.
- A. ROBERT DENTON, *Lecturer in Sociology*  
B.A., Asbury College; M.A., Theology, Wheaton College, 1967.
- THOMAS DEVENY, *Lecturer in Law*  
B.A., LL.B., West Virginia University, 1957.
- RICHARD D. DOBBINS, *Lecturer in Home Economics*  
B.A., M.A., Ph.D., The University of Akron, 1970.
- GEORGE J. DOBRIN, *Lecturer in Associate Studies*  
B.A., The University of Akron, 1955.
- RONALD DOBSON, *Lecturer in General Studies*  
B.S.Ed., Ashland College, 1965.
- MRS. JEAN DOLAN, *Lecturer in Developmental Programs*  
B.S., Slippery Rock State Teachers College, (Pennsylvania), 1950.
- JAMES F. DOMBO, *Lecturer in Developmental Programs*  
B.S.Ed., M.E., Kent State University, 1955.
- MRS. MARYANN DONATELLI, *Lecturer in English*  
B.A., M.A., The University of Akron, 1969.
- MRS. CAROL DRUGAN, *Lecturer in Sociology*  
B.A., Capital University; M.A., Kent State University, 1971.
- CHARLES DUNN, *Lecturer in General Studies*  
B.S.Ed., The Ohio State University; M.A., Ph.D., Kent State University, 1971.
- HUGH L. DURKIN, *Lecturer in Accounting*  
B.S., The University of Akron, 1963.
- IRA H. EPLIN, *Lecturer in General Studies*  
B.S.Ed., Morris Harvey College; M.S.Ed., Kent State University, 1959.
- ROBERT M. ERWINE, *Lecturer in Education*  
B.A., M.A., The University of Akron, 1943.
- MRS. MADELINE M. ESTAFEN, *Lecturer in Secretarial Science*  
B.S.E., The University of Akron, 1971.
- MRS. MERYL ETTTELSON, *Lecturer in Music*  
B.M., M.M., Indiana University, 1962.

- MRS. JOAN FARKAS, *Lecturer in Education*  
B.S.Ed., M.S.Ed., The University of Akron, 1957.
- MRS. ALICE FEIMAN, *Lecturer in History*  
B.M., M.M., Cleveland Institute of Music, 1936.
- GLEN FINCHER, *Lecturer at Wayne General and Technical College*  
B.S.Ed., M.Ed., Ph.D., Ohio University, 1963.
- MURRAY FISHEL, *Lecturer in Political Science*  
B.A., M.A., Kent State University; Ph.D., University of Denver, 1969.
- MRS. CAROL FLAUMENHAFT, *Lecturer in History*  
B.A., Indiana University; M.A., University of Chicago, 1958.
- MRS. FLORENCE FLETCHER, *Lecturer in Speech*  
B.F.A., Ohio University; M.A., Case Western Reserve University, 1948.
- LAWRENCE W. FOLTA, *Lecturer in Data Processing*  
B.S., University of Delaware; M.B.A., University of Pittsburgh, 1970.
- MRS. RUTH FRIEND, *Lecturer in General Studies*  
B.S., M.A., The University of Akron, 1972.
- HALLECK FRY, JR., *Lecturer in English*  
B.A., University of Michigan, 1940.
- THOMAS C. GAMBILL, *Lecturer in General Studies*  
B.S., Kent State University, 1969.
- ALLAN M. GAMERTSFELDER, *Lecturer in Education*  
B.S., Ashland College, 1958.
- MRS. CHARLOTTE GARRIGAN, *Lecturer in Home Economics*  
B.S.Ed., The University of Akron, 1971.
- MRS. IRENE GAWUR, *Lecturer in Modern Languages*  
B.A., University in Munich (Germany); M.S., Case Western Reserve University, 1968.
- MRS. PATRICIA M. GEIGER, *Lecturer in English*  
B.A., Baldwin-Wallace College, 1963.
- DAVID F. GELLATLY, *Lecturer in the Community and Technical College*  
B.A., The University of Akron, 1966.
- ANTHONY G. GLOWE, *Lecturer in Associate Studies*  
B.A., M.Ed., Ph.D., Case Western Reserve University, 1972.
- MRS. MILENE GOSTLIN, *Lecturer in Home Economics*  
R.N., Akron General Medical Center, 1963.
- ERWIN D. GREEN, *Lecturer in Sales and Merchandising*  
B.S., M.S., Newark College of Engineering, 1956.
- NEIL B. GREENE, *Lecturer in Accounting*  
B.B.A., Case Western Reserve University; LL.B., The University of Akron, 1964.
- THEODORE GREENER, *Lecturer in Education*  
B.M.E., Baldwin Wallace College; M.Ed., Kent State University; Ph.D., The University of Akron, 1972.
- MRS. CECILIA GROSS, *Lecturer in General Studies*  
M.A., The University of Akron, 1962.
- ROBERT L. GULIAN, *Lecturer in Art*  
B.A., M.A., The University of Akron, 1968.
- MRS. KANTA GUPTA, *Lecturer in History*  
B.A., Punjab University (India); M.A., University of Bombay (India); M.Ed., University of Birmingham; M.A., Ph.D., University of Michigan, 1970.
- KENNETH R. HADDAWAY, *Lecturer in Speech*  
B.A., North Central Bible College; M.A., The University of Akron, 1972.
- MRS. JACQUELYN HALEY, *Lecturer in Art*  
B.F.A., The University of Akron, 1971.
- EDWIN HANLON, JR. *Lecturer in Commerce*  
B.S., University of Pennsylvania, 1956.
- GERALD L. HANNUM, *Lecturer in Sociology*  
B.A., Syracuse University, M.A., Kent State University, 1971.
- PAUL HARBOK, *Lecturer in Mechanical Technology*  
B.S.Ed., Kent State University, 1951.
- ROBERT E. HARTZ, *Lecturer in Associate Studies*  
B.A., M.A.Ed., The University of Akron, 1947.
- DAVID HAWK, *Lecturer in Finance*  
B.S., Ohio State University; M.B.A., D.B.A., Kent State University, 1971.
- MRS. BARBARA HEINZERLING, *Lecturer in Home Economics*  
B.S., M.S., Ohio University, 1963.
- AGNES HELMS, *Lecturer in General Studies*  
B.A.Ed., The University of Akron, 1953.
- ROBERT M. HERCEG, *Lecturer in Speech and Theatre Arts*  
B.A., M.A., The University of Akron, 1971.

- JOHN C. HESS, *Lecturer in C&T College*  
B.A., Mount Union College; J. D., Ohio Northern University, 1939.
- ROBERT W. HIGHAM, *Lecturer in Law Enforcement Technology*  
B.A., Kent State University; J.D., The University of Akron, 1969.
- TIMOTHY HILLAEL, *Lecturer in Education*  
B.S., M.A., Ph.D., Case Western Reserve University, 1972.
- FREDERICK W. HIMMELEIN, *Lecturer in Commerce*  
B.S., M.B.A., University of Pennsylvania-Wharton, 1965.
- MRS. BARBARA HINEY, *Lecturer in General Studies*  
B.A., M.A., The University of Akron, 1963.
- JOHN B. HODGES, *Lecturer in Management*  
B.S., University of Michigan; M.S., The University of Akron, 1968.
- WILLIAM P. HOLDER, *Lecturer in Associate Studies*  
B.S., Kent State University; J.D., The University of Akron, 1966.
- MRS. STELLA HOLDING, *Lecturer in English*  
B.A., Kent State University, 1970.
- DONALD L. HOLUB, *Lecturer in Law Enforcement Technology*  
B.S., Iowa State University; M.S., The University of Akron, 1968.
- MICHAEL HOULIHAN, *Lecturer in Music*  
Studied with Miss Antonia Janflone; Mrs. Elizabeth Conway; Mr. Sophodes Papas and Mr. Andre Segovia.
- WILLIAM E. HOWARD, *Lecturer in Business and Office Technology*  
B.A., Ohio University, 1941.
- MRS. KATHRYN HUNTER, *Lecturer in Home Economics*  
B.S., Ohio Wesleyan University; M.S., The University of Akron, 1969.
- MRS. MIRIAM T. HUTCHINS, *Lecturer in Music*  
B.S., The University of Akron, 1964.
- THOMAS R. HYLDAHL, *Lecturer in Philosophy*  
B.A., Taylor University, M.Th., Princeton Theological University, 1962.
- RALPH F. IULA, *Lecturer in Journalism*  
B.S., Butler College, 1947.
- MRS. HELEN JACQUEZ, *Lecturer at Wayne General and Technical College*  
B.S., Salem, College; M.Ed., The University of Pittsburgh, 1956.
- MICHAEL J. JANOVIC, *Lecturer in Marketing*  
B.S., M.B.A., The University of Akron, 1969.
- FRANKLIN L. JENNINGS, *Lecturer at Wayne General and Technical College*  
B.A.Ed., M.B.A., The University of Akron, 1971.
- MRS. KATHLEEN JOCHIM, *Lecturer in Speech*  
University of North Dakota; The University of Akron.
- JOHN JOHNSON, *Lecturer at Wayne General and Technical College*  
B.A., Hiedelburg College; M.Ed., Kent State University, 1963.
- THEODORE W. JOHNSON, JR., *Lecturer in Music*  
B.M., DePaul University, 1953.
- WILLIAM KANNEL, *Lecturer in Sociology*  
B.S., J.D., The University of Akron, 1952.
- MRS. MARY J. KAUFMAN, *Lecturer in General Studies*  
B.A., The University of Akron, 1963.
- RHONDA C. KEITH, *Lecturer in English*  
B.A., The University of Akron, 1968.
- MRS. LOIS KELLEY, *Lecturer in Business and Office Technology*  
B.S., The University of Akron; M.S., Kent State University, 1962.
- AGEEL A. KHAN, *Lecturer in Management*  
B.S., A.M.U. (India); M.S., The Ohio State University; Ph.D., Case Western Reserve University, 1972.
- CATHERINE M. KOMOCKI, *Lecturer in Art*  
B.F.A., Cleveland Institute of Art, 1961.
- FELIX G. KRAUS, *Lecturer in Music*  
University of California, Curtis Institute of Music.
- MILTON KRENICHEN, *Lecturer in Education*  
B.S., M.S., The University of Akron, 1966.
- MRS. SYBIL KRIGER, *Lecturer in General Studies*  
B.A., The University of Akron, 1964.
- MRS. JUDITH H. KROPP, *Lecturer at Wayne General and Technical College*  
B.S.Ed., University of Wisconsin; M.S., University of Notre Dame, 1966.
- DALE E. KUKLA, *Lecturer in Instrumentation Technology*  
B.S.E.E., University of Dayton, M.S.E.E., The University of Akron, 1971.
- MRS. CHERYLL KUNOS, *Lecturer in English*  
B.S., M.A., Austin Peay State University, 1969.

- MRS. KAREN LAMONT, *Lecturer in Education*  
B.S.Ed., M.Ed., Kent State University, 1970.
- MRS. CORALIE LAUTENSCHLAGER, *Lecturer in Art*  
B.A., Baldwin Wallace College, 1954.
- FREDERICK LEIDAL, *Lecturer in Secretarial Science*  
B.A., The University of Akron, 1968.
- MRS. DIANE LEWIS, *Lecturer in Sociology*  
B.A., Cornell College; M.A., The University of Akron, 1964.
- DAVID LIEBERTH, *Lecturer in English*  
B.A., The University of Akron, M.S., Syracuse University, 1970.
- CLARENZ LIGHTFRITZ, *Special Instructor in Piano*  
Bowling Green State University; private instruction with Ernest White and Miss Rena Wills.
- MRS. ISABELLE LINDSLEY, *Lecturer in Secretarial Science*  
B.S., Muskingum College, 1952.
- BURTON LIPKIN, *Lecturer in Accounting*  
B.S., The University of Akron, 1953.
- SISTER CAROL LIPPS, *Lecturer in General Studies*  
B.S.F., Saint John College, 1957.
- PENELOPE MACCALLA, *Lecturer in Speech*  
B.A., Wayne State University, 1965.
- MRS. LINDA MACDONALD, *Lecturer in Music*  
B.S., B.S.Ed., The University of Akron, 1971.
- MICHAEL J. MAHANEY, *Lecturer in Law Enforcement Technology*  
B.S., B.B.A., Southeastern University, 1960.
- BENJAMIN MANDZUCH, *Lecturer at Wayne General and Technical College*  
A.A.S., New York City Community College; B.S.I.M., The University of Akron, 1966.
- DONALD L. McCOWN, *Lecturer in Secretarial Science*  
B.A., Mount Union College; M.E., Kent State University, 1963.
- MRS. VIRGINIA MCGUCKIN, *Lecturer in Speech Pathology and Audiology*  
B.A., M.A., The University of Akron, 1971.
- PHYLLIS MEKINA, *Lecturer in Associate Studies*  
B.S., Ohio University, 1969.
- JEANNE MENZA, *Lecturer in English*  
B.A., M.A., The University of Akron, 1972.
- MRS. CLAIRE S. MERRIX, *Lecturer in English*  
B.A., Wittenberg University, 1961.
- MRS. MARJARIE K. MILES, *Lecturer in Education*  
B.S., Case Western Reserve University; Cleveland Institute of Art, 1943.
- RALPH L. MILLER, *Lecturer in Physical Education*  
American Red Cross Aquatic School
- RAY MILLER, *Lecturer in Speech*  
B.F.A., Kent State University, 1971.
- MRS. TONI L. MILLER, *Lecturer in Developmental Programs*  
B.S.Ed., University of Florida, 1970.
- MRS. MARY MOLDSTAD, *Lecturer at Wayne General and Technical College*  
B.A., Hiram College, M.A.T., College of Wooster, 1970.
- REV. E. E. MORGAN, *Lecturer in Associate Studies*  
B.A., Dillard University; B.D., Livingston College; B.D., Oberlin College, 1948.
- RALPH MORRISON, *Lecturer in Music*  
B.S.Ed., The University of Akron, 1970.
- FRED E. MOSELEY, *Lecturer in Political Science*  
B.A., Phillips University; M.Th., Claremont School of Theology; M.A., The University of Akron, 1971.
- MRS. DOROTHY MOSES, *Lecturer in Biology*  
B.S., Bates College; M.A., Mount Holyoke College, 1959.
- MRS. LOUISE MOSES, *Lecturer in General Studies and in Associate Studies*  
B.S., Muskingum College, 1962.
- MARY MOSTENIC, *Lecturer in General Studies*  
B.A., B.E., M.A., The University of Akron, 1951.
- MRS. MARY MOYNIHAN, *Lecturer in Sociology*  
B.A., The University of Akron, 1970.
- MRS. PATRICIA MRAVETZ, *Lecturer in English*  
B.A., DePauw University, 1965.
- CHARLES MYERS, *Lecturer in Art*  
M.S.Ed., M.A., Kent State University, 1970.
- HERBERT NEWMAN, *Lecturer in Law*  
B.S., Ohio State University; J.D., The University of Akron, 1965.

- MRS. NANCY W. NOLTE, *Lecturer in History*  
B.A., The University of Akron, 1968.
- MRS. DORIS NORTON, *Lecturer in Music*  
M.S.Ed., University of Rochester, 1970.
- MRS. ANN NULL, *Lecturer in English*  
B.A., Louisiana College; M.A., Tulane University, 1963.
- MRS. JULI NUNLIST, *Lecturer in Music*  
B.A., Barnard College; B.M., M.M., Manhattan School of Music, 1964.
- MRS. RUTH NURMI, *Lecturer in Music*  
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- MRS. BETTY J. OBLISK, *Lecturer in Business and Office Technology*  
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- VERNON L. ODOM, *Lecturer in General Studies*  
B.A., Morehouse College; M.S.W., Atlanta University, 1950.
- EUGENE L. OESTREICHER, *Lecturer in Commerce*  
B.S., The University of Akron; LL.B., Case Western Reserve University, 1958.
- MARC OZANICH, *Lecturer in Speech and Theatre Arts*  
B.A., University of California; M.A., UCLA, 1968.
- JOSEPH E. PALMER, *Lecturer in Accounting*  
B.S., M.B.A., The University of Akron, 1968.
- MRS. MARY PAOLUCCI, *Lecturer in General Studies*  
B.A., The University of Akron, 1964.
- EDNA PARKER, *Lecturer in English*  
B.A., Journalism, The Ohio State University; B.A.Ed., The University of Akron; M.A., University of Alaska, 1971.
- JAMES S. PARSHALL, *Lecturer in Management*  
B.A., University of Wisconsin; M.B.A., Harvard Business School, 1939.
- JAMES R. PASCOVER, *Lecturer in English*  
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- MRS. MARJORIE PATCH, *Lecturer in Speech*  
B.S.Ed., M.Ed., Kent State University, 1970.
- JANET PAVKOV, *Lecturer in Home Economics*  
B.S., The University of Akron, 1972.
- ROBERT PERRY, *Lecturer in Music*
- MRS. BETTY PETERS, *Lecturer in Education*  
B.S.Ed., Kent State University; M.S.Ed., The University of Akron, 1967.
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- PHILIP E. PHILLIPS, *Lecturer at Wayne General and Technical College*  
B.S., M.B.A., University of Wisconsin, 1955.
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Eastman School of Music.
- MRS. PHYLLIS PIPITONE, *Lecturer in Home Economics*  
B.A., M.A., The University of Akron, 1968.
- DAVID M. PITTLE, *Lecturer in Associate Studies*  
B.A., Kokusai Kirisutokyo Daigaku (Japan); M.Div., San Francisco Theological Seminary, 1967.
- AL POCOCK, *Lecturer in Speech*  
B.S.Ed., Miami University, 1961.
- MRS. CAROL POLICY, *Lecturer in Speech*  
B.S., M.A., The University of Akron, 1972.
- HEINTZ POLL, *Lecturer in Music*  
Studied with Madame Elena Poliakova, first dancer with the Imperial Russian Ballet (Diaghilev)
- MRS. MADELEINE PRINGLE, *Lecturer in Modern Languages*  
B.A., The University of Akron, 1971.
- CHARLES D. QUERRY, *Lecturer in Education*  
B.S.Ed., M.S.Ed., The University of Akron, 1969.
- LARRY QUINN, *Lecturer in Secretarial Science*  
B.S., The University of Akron, 1967.
- JOHN RAUTENBERG, *Lecturer in Music*  
B.M.E., Oberlin Conservatory, 1958.
- DIANE REYMANN, *Lecturer in Secretarial Science*  
B.S., The University of Akron, 1966.
- S. BERTRAM ROBINSON, *Lecturer in Sociology*  
B.A., The University of Akron, 1967.
- JOHN H. RODGERS, *Lecturer in Accounting*  
B.S., Clemson University; M.B.A., Kent State University, 1968.

- PAUL RODGERS, *Lecturer in Music*  
B.A., University of Southern California; Pasadena Playhouse.
- HELEN E. ROSENBERG, *Lecturer in Developmental Programs*  
B.A., Muskingum College, 1964.
- IRENE RUEHLE, *Lecturer in Education*  
B.S., Bowling Green State University; M.A., University of Cincinnati, 1971.
- MRS. ELIZABETH RUNYAN, *Lecturer at Wayne General and Technical College*  
B.A., University of Chicago; M.A., Ph.D., Kent State University, 1970.
- MRS. PAMELA RUPERT, *Lecturer in Education*  
B.S., Kent State University, 1963.
- MRS. RITA S. SASLAW, *Lecturer in Education*  
B.S., M.A., Ph.D., Case Western Reserve University, 1971.
- JOSEPH SCHIAVONNE, *Special Instructor in Woodwinds*  
B.S.Ed., B.S.L.A., M.A., Kent State University; J.D., The University of Akron, 1969.
- STEVE G. SCHMIDT, *Lecturer in General Studies*  
B.S., Bowling Green; M.A., The University of Akron, 1972.
- ALBERT SCHMITTER, *Lecturer in Music*  
B.A., Oberlin College, 1938.
- SISTER EVELYN SCHNEIDER, *Lecturer in Educational Technology*  
B.S.E., St. Johns; M.S.L.S., Case Western Reserve University, 1969.
- JOHN SCHNUR, *Lecturer in Speech*  
B.A., The University of Akron, 1970.
- MRS. WILLEANE V. SCHROCK, *Lecturer in Nursing*  
B.S.N., Goshen College; M.S.N., Case Western Reserve University, 1962, R.N.
- JANICE SERENE, *Lecturer in Speech and in General Studies*  
B.S., California State College; M.A., West Virginia University, 1969.
- MRS. DONNA SEXTON, *Lecturer in Speech and Theatre Arts*  
B.A., Central Michigan University, 1961.
- RONALD G. SHIMKO, *Lecturer in Wayne General and Technical College*  
B.S.B.A., Youngstown University, 1960.
- EDWARD SHOTTS, *Lecturer in Chemical Technology*
- MRS. KAREN SINCLAIR, *Lecturer in History*  
B.A., Wellesley College; M.A., The University of Akron, 1969.
- TERRELL W. SISSON, *Lecturer in the Community and Technical College*  
B.A., The University of Akron, 1971.
- MRS. DOROTHY SMILEY, *Lecturer in Home Economics*  
B.S.Ed., Muskingum College, 1941.
- LULA SMITH, *Lecturer in General Studies*  
B.A., M.A., The University of Akron, 1926.
- RONALD SNIDER, *Lecturer in General Studies*  
B.A., M.A., The University of Akron, 1954.
- MRS. HELEN SOPKO, *Lecturer at Wayne General and Technical College*  
B.S.Ed., The University of Akron, 1970.
- RENEE SORDIAN, *Lecturer in Home Economics*  
B.S., The University of Akron; M.A., The Ohio State University.
- BETTY SPENCER, *Lecturer in General Studies*  
B.A., The University of Akron, 1965.
- MRS. ALEXANDRA SPENGLER, *Lecturer in History*  
B.A., American University of Cairo; M.A., Kent State University, 1972.
- JEROME STANOCH, *Lecturer in Accounting*  
B.S., John Carroll University; M.S., The University of Akron, 1969.
- MRS. SHARON STOUTAMIRE, *Lecturer in Home Economics*  
B.F.A., M.A.T., Wayne State University, 1964.
- HELENA F. STURKEY, *Lecturer in Speech and Theatre Arts*  
B.A., The University of Akron, 1964.
- MRS. JUDITH STURM, *Lecturer in Developmental Programs*  
B.S., The University of Akron M.S., 1972.
- LARRY R. SUMMERS, *Lecturer in Geography*  
B.S., M.A., Kent State University; M.C.P., The Ohio State University, 1963.
- BENJAMIN SURBLIS, *Lecturer in General Studies*  
B.S., M.S., The University of Akron, 1971.
- MRS. GAIL SWEENEY, *Lecturer in General Studies*  
B.A., Reed College; M.A., University of Wisconsin, 1967.
- DOREEN SWENSEN, *Lecturer in General Studies*  
B.S., M.A., Kent State University, 1972.
- MRS. HELEN SWINDLER, *Lecturer in General Studies*  
B.A., The University of Akron, 1965.

- CARL E. SWOPE, *Lecturer in General Studies*  
B.A., Kent State University; M.A., Case Western Reserve University, 1969.
- MRS. CAROLEE TAIPALE, *Lecturer in Modern Languages*  
M.A., The University of Akron
- JOSEPH A. TAKACS, *Lecturer in Engineering Technology*  
B.S.E.E., M.S.E.E., The University of Akron, 1961.
- EDWIN THALL, *Lecturer at Wayne General and Technical College*  
B.S., Pratt Institute; M.S., New Mexico Institute of Mining and Technology; Ph.D., The University of Akron, 1972.
- FRANKLIN M. THERIAULT, *Lecturer in Electronic Technology*  
B.S., Mount Union College, 1965.
- PHILLIP E. THOMAS, *Lecturer in Secretarial Science*  
B.S., Ohio State University; M.S., Kent State University, 1971.
- MRS. AVIS THRASH, *Lecturer in Music*  
B.M., Westmar College; M.M., The University of Akron, 1972.
- JOHN TILLET, *Lecturer in General Studies*  
B.A., The University of Akron, 1968.
- BRADLEY TROXEL, *Lecturer in Economics*  
B.S., M.B.A., Indiana University, 1970.
- TOM TROXEL, *Lecturer in General Studies*  
B.A., The University of Akron, 1960.
- WALTER TROYER, *Lecturer in Sociology*  
B.A., Goshen College; M.S.W., Indiana University, 1968.
- MRS. GENEVIEVE TURLIK, *Lecturer in the Community and Technical College*  
R.N., Akron City Hospital; B.A., The University of Akron, 1953.
- WILLIAM VAILL, *Lecturer in Business and Office Technology*  
B.A., Case Western Reserve University, 1965.
- MRS. MARTHA VYE, *Lecturer in the Community and Technical College*  
B.S., Appalachian State Teachers College; M.Ed., Bowling Green State University, 1965.
- MRS. ELIZABETH M. WALSH, *Lecturer in General Studies*  
B.A., Fairleigh Dickenson University; M.A., New York University, 1962.
- W. JAMES WARBURTON, *Lecturer in Electronic Technology*  
B.A., Hiram College; D.D.S., Case Western Reserve University, 1948.
- GEORGE J. WEINROTH, *Lecturer in Philosophy*  
M.A., Brandeis University, 1964.
- MRS. GOLDIE WHITE, *Lecturer in Home Economics*  
B.S., Ohio University; M.A., Kent State University, 1972.
- MRS. ILSE WHITE, *Lecturer in German*  
B.A.Ed., The University of Akron, 1967.
- DAVID E. WHITMIRE, *Lecturer in Law Enforcement Technology*  
A.A., The University of Akron, 1971.
- JEFFREY S. WILKOF, *Lecturer in Speech*  
B.S., Ohio University, 1969.
- MRS. JEAN WILLIAMS, *Lecturer in Home Economics*  
B.S., Iowa State University, 1945.
- KATHRYN WILLIAMS, *Lecturer in English*  
B.A., The University of Akron, 1970.
- IRVIN WILSON, *Lecturer in Education*  
B.A., Marshall University; M.A.T., Purdue University, 1964.
- JAMES WILSON, *Lecturer in English*  
B.S., The Ohio State University, 1966.
- JAMES WORTHAM, *Lecturer at Wayne General and Technical College*  
B.A., The University of Akron, 1957.
- MRS. MAUREEN YUKL, *Lecturer in General Studies*  
B.A., Hunter College; M.A., University of Michigan, 1965.
- MRS. MONIQUE ZAVINSKI, *Lecturer in Modern Languages*  
B.A., Universite de Poitiers; M.A., Kent State University, 1971.
- ROBERT S. ZEH, *Lecturer in Psychology*  
B.A., The University of Akron, 1970.
- MARTIN ZIELINSKI, JR., *Lecturer in Music*  
B.M.Ed., Baldwin-Wallace College, 1956.
- CHARLES E. ZIMMERMAN, *Lecturer in Sales and Merchandising*  
B.S., Defiance College; M.B.A., The Wharton School, 1968.

# Full-Time Teaching Faculty by College, School and Department and the University Library

## General College

### GENERAL STUDIES

*Head:* Professor David C. Riede; *Course Directors:* John Bee, Jim L. Jackson, David Jamison, Robert C. McNeil, Robert J. Mravetz, Sarah Orlinoff, Douglas V. Shaw, Sally Slocum.

## Community and Technical College

### DIVISION OF ALLIED HEALTH TECHNOLOGY

*Chairman:* Professor Roger Keller.

### DIVISION OF ENGINEERING AND SCIENCE TECHNOLOGY

*Chairman:* Professor Michael Bezbatchenko; *Professor:* William M. Petry; *Associate Professors:* Nathan Cardarelli, Milan Dubravcic, William M. Glazier, Sebastian Kanakanatt, Robert C. Weyrick; *Assistant Professors:* Ronnie G. Adams, Marko Brdar, Paul H. Dunham, Harold L. Edwards, Richard L. Henry, Thomas P. Herbert, Fred L. Mullen, David J. Robinson, Milton A. Wales; *Instructors:* John Arendt, Mrs. Barbara Gsellman, Edward E. McDonald, Mrs. Minnie Pritchard, Melvin C. Vye, Neal E. Wolfe.

### DIVISION OF ASSOCIATE STUDIES

*Chairman:* Professor Blin B. Scatterday; *Associate Professor:* William S. Fleming; *Assistant Professors:* Eugene M. Benedict, Richard M. Fawcett, Frank J. Gruccio, Jr., Richard B. Hoskin, Lowell Hoyt, Wendell A. Johnson, Joseph Lentini, Kenneth L. J. McCormick, Jack F. Mercer, John B. Monroe, Arthur R. Pollock, Jr., Charles T. Salem, Jane M. Steiner,

James D. Switzer, William V. Webb, Mrs. Edith K. Weinstein; *Instructors:* Mrs. Anna P. Barnum, Stanley R. Bruns, Richard V. Calkins, Stephen J. Chylinski, Mrs. Marion R. Heise, Mrs. Harriet K. Herskowitz, Mrs. Jacqueline Hill, Timothy C. Jochim, Mrs. Rose A. Kleidon, Joseph C. Mullin, Michael T. Oravec, Jon R. Peske, Mrs. Julia Rankin, Glenn H. Snyder, Frederick J. Sturm.

### DIVISION OF BUSINESS AND OFFICE TECHNOLOGY

*Chairman:* Associate Professor George J. Makar; *Professor:* Aloysius E. Misko; *Associate Professors:* Clare Bedillion, Robert E. Collins; *Assistant Professors:* Gerald R. Camp, Donald M. Davis, David T. Dolan, Lawrence Golden, Jack D. Harpool, Jack D. Huggins, Mary Jean Johnston, John C. Pizor, Mrs. Linda Rodda, Max M. Rule, James W. Taggart, Mrs. Bonnie Thomas-Moore, Mrs. Virginia Watkins, Mrs. Anne H. West, Mrs. Mary Witwer; *Instructors:* James D. Bell, Russell K. Davis, Mary H. K. Dee, James W. Nolte, Alice E. Nuttall, Martin H. Siegel, Jack E. Thompson, Mrs. Martha Vye, Donald A. Zimmerman.

## Buchtel College of Arts and Sciences

### BIOLOGY

*Head:* Professor Dale L. Jackson; *Professors:* Roger F. Keller, Nada Ledinko, Lazarus Macior; *Associate Professors:* Eugene Flaumenhaft, Richard F. Nokes, Dorothy Nunn, John H. Olive, Walter Sheppe, Warren P. Stoutamire; *Assistant Professors:* Helmar H. E. Dollwet, John L. Frola, John F. Gwinn, Richard Mostardi, F. Scott Orcutt, Jr., Barry L. Richardson, Lloyd J. Watson; *Adjunct Professors of Anatomy:* Douglas Evans (M.D.), C. William Loughry (M.D.), Bruce Rothmann (M.D.).

### CHEMISTRY

*Head:* Professor John H. Bachmann; *Professors:* Gerald Corsaro, Michael Farona, Paul D. Garn, H. James Harwood, Joseph P. Kennedy, Ian R. MacGregor, Donald McIntyre, Maurice Morton, Howard L. Stephens, Thomas Sumner; *Associate Professors:* Stephen Darling, Lewis Fetters, John E. Frederick, William G. Kofron, Alan F. Krivis, Eugene Riebling; *Assistant Professors:* John J. Houser, Gerald F. Koser, Henry A. Kuska, William D. Lyon.

### CLASSICS

*Head:* Distinguished Professor Theodore T. Duke; *Assistant*

*Professors,* Robert E. Gaebel, Robert C. McNeil; *Instructor:* Mrs. Jacqueline Hegbar.

### ECONOMICS

*Head Pro Tem:* Associate Professor Ali Fatemi; *Professor:* William S. Hendon; *Associate Professors:* Robert R. Black, James McLain, Efthimios Pournarakis; *Assistant Professors:* Lascelles F. Anderson, Mrs. Elizabeth Erickson, Kenneth C. Fraundorf; *Instructor:* P. R. Mathur.

### ENGLISH

*Head:* Professor Frank T. Phipps; *Professors:* Gerald H. Levin, Robert E. Thackaberry; *Associate Professors:* Robert L. Dial, Dale Doepke, David L. Jones, R. Paul Merrix, John S. Phillipson, William J. Stevens; *Assistant Professors:* Harold C. Brown, Mrs. Mary DeHaven, James J. Egan, Leonard Fleischer, Bruce Holland, Mrs. Julia Hull, Walter D. Lehrman, Mrs. D'Orsay Pearson, D. Nicholas Ranson, James C. Sheehan, Mrs. Sally Slocum, Stephen Spangehl, Gerard M. Sweeney, Mrs. Martha Szep, Mrs. Cathryn Taliaferro, Mrs. Helen S. Thackaberry; *Instructors:* Mrs. Jutta T. Bendremer, William A. C. Francis, Elton A. Glaser, Mrs. Marlene Hathaway, Martha Hosfelt, Mrs. Alice MacDonald, Mrs. Ruth Messener, Mrs. Arlene Toth.

**GEOGRAPHY**

*Head:* Professor Allen G. Noble; *Professors:* Ashok Dutt, Edward W. Hanten; *Associate Professors:* Albert J. Korsok, Grace Powell, Gerald F. Pyle; *Assistant Professors:* Lathardus Goggins, Vern R. Harnapp, Laurence J. C. Ma, John E. Mulhauser, Thomas Nash.

**GEOLOGY**

*Head:* Professor Arthur E. Burford; *Professor:* Paul S. Wingard; *Associate Professors:* Robert C. Corbett, Paul C. Franks, James W. Teeter; *Assistant Professors:* Roger Bain, Richard G. Geyer, Jim L. Jackson.

**HISTORY**

*Head:* Professor Robert H. Jones; *Professors:* Vincent H. Cassidy, Don R. Gerlach, George W. Knepper, Warren F. Kuehl, Noel L. Leathers, Sheldon B. Liss, James F. Richardson, David C. Riede; *Associate Professors:* Boris Blick, William McGucken, Jerome Mushkat, Daniel Nelson, Howard S. Reinmuth, Jr., Robert L. Zangrando; *Assistant Professors:* J. Wayne Baker, Mrs. June Burton, Mrs. Barbara E. Clements, H. Roger Grant, David E. Kyvig, Earl J. Motz, Douglas V. Shaw.

**MATHEMATICS AND STATISTICS**

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**MODERN LANGUAGES**

*Head:* Professor Arno K. Lepke; *Professors:* Claude Y. Meade, Theodore Mackiw, Herbert W. Smith, Jr.; *Associate Professors:* Hugo Lijeron, Eugene A. Maio, Allan McIntyre, Russell Weingartner; *Assistant Professors:* Jolita Kavaliunas, William I. Miller, Phillip W. Stuyvesant, Mrs. Janet Waisbrot, Hans O. Zbinden; *Instructors:* Joseph J. Donatelli, Stephen A. Faria, Mrs. Janice Houser, Mrs. Sys Inman, Mrs. Kriemhilde Livingston, Helen Ryan, Mrs. Susan Schunk.

**PHILOSOPHY**

*Head:* Professor Paul Uhlinger; *Associate Professors:* Alan Hart, David F. Cox; *Assistant Professors:* James H. Buchanan, William McMahon, R. Douglas Paige.

**PHYSICS**

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**POLITICAL SCIENCE**

*Head:* Professor Paul A. Weidner; *Professors:* Yong H. Cho, Yogendra K. Malik; *Associate Professor:* Frank J. Kenrick; *Assistant Professors:* Vernon F. Cook, Katherine Hinckley, Carl Lieberman, David J. Louscher, Jesse F. Marquette; *Instructor:* Richard Franklin.

**POLYMER SCIENCE**

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**PSYCHOLOGY**

*Head:* Professor Gerald V. Barrett; *Professors:* Alexis M. Anikeeff, John A. Popplestone, Edwin E. Wagner; *Associate Professors:* Alex Darbes, Richard H. Haude, Marion W. McPherson, Henry Rosenquist; *Assistant Professors:* Ralph Alexander, Robert Deitchman, Stephen S. Fugita, Mrs. Jo Ann R. Sanders, Raymond Sanders, Harvey L. Sterns, Kenneth N. Wexley; *Instructor:* Mrs. Faye Dambrot; *Adjunct Professor:* James R. Hodge (M.D.).

**SOCIOLOGY**

*Head:* Professor Robert M. Terry; *Professors:* Charles M. Barresi, Edwin L. Lively; *Associate Professors:* Carl A. Bersani, Lloyd B. Lueptow, S. A. Mueller, M. Poloma, John H. Ramey, Robert G. Schmidt; *Assistant Professors:* Leslie Carr, Bernard J. Clifford, T. Neal Garland, Richard J. Gigliotti, James R. Gillham, Brian D. Kayser, John P. Marwitt, McKee J. McClendon, Donald J. Metzger, David J. O'Brien, J. Gregory Williams.

**URBAN STUDIES**

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## ***College of Engineering***

**CHEMICAL ENGINEERING**

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**CIVIL ENGINEERING**

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Chang, Joseph F. Lestingi, George P. Manos, David H. Timmerman; *Assistant Professor:* Simsek Sarikelle.

**ELECTRICAL ENGINEERING**

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Williams; *Assistant Professors*: Chun-Fu Chen, Chaman N. Kashkari, Fred R. Leffler, John T. Welch, Jr., Robert K. Winn.

#### MECHANICAL ENGINEERING

*Head*: Professor Rudolph Scabuzzo; *Professors*: Michael

Bezbatchenko, Thomas M. Brittain, Eberhard A. Meinecke; *Associate Professors*: Donald R. Burrowbridge, Mamerto L. Chu, Jr., Richard J. Gross, Lindon C. Thomas; *Assistant Professors*: Benjamin T. F. Chung, Philip M. Gerhard, Azmi Kaya, Joseph Padovan.

## College of Education

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#### EDUCATIONAL ADMINISTRATION

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#### EDUCATIONAL FOUNDATIONS

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#### ELEMENTARY EDUCATION

*Head*: Professor Robert E. Ferguson; *Professor*: Maurice G. Williams; *Associate Professors*: Walter E. Arms, Caesar A. Carrino, Loren Hoch, LaVerne J. Meconi, Mrs. Joan C.

Seifert, Ramon F. Steinen; *Assistant Professors*: Mrs. Mary Ellen Atwood, Mrs. Gertrude Badger, David G. Barr, Angela R. Bruno, Hugh G. Christman, Mrs. Blanche Clegg, Bernard L. Esporite, Martha C. Leyden, Regis Q. McKnight, Thomas Miles, Judith A. Noble, Harold W. Seaton, Mrs. Barbara Stoodt; *Instructors*: June Lombardini, Robert M. Parsons (Visiting), Robert Sovchik, Mrs. Norma Spencer, Joe S. Webb, III (Visiting), John W. Wilson.

#### PHYSICAL EDUCATION

*Head*: Associate Professor Gordon Larson; *Associate Professor*: Andrew Maluke; *Assistant Professors*: J. Thomas Adloph, James L. Dennison, Robert N. Gandee, Mrs. Judith Maffett, Robert J. Mravetz, Wyatt M. Webb; *Instructors*: Alexander L. Adams, T. Allen Campbell, Thomas M. Flaherty, Jr., Richard B. Lowry, Mrs. Mary MacCracken, Fred M. Meyer, Wallace B. Neel, Mrs. Patricia Taylor, Mary Ann Tripodi; *Lecturer*: Jack Beidleman.

#### SECONDARY EDUCATION

*Acting Head*: Associate Professor Larry G. Bradley; *Associate Professors*: Mrs. Joy S. Linbeck, Oliver Ocasek, Marion A. Ruebel; *Assistant Professors*: Vincent J. Biondo, Madeline Cooke, Bill J. Frye, Cecil W. Hembree, John J. Hirschbuhl, Mrs. Lillian King, Mrs. Bella G. Reddick, Michael Sugarman, Stephen J. Thompson, Walter H. Yoder.

## College of Business Administration

#### ACCOUNTING

*Head*: Professor Dennis Gordon; *Professors*: Irving K. Christiansen, Orville R. Keister, Jr., Richard S. Roberts; *Associate Professors*: Hobart W. Adams, Frances A. Clark, Arthur D. Karlin, Arjan T. Sadhwani; *Assistant Professors*: Donald K. Berquist, James L. Cress, Alvin H. Lieberman, Charles K. Moore, Jr., David L. Nichols, Mrs. Linda Sugarman; *Instructors*: Allen M. Cabral, James R. Emore.

#### FINANCE

*Acting Head*: Associate Professor Michael P. Litka; *Professors*: A. Frederic Banda, Cleveland A. Christophe, James W. Dunlap, Frederick W. Moyer, Charles F. Poston; *Associate Professors*: Thomas J. Coyne, Louis F. Hampel, George W. Trivoli, John D. Williams; *Assistant Professors*: Mrs. Martha Cattell, David R. Durst, James E. Inman, Robert J. Shedlarz.

#### MANAGEMENT

*Head*: Professor Frank L. Simonetti; *Professors*: N. F. Davis, Bernard A. Deitzer, Howard L. Taylor; *Associate Professors*: Theodore T. Herbert, Joseph C. Latona, Richard C. Lutz, Jonathon S. Rakich, Karl A. Shilliff; *Assistant Professors*: Donald E. Becker, Kenneth A. Dunning, Keith A. Klafehn, Alan G. Krigline, Gary E. Meek, E. Lee Wilson.

#### MARKETING

*Acting Head*: Professor Frank V. Baldo; *Professors*: Stephen S. Castle, Jack R. Dauner; *Assistant Professors*: Michael F. d'Amico, Donald M. Jackson; *Instructors*: Kenneth E. Mast, George E. Prough.

## **College of Fine and Applied Arts**

### **ART**

*Head:* Professor Benoyd S. Bayless, Jr.; *Associate Professors:* Irving A. Achorn, Larry D. Calhoun, William A. Neumann, Ronald D. Taylor; *Assistant Professors:* Bruce R. Armstrong, Earl L. Ertman, Neil P. Frankenhauser, Mrs. Charlotte Hanten, Lorena Holshoy, Dennis Kleidon, James Lenavitt, Dennis Meyer; *Instructors:* Jon Adams, Christopher P. Meyer, Michael Tyner, Thomas D. Webb.

### **HOME ECONOMICS**

*Head:* Professor Joyce Sullivan; *Associate Professors:* Mrs. Barbara Armstrong, Dorothy Laubacher, Mrs. Virginia Tappenden; *Assistant Professors:* Mrs. Doris Aldrich, Mrs. Mary Ellen Atwood, Mrs. Tomasita Chandler; *Instructors:* Mrs. Barbara Heinzerling, Mrs. Kathryn Koch, Mrs. Jean Williams.

### **MUSIC**

*Head:* Professor John A. MacDonald; *Adjunct Professor:* Louis Lane; *Professor:* Farley K. Hutchins; *Associate Professors:* Mrs. Alice Flaksman, Richard Jackoboice. Mrs.

Marian Lott, Eugene R. Mancini, Wallace Nolin, Henry P. Smith; *Assistant Professors:* Donald Allcorn, David S. Bernstein, Paul M. Biss, Frank Bradshaw, John W. Coe, Mrs. Barbara MacGregor, Rodney Miller, Paul D. Rohrbaugh, Richard N. Shirey, Samuel Spinak, Sherman Vander Ark.

### **SPEECH AND THEATRE ARTS**

*Head:* Professor James F. Dunlap; *Professors:* James V. Fee, Ray H. Sandefur; *Associate Professors:* Mrs. Phyllis Hardenstein, Ruth Lewis, Howard K. Slaughter, William B. Steis, Wallace S. Sterling; *Assistant Professors:* John D. Bee, Paul Daum, Jack Horner, David L. Jamison, Marc Ozanich, Lawrence Sexton, L. Joel Swabb, Jr.

### **SPEECH PATHOLOGY AND AUDIOLOGY**

*Head:* Professor Elizabeth Hittle; *Adjunct Professor:* Morris Kalmon (M.D.); *Associate Professors:* Evelyn Baer, Mrs. Elaine Lasky; *Assistant Professors:* Mrs. Patsy Blackwell, Mary Capotosto, Mrs. Charlotte Essner, Kenneth T. Siloac; *Instructors:* Mrs. Anitra Barkley, Julia Droder, Timothy R. Griffith, Mrs. Karen Turner.

## **College of Nursing**

*Dean:* Professor Estelle B. Naes; *Professor:* Evelyn M. Tovey; *Associate Professors:* Mrs. Marian Bauer, Dorese L. Dilley, Dorothy M. Dobrindt, Mrs. Patricia P. Godfrey, Edna P. Grist, Kathryn Homeier; *Assistant Professors:* Barbara S. Anandam, Mrs. Perry J. Bomar, C. Edward Gibney, Joanne

Marchione; *Instructors:* Mrs. Cheryl Byrnes, Jean Haspesslagh, Lenore Kline, Marianne Lipps, Marty L. Mitchell, Pamela Moore, Mrs. Judith Stampfle, Alfred M. Towner, Mrs. Nancy Vogel, Mrs. Edith Young.

## **School of Law**

*Dean:* Professor Stanley A. Samad; *Professors:* John P. Finan, James G. France, Marvin M. Moore; *Associate Professors:* Hollis Allan, Merlin G. Briner, Earl M. Curry, Jr., Hamilton DeSaussure, Bertram C. Gire, Richard L.

Grant, Donald M. Jenkins, Albert S. Rakas; *Assistant Professors:* Ronald E. Alexander, William A. Bachmann, Charles P. Rose, Jr.; *Lecturer:* Mrs. Dana Castle.

## **Wayne General and Technical College**

*Director:* John G. Hedrick; *Assistant Director:* Martin Kemp; *Director of Student Services:* James E. Wagner; *Assistant Professors:* Mrs. Robin D. Arnold, Scott D. Hagen, Mrs. Stella M. McCleary, Warner Mendenhall, James L. With-

erow; *Instructors:* Donald E. Baker, David S. Harris, Elmore J. Houston, Carl L. Huston, Mrs. Armolene J. Maxey, Robert L. McElwee, Tony Misko, Jr., Mrs. Beverly Murgage, Mrs. Ellen Sue Politella.

## **University Library**

*University Librarian:* H. P. Schrank, Jr.; *Assistant Professors:* Ruth Clinefelter, Pauline Franks, Mary Grace Harrington, Nancy A. Knight, Helen Livingston, Beatrice Montgomery, Judith Mowery, Lois Myers, Anna M. Voorhees; *Instructors:*

Virginia Allanson, William S. Cramer, Constantin Dimitriu, Julie Gammon, Miriam Joliat, John V. Miller, Jr., Beverly Scherba.

## **Reserve Officers' Training Corps**

Charles V. Blair, *Assistant to the President-Campus*  
Civilian Coordinator  
April, 1974

### ARMY

- THOMAS N. BRITTON, JR., *Professor of Military Science* (August 1972)  
B.S., University of Alabama; M.S., University of Southern California, 1971; Graduate of U.S. Army Command and General Staff College, Colonel, Infantry.
- GARY P. CONKLIN, *Assistant Professor of Military Science*, (September 1973)  
B.S., University of Oregon, 1965. Captain, Infantry.
- NORMAN M. DENT, *Assistant Professor of Military Science* (August 1970)  
B.A., Kent State University, 1965. Captain, Infantry.
- NORMAN R. POOLE, *Assistant Professor of Military Science*, (August 1972)  
B.S., Ohio State University, 1967. Captain, Field Artillery.
- ROBERT VAN STEENBURG III, *Assistant Professor of Military Science* (March 1969)  
B.S., B.A., University of Florida, 1963. Captain, Signal Corps.
- JUNIOR L. JENKINS, *Administrative Sergeant Major* (June 1973)  
Sergeant Major.
- LONNIE JOHNSON, *Operations NCO* (August 1973)  
Sergeant First Class.
- EDWARD J. BECKER, *Administrative NCO* (March 1974)  
Staff Sergeant.
- TONY C. WALLIS, *Supply Sergeant* (June 1972)  
Staff Sergeant.

### AIR FORCE

- EDWARD P. MAZAK, *Professor of Aerospace Studies* (July 1974)  
B.S., University of Akron, 1951; M.S.A.E., Air Force Institute of Technology, 1960; M.B.A., The George Washington University, 1963, Colonel, USAF.
- ROBERT M. GARLOW, *Assistant Professor of Aerospace Studies* (July 1974)  
B.A., Slippery Rock State College, 1957; M.B.A., Southern Illinois University, 1974, Major, USAF.
- HOWARD E. LEIDY, *Assistant Professor of Aerospace Studies* (January 1972)  
B.B.A., Kent State University, 1970; M.B.A., University of Dayton, 1971, Major, USAF.
- CLAUDE E. BRANSCOME, *Assistant Professor of Aerospace Studies* (July 1973)  
B.S., Morris Harvey College, 1965; M.Ed., Kent State University, 1969, Captain, USAF.
- JOHN G. WHITCOMB, *Admissions Counselor*, (June 1973)  
B.S., Ohio State University, 1967; M.Ed., University of Illinois, 1971, Captain, USAF.
- JOHN R. FERRY, *Detachment Sergeant Major* (June 1973)  
Technical Sergeant, USAF.
- ROBERT P. HAWES, *Administrative Specialist* (November 1972)  
Technical Sergeant, USAF.
- PAUL D. ADAMS, *Administrative Specialist* (November 1972)  
Staff Sergeant, USAF.

## **Institute of Polymer Science**

April, 1974

- MAURICE MORTON, *Director of the Institute of Polymer Science and Professor of Polymer Chemistry* (October 1848)  
B.S., Ph.D., McGill University, 1945.
- ALAN N. GENT, *Assistant Director of the Institute of Polymer Science and Professor of Polymer Physics* (April 1961)  
B.S., Ph.D., University of London, 1955.
- LEWIS J. FETTERS, *Research Associate, Associate Professor of Polymer Science and Associate Professor of Chemistry* (1971)  
B.A., College of Wooster; Ph.D., The University of Akron, 1962.
- JOHN E. FREDERICK, *Research Associate, Associate Professor of Polymer Science and Associate Professor of Chemistry* (1966)  
B.S., Glenville State College; Ph.D., University of Wisconsin, 1964.
- H. JAMES HARWOOD, *Research Associate, Professor of Polymer Science and Professor of Chemistry* (October 1959)  
B.S., The University of Akron; Ph.D., Yale University, 1956.
- JOSEPH P. KENNEDY, *Research Associate, Professor of Polymer Science and Professor of Chemistry* (1970)  
B.Sc., University of Budapest; Ph.D., University of Vienna; M.B.A., General Business, Rutgers University, 1961.
- DONALD MCINTYRE, *Research Associate, Professor of Polymer Science and Professor of Chemistry* (1966)
- EBERHARD A. MEINECKE, *Research Associate, Professor of Polymer Science and Professor of Mechanical Engineering* (October 1963)  
D. Eng., Institute of Technology (Braunschweig, Germany), 1960.
- MRS. IRJA PIIRMA, *Research Associate and Assistant Professor of Polymer Science* (December 1952)  
Diploma in Chemistry, Technische Hochschule of Darmstadt; M.S., Ph.D., The University of Akron, 1960.

EUGENE F. RIEBLING, *Research Associate, Associate Professor of Polymer Science and Associate Professor of Chemistry* (1969)

B.Sc., Rutgers University; M.Sc., University of New Hampshire; Ph.D., Rutgers University, 1961.

HOWARD L. STEPHENS, *Executive Officer, and Manager of Applied Research, Institute of Polymer Science, Professor of Polymer Science and Professor of Chemistry* (1950)

B.S., M.S., Ph.D., The University of Akron, 1960.

CHARLES W. WILSON, III, *Research Associate, Professor of Physics and Professor of Polymer Science* (1965)

B.S.E., M.S., University of Michigan; Ph.D., Washington University, 1952.

### ***Presidents of Buchtel College***

*S. H. McCollester, D.D., Litt.D. ....	1872-1878
*E. L. Rexford, D.D. ....	1878-1880
*Orello Cone, D.D. ....	1880-1896
*Charles M. Knight, D.Sc. (ad interim) ....	1896-1897
*Ira A. Priest, D.D. ....	1897-1901
*A. B. Church, D.D., LL.D. ....	1901-1912
*Parke R. Kolbe, Ph.D., LL.D. ....	1913-1914

### ***Presidents of The University of Akron***

*Parke R. Kolbe, Ph.D., LL.D. ....	1914-1925
*George F. Zook, Ph.D., LL.D. ....	1925-1933
*Hezzleton E. Simmons, M.S., D.Sc., LL.D. ....	1933-1951
Norman P. Auburn, B.A., D.Sc., Litt.D., L.H.D., LL.D. ....	1951-1971
D. J. Guzzetta, Ed.D., LL.D., D.S.Sc., L.H.D. ....	1971-

### ***Deans of the Colleges of The University of Akron***

#### THE BUCHTEL COLLEGE OF ARTS AND SCIENCES

*Albert I. Spanton, M.A., Litt.D. ....	1913-1938
Charles Bulger, Ph.D., Litt.D. ....	1938-1948
Ernest H. Cherrington, Jr., Ph.D. ....	1948-1960
Thomas Sumner, Ph.D. ....	1960-1962
George Knepper, Ph.D. ....	1962-1967
Don A. Keister, Ph.D. ....	1967-1969
John Bachmann, Ph.D. (acting) ....	1969-1970
Robert A. Oetjen, Ph.D. ....	1970-

#### THE COLLEGE OF ENGINEERING

*Frederic E. Ayer, C.E., D.Eng. ....	1914-1946
R. D. Landon, C.E., M.S. ....	1946-1963
W. M. Petry, M.S.M.E. (acting) ....	1963-1964
Michael J. Rzasa, Ph.D. ....	1964-1970
Coleman J. Major, Ph.D. ....	1970-

#### THE COLLEGE OF EDUCATION

*W. J. Bankes, M.A. ....	1921-1931
*Albert I. Spanton, M.A., Litt.D. (acting) ....	1931-1933
*Howard R. Evans, Ph.D. ....	1933-1942
Hjalmer W. Distad, Ph.D. (acting) ....	1942-1944
*Howard R. Evans, Ph.D. ....	1944-1958
D. J. Guzzetta, Ed.D., LL.D., D.S.Sc., L.H.D. (acting) ....	1958-1959
Chester T. McNerney, Ph.D., LL.D. ....	1959-1966
H. Kenneth Barker, Ph.D. ....	1966-

\*Deceased

THE COLLEGE OF BUSINESS ADMINISTRATION

Warren W. Leigh, Ph.D. ....	1953-1962
Richard C. Reidenbach, Ph.D. ....	1962-1967
Arthur K. Brintnall, Ph.D. (acting) .....	1967-1968
*Wilbur Earle Benson, Ph.D. ....	1968-1970
James W. Dunlap, Ph.D. ....	1970-

THE SCHOOL OF LAW

Stanley A. Samad, J.S.D. ....	1959-
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THE GRADUATE SCHOOL

Charles Bulger, Ph.D., Litt.D. (Dean of Graduate Work) .....	1933-1951
Ernest H. Cherrington, Jr., Ph.D., (Director of Graduate Studies) .....	1955-1960
Ernest H. Cherrington, Jr., Ph.D., (Dean of the Division) .....	1960-1967
Arthur K. Brintall, Ph.D. (Dean of Graduate Studies and Research) .....	1967-1968
Edwin L. Lively, Ph.D. (Dean of Graduate Studies and Research) .....	1968-

THE GENERAL COLLEGE

D. J. Guzzetta, Ed.D., LL.D., D.S.Sc., L.H.D. ....	1959-1962
Thomas Sumner, Ph.D. ....	1968-1974

THE EVENING COLLEGE

L. L. Holmes, M.A. (Director) .....	1932-1934
Leslie P. Hardy, M.S.Ed., L.H.D. (Director) .....	1934-1953
E. D. Duryea, Ed.D. (Dean) .....	1953-1956
D. J. Guzzetta, Ed.D., LL.D., D.S.Sc., L.H.D. (Dean) .....	1956-1959
William A. Rodgers, Ed.D. (Dean) .....	1959-1967
Charles V. Blair, M.A. (Dean) .....	1967-1970
John G. Hedrick, M.A. (Dean) .....	1970-1974
Caesar A. Carrino, Ph.D. (Dean) .....	1974-

THE COMMUNITY AND TECHNICAL COLLEGE

*W. M. Petry, M.S.M.E. ....	1964-1974
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THE COLLEGE OF FINE AND APPLIED ARTS

Ray H. Sandefur, Ph.D. ....	1967-
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THE COLLEGE OF NURSING

Estelle B. Naes, Ph.D. ....	1967-
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WAYNE GENERAL AND TECHNICAL COLLEGE

Marvin E. Phillips, M.A. (Acting Director) .....	1972-1974
John G. Hedrick, M.A. (Director) .....	1974-

\*On Record, June 1, 1970

\*Deceased

## ***Current Members of College and School Advisory Committees***

*April 1974*

### **THE BUCHEL COLLEGE OF ARTS AND SCIENCES**

Mrs. Russell DeYoung, Mrs. Sam DuPree, Dr. William H. Falor, Mr. Arden E. Firestone, Mr. David Ginaven, Mrs. Lincoln Gries, Mrs. Richard Irvin, Miss Ruth Kalb, Mr. W. P. Keith, Jr., Mr. Donald Kaufman, Mrs. G. Paul Kempel, Mr. Perth Killinger, Mr. Vern Odom, Mr. Charles Pierson, Mrs. S. O. Schumacher.

### **THE COLLEGE OF ENGINEERING**

Mr. Robert M. Arnold, Mr. D. F. Behney, Mr. G. L. Bruggemeier, Mr. Morris Jobe, Dr. Charles E. Jones, Mr. J. Robert Kessler, Mr. Robert B. Knill, Mr. Thomas A. Knowles, Dr. Wendell R. LaDue, Mr. Vern Oldham, Mr. Karl Rohrer, Mr. William R. Ruhlin, Mr. Ward Sigler, Mr. Ernest S. Theiss, Mr. Harry Warner.

### **THE COLLEGE OF EDUCATION**

Mrs. Jonas Barenholtz, Mrs. Ray Bliss, Judge Myron T. Breneman, Mr. T. D. Calvin, Mr. Mark Ethridge, Jr., Mr. Ralph Gillman, Dr. Henry P. Kurdziel, Mrs. Donald Minnig, Mr. Howard Netzly, Mr. Conrad Ott, Mr. W. S. Parry, Mrs. George Seeley, Mr. Larry Stucky, Mr. R. E. Wilkins, Dr. Harold Wilson.

### **THE COLLEGE OF BUSINESS ADMINISTRATION**

Mr. David C. Corbin, Mr. George Daverio, Mr. John L. Feudner, Jr., Mr. Arlin H. Greber, Mr. Gordon Heffern, Mr. Peter K. Hoglund, Mr. J. W. Keener, Jr., Mr. Clarence Kelley, Mr. H. L. Mollenkopf, Mr. Howard A. Palmer, Mr. James Parshall, Mr. Malcolm Rowan, Mr. O. D. Taliaferro, Mr. H. Vernon Wolfe, Dr. Robert Yohe.

### **THE COLLEGE OF FINE AND APPLIED ARTS**

Mrs. Fred I. Albrecht, Dr. James L. Berk, Mr. Richard Buchholzer, Mrs. L. A. Graham, Mrs. E. V. K. Jaycox, Mrs. Walter Keith, Mr. Louis Lane, Mr. David K. Larrimer, Mr. R. A. Michelson, Dr. E. Gates Morgan, Mr. Irving J. Olson, Mrs. John Renner, Dr. Bruce Rothmann, Mrs. Sol Sacks, Mrs. Guido Stempel.

### **THE COLLEGE OF NURSING**

Dr. Eleanor Bozeman, Miss Dorothy Chambers, Dr. Douglas M. Evans, Mrs. William Falor, Mr. Harold Funk, Mr. S. H. Mountcastle, Dr. R. R. Pliskin, Mr. Earl Raymer, Mr. James M. Reynolds, Dr. John P. Schlemmer, Mr. Roger Sherman, Miss Lillie Mae Steadman, Judge William Victor, Mrs. Jason Wade, Mr. LeRoy J. Wilson.

### **SCHOOL OF LAW**

Judge Sam H. Bell, Mr. Louis T. Bland, Mr. Richard Chenoweth, Mr. Ward W. Davis, Mr. John F. Floberg, Mr. Marion F. Graven III, Hon. David L. Headley, Mr. Oscar A. Hunsicker, Jr., Mr. Robert T. Jarmusch, Mr. Marvin G. Manes, Mr. C. Blake McDowell, Mr. Frederick Myers, Judge Theodore Price, Mr. Harold Stubbs, Mr. Bernard Winick.

### **THE GRADUATE SCHOOL**

Dr. Glen Alliger, Mr. E. A. Brittenham, Mr. D. Eugene Dominic, Mr. Bill E. Giermann, Mr. Elbert E. Gruber, Dr. James D'Ianni, Mr. Burton D. Morgan, Dr. John Morley, Mr. H. H. Poor, Mr. William Scull, Mr. Frank Steere, Jr., Dr. Guido H. Stempel, Dr. Franklin Strain, Dr. Rex H. Wilson, Mr. Clarence N. Wood.

### **THE EVENING COLLEGE**

Mrs. Tom B. Babcox, Mr. Stanton H. Brightman, Mr. Ray Campbell, Mr. Chester Conner, Mr. Robert Crane, Mr. Eugene A. DeChellis, Miss Irene Dillon, Mr. Ralph L. Hanna, Mrs. Charles Herberich, Mr. Philip G. Karam, Judge Thomas Powers, Mr. John Rebenack, Mr. John Scherba, Mr. Thomas Shuber, Mr. Philip H. Young.

### **THE COMMUNITY AND TECHNICAL COLLEGE**

Mr. George W. Brittain, Mr. R. A. Brownsword, Mr. Mario A. DiFederico, Mr. Lynn Firestone, Mr. A. M. Frendberg, Dr. Robert J. George, Mr. Robert N. Hughey, Mr. William Hulbert, Mr. G. J. Lambillotte, Mr. Phil Leonard, Mr. J. Edward Murray, Mr. P. W. Perdriau, Mr. F. B. Pyle, Mr. William C. Richards, Jr., Mr. Bruce M. Robertson.

### **THE WAYNE GENERAL AND TECHNICAL COLLEGE**

Mrs. Norma Amstutz, Mrs. Samuel W. Anthony, Judge W. W. Badger, Mr. William Baer, Mr. Sam Bohlen, Mr. R. Victor Dix, Dr. E. J. Feltes, Hon. Ralph Fisher, Mr. David Goldsberry, Mr. Robert Gumz, Mr. Donald L. Jones, Mr. Paul Ladd, Mr. Bruce Schantz, Mr. Sterling G. Sechrist, Mr. Paul Smucker.

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DIRECTORY OF STUDENT ORGANIZATIONS

GROUPS FOR THE PERFORMING ARTS

Dance Institute	University Orchestra
Forensic Union	University Singers
University Marching Band	University Theatre Guild

PERSONAL INTEREST

Amateur Radio Club	Photography Club
Arab Students Organization	Pre-Law Club
Black United Students	Psychology Graduate Student Association
Campus Americans for Democratic Action	Rugby Club
Campus Girl Scouts	Ski Club
Cheerleaders	Sky Diving Club
Chess Club	Students of Objectivism
Circle "K" Club	Survival Center
Collegiate Diving Society	Table Tennis Club
Collegiate Forum	Tae Kwon Do Karate Club
Consortium of International Student Organizations	Undergraduate Alumni Association
Ethnocentric Dancers	Veterans Club
Fellowship of Christian Athletes	Women's Liberation Front
International Students Club	World Federatists, U.S.A.
Interns for Civic Leadership	Young Americans for Freedom
Israeli and American Students Organization	Young Democrats Club
Judo Club	Young Republicans Club
Outing Club	Young Women's Christian Association

COMMUNICATIONS AND PUBLICATIONS

<i>Akron Law Review</i>	Radio and Television Workshop
<i>Arete</i>	WAUP-FM
<i>Buchtelite</i>	WRHA
<i>Tel-Buch</i>	YAWP
<i>Nite Life</i>	

DEPARTMENTAL ORGANIZATIONS

Accounting Association	Institute of Electronic and Electrical Engineers
Administrative Management Society (Collegiate Chapter)	Johnson Club
American Home Economics Association, Student Section	Law Wives Club
American Institute of Chemical Engineering	Le Cercle Francais Universitaire
American Society of Civil Engineering	"Life" (formerly Biology Club)
American Society of Mechanical Engineering	Philosophy Club
Association of Childhood Education	Politics Club
Association of Student International Law Societies	Polymer Graduate Student Association
Bracton's Inn	Psychology Club
Collegiate Nursing Students	Slavic Studies Club
Council for Exception Children	Society of American Military Engineers
Der Deutsche Studentenklub	Sociology Club
Economics Association	Student Advertising Club
Finance Club	Student Art League
Future Secretaries of America	Student Bar Association
Geology Club	Student National Education Association
	Student Nurses Association
	Women in Music

PROFESSIONAL FRATERNITIES

Alpha Chi Sigma — Chemistry	Phi Delta Delta — Law
Beta Alpha Psi — Accounting	Phi Delta Kappa — Education
Delta Sigma Pi — Business Administration	Pi Lambda Theta — Education
Lambda Alpha Epsilon — Criminal Justice	Sigma Alpha Eta — Speech Pathology and Audiology
Phi Alpha Delta — Law	

ASSOCIATION OF COLLEGE HONOR SOCIETY MEMBERS

Alpha Kappa Delta — Sociology	Phi Sigma — Biological Sciences
Alpha Lambda Delta — Freshman Scholarship	Phi Sigma Tau — Philosophy
Eta Kappa Nu — Electrical Engineers	Pi Delta Phi — French

Mortar Board — Student Leadership  
 National Collegiate Players — Dramatics  
 Omicron Delta Epsilon — Economics  
 Omicron Delta Kappa — Leadership  
 Phi Alpha Theta — History  
 Phi Eta Sigma — Freshman Scholarship

Pi Omega Pi — Business Education  
 Pi Sigma Alpha — Political Science  
 Psi Chi — Psychology  
 Sigma Delta Pi — Spanish  
 Society of Physics Students — Physics (Sigma Pi Sigma)

## OTHER HONOR SOCIETIES

Alpha Beta Delta — Graduate  
 Students — Evening  
 Alpha Sigma Lambda — Scholarship  
 and Service — Evening  
 Beta Gamma Sigma — Business Administration  
 Kappa Delta Pi — Education

Phi Sigma Alpha — Liberal Arts Scholastic  
 Pi Mu Epsilon — Mathematics  
 Sigma Tau — Engineering  
 Sigma Xi — Scientific Research  
 Tau Kappa Phi — Home Economics

## RECOGNITION SOCIETIES

Alpha Epsilon — Honor Society — Evening  
 Alpha Phi Gamma — Journalism  
 Alpha Phi Omega — Men's Service

Gamma Theta Upsilon — Geography  
 Pi Kappa Delta — Forensics

## ROTC ORGANIZATIONS

Angel Flight  
 Army Sponsors  
 Arnold Air Society

Counter guerrillas  
 Pershing Rifles  
 Valkyrie Drill Team

## RELIGIOUS ORGANIZATIONS

Akron Christian Fellowship (formerly  
 Interservice Christian Fellowship  
 Campus Christian Fellowship  
 Christian Science  
 Eastern Orthodox Fellowship  
 The Hillel (B'nai B'rith Foundation)

Kappa Phi-Club  
 Lutheran Students Association  
 Muslim Student Association  
 Newman Club  
 Pentecostal Student Fellowship

## GOVERNING ORGANIZATIONS

Associated Student Government  
 (formerly Student Council)  
 Associated Women Students  
 Evening Student Council  
 Graduate Student Council  
 Interfraternity Council

Junior Class  
 Panhellenic Council  
 Residence Hall Government Association  
 Senior Class  
 Student Center Program Board

## ATHLETIC ORGANIZATIONS AND INTRAMURAL ATHLETICS

Women's Recreational Association

Intramural Sports

## INDEPENDENT SOCIAL ORGANIZATION

Independent Students Association

## SOCIAL FRATERNITIES

	<i>National Founding</i>	<i>Local Founding</i>
Alpha Epsilon Pi	1913	1941
Alpha Phi Alpha	1906	1957
Chi Sigma Nu (Evening Students)		1932
Delta Tau Delta	1859	1970
Lambda Chi Alpha	1909	1919
Omega Psi Phi (colony)		1970
Phi Delta Theta	1848	1875
Phi Kappa Tau	1906	1938
Phi Sigma Kappa	1873	1942
Phi Kappa Epsilon		1882
Sigma Pi	1897	1966
Tau Kappa Epsilon	1899	1948
Theta Chi	1856	1942
Phi Kappa Psi	1852	1970

## SOCIAL SORORITIES

	<i>National</i>	<i>Local</i>
	<i>Founding</i>	<i>Founding</i>
Alpha Delta Pi	1851	1938
Alpha Gamma Delta	1904	1922
Alpha Kappa Alpha	1908	1961
Chi Omega	1895	1967
Delta Gamma	1873	1879
Delta Zeta	1902	1962
Gamma Beta (Evening Students)		1935
Kappa Kappa Gamma	1870	1877
Phi Mu	1852	1912
Sigma Delta Tau (inactive)	1917	1962
Theta Phi Alpha	1912	1931

# THE UNIVERSITY OF AKRON

## Tentative Calendar 1974-75

### FALL QUARTER, 1974

September 23, Monday	Day and Evening Classes Begin
November 27, Wednesday	Final Instructional Day
November 28-December 1	Thanksgiving Day Holiday
December 2-7	Final Examination Period
December 15, Sunday	Commencement

### WINTER QUARTER, 1975

January 6, Monday (To be arranged)	Day and Evening Classes Begin
March 15, Saturday	Founders Day Ceremonies
March 17-22	Final Instructional Day
	Final Examination Period

### SPRING QUARTER, 1975

March 31, Monday	Day and Evening Classes Begin
May 26, Monday	Memorial Day Holiday
June 7, Saturday	Final Instructional Day
June 9-14	Final Examination Period
June 22, Sunday	Commencement

### SUMMER SESSION I, 1975

June 23, Monday	Day and Evening Classes Begin
July 4, Friday	Independence Day Holiday
July 24, Thursday	Final Instructional Day
July 25-26	Final Examination Day and End of First Session

### SUMMER SESSION II, 1975

July 28, Monday	Day and Evening Classes Begin
August 28, Thursday	Final Instructional Day
August 29-30	Final Examination Day and End of Second Session

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