THE UNIVERSITY OF AKRON

GENERAL BULLETIN

1968-69 ISSUE

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 in qualitative and quantitative ways the English language.

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 and State Board of Nursing Education and Nurse Registration.

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 in the National League for Nursing, Department of Baccalaureate and Higher Degree Programs.

The College of Law has membership in the League of Ohio Law Schools and is fully approved by the American Bar Association. The College of Business Administration is a member of the American Association of Collegiate Schools of Business.

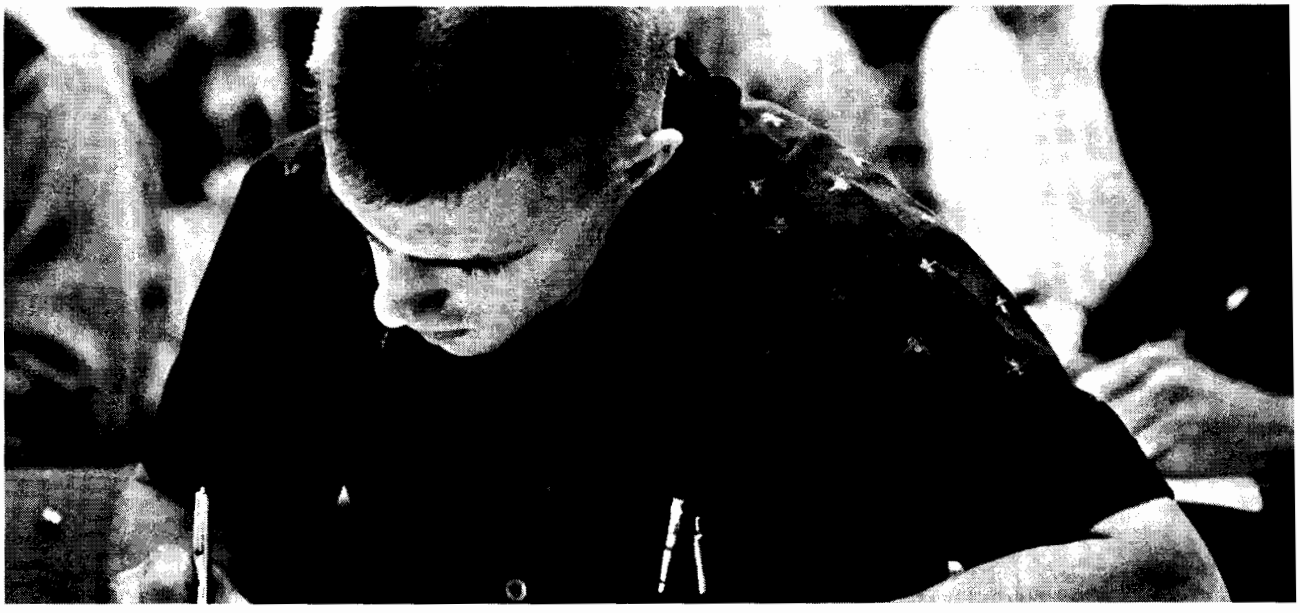
The University is also a member of the Association of University Evening Colleges. In addition to this, it is an accredited member of the North Central Conference on Summer Schools.

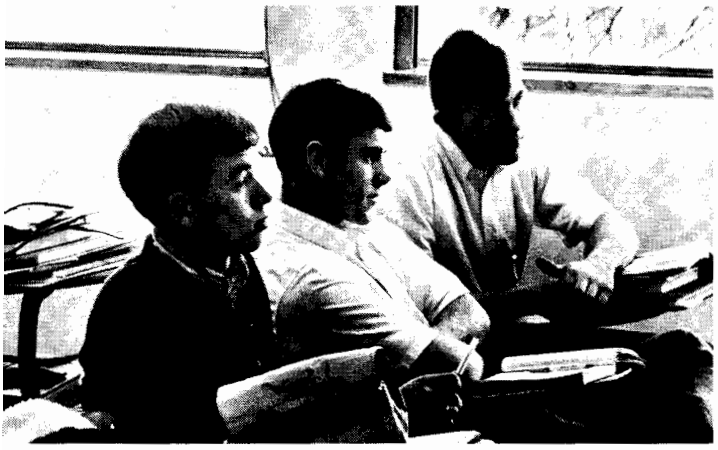
Women graduates of the University with approved baccalaureate degrees (requiring at least two years or a minimum of 60 credits of non-professional, non-technical work credited toward a B.A. degree) are eligible to membership in the American Association of University Women.

Accreditation assures a student that he 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.

History

The University of Akron traces its origin to 1870 with the establishment of Buchtel College by the Ohio Universalist Convention. The College took its name from its most generous benefactor, the Hon. John R. Buchtel, and, in turn, gave his name to the first building for which construction began in 1871.

In 1888 a new building, Crouse Gymnasium, was erected east of the main building and three years later an athletic field, located four blocks away, was purchased and given the name of Buchtel Field.

The orderly growth of the young College ran into disaster in 1899 when Buchtel Hall was destroyed by fire, but the College and the community met the challenge by using Crouse Gym and neighboring rooms to continue classes. Funds were raised for a new structure and a second Buchtel Hall was in use by 1901 on the site of the burned out remains. The new building, still in use as the major Administration Building has in its vestibule the cornerstone of the original 1871 structure.

In 1913, plagued with financial problems but still dedicated to educating the young people of its day, Buchtel College and its plant and endowment were turned over to the citizens of the City of Akron to become the nucleus of the non-sectarian Municipal University of Akron. The following year, with the addition of an Engineering College, the institution's name was changed to The University of Akron and the original name of Buchtel College was perpetuated in the Buchtel College of Liberal Arts.

Since that time, the University has made several important strides:

1915	Evening Sessions were begun.
1921	The College of Education was established.
1935	The General College was established.
1953	The College of Business Administration was established.
1959	The College of Law was established.
1959	The Ph.D. was conferred for the first time.
1964	The Community and Technical College was established.
1967	The College of Fine and Applied Arts was established.
1967	The College of Nursing was established.

The year 1967 saw still another milestone when the University made the transition from municipal to state institution.

Will the closing years of the 1960's provide other milestones? The answer is a firm YES. This is an era of building and planning, improving and growing at The University of Akron. The demand for higher educational facilities has increased rapidly and the University intends to meet this demand.

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 doctor's degree.

The first and second year student may be enrolled in either the General College, obtaining the background in General Studies required for entering 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 third 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 doctor's degree in chemistry, polymer science, industrial psychology, or education.

Associate Programs

In this fast-paced age of technological development, a need has grown for persons trained specifically for work in the semi-professional, 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

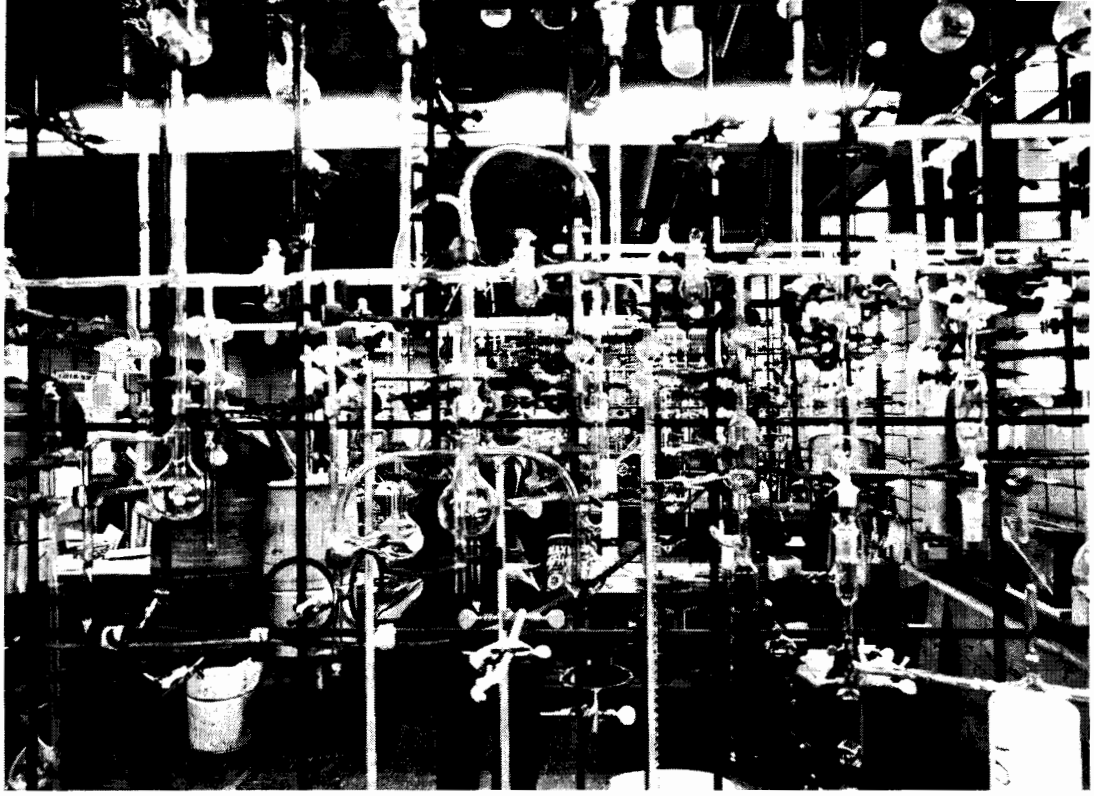
The University of Akron began offering programs aimed toward helping society meet such needs in 1937 when it introduced its Community College program. Initially offering only non-credit studies, the Community College expanded rapidly and in 1959 the University began offering associate degree programs 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, transportation, chemical technology, sales and merchandising, commerce, food service management, arts, commercial art, surveying and construction technology, instrumentation technology, data processing and secretarial science. Included in the latter are courses aimed specifically toward preparing graduates to qualify as executive, international, legal, technical and medical and dental secretaries.

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 64 credits, study in the General College before "graduating" 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 Liberal Arts—

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 Relations, and Bachelor of Science in Medical Technology.

College of Engineering—

offers a five-year program of courses leading to a Bachelor of Science degree in chemical, civil, electrical and mechanical engineering, 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, and in health and physical education. All courses comply with State certification requirements and degrees of Bachelor of Science in Education or Bachelor of Arts in Education are offered.

College of Business Administration—
programs feature professional education and training for careers in general business, accounting, commerce and industry. Degrees offered are the Bachelor of Science in Business Administration, Bachelor of Science in Accounting 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 music and to the Bachelor of Music degree.

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, including community health nursing.

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

College 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, polymer science, industrial psychology, and education; to the Doctor of Education degree in school administration; and to the Master's degree in accounting, biology, business

administration, chemistry, economics, education, engineering, English, French, history, industrial management, mathematics, philosophy, physics, political science, polymer science, psychology, sociology, Spanish, speech, statistics 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 attend 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.

Students

A composite picture of an Akron student would be hard to sketch. But if one limits his attentions to the typical undergraduate, the following comments will draw a true picture of the students at The University of Akron:

Akron students show by appearance and action that they attend a university which is in a forward-thinking, prosperous community. The students are abreast of trends and clearly a part of national collegiate interests, both curricular and extracurricular.

Akron students enjoy the security of knowing that if they wish to do so, they can anticipate a future life in the Akron area, since there are many opportunities for employment in industrial and professional fields which are close to the campus.

Many Akron students have the unique advantage of living with their families and yet adding to their cosmopolitan circle of acquaintances. Akron, as "the rubber capital," attracts many campus visitors and increasing numbers of foreign students. New dormitory facilities make it possible for nonresident students to add a valuable ingredient to the atmosphere of the University scene.

Akron students live in an area of the United States which is on the "culture trail." This means that they have frequent access to plays, lectures and professional performances either in or near Akron. The Metropolitan Opera Studio group has presented workshop productions of operas in capsule on The University of Akron campus.

Faculty

At The University of Akron, there is no "typical teacher." Each professor functions as an important part of an organized directed group. But he exerts his skills in his own individual manner. Although he is part of a closeknit campus community, he is not part of a cloistered, segregated Ivory Tower clique.

Even his living conditions reflect the heterogeneous aspect of the faculty. There is no fenced-in compound where faculty families live together. There is no in-bred social or professional attitude—but instead, the strongly personal, deeply American-flavored uniqueness of the individual.

Many Akron professors have studied at institutions whose reputations are recognized all over the world. A few of them are: California, Carnegie Tech, Chicago, Cincinnati, Colorado, Columbia, Cornell, Harvard, Indiana, Iowa, Johns Hopkins, Michigan, Minnesota, North Carolina, Northwestern, N.Y.U., Ohio State, Princeton, Purdue, Syracuse, Temple, Utah, Wis-

consin, Wooster and Yale. Outside of the U.S.: The Universities of Bolivia, Frankfurt, Halifax, Jadvpur, London, Manitoba, McGill, San Francisco Xavier de Chuquisaca, Tübingen and The Sorbonne. This variety of background of educational training is part of the University's richness.

Akron professors have academic records which show that they are equipped with a depth and breadth of scholarship. More than half of the faculty group have earned their doctor's degrees.

Administration

The public responsibility for educational advancement at the University is delegated to specific individuals. In accordance with Ohio law, the University is governed by a Board of Trustees consisting of Ohio citizens who are appointed by the Governor of Ohio.

This Board functions as the legal and policy-making body of the University while the University Council functions as the faculty legislative group.

On campus, providing the necessary link between the public and its University, are a number of people who function as part of the Administration. This includes a President, three Vice Presidents, twelve Deans, a Business Manager and an Auditor, Treasurer and Controller, Registrar, Librarian, Dean of Graduate Studies and Research, Director of Institutional Research, Director of University Relations, Director of Alumni Relations, Director of the Institute for Civic Education and Superintendent of Buildings and Grounds.

The Advisers of Men, Advisers of Women, Testing and Counseling Bureau, Director of Housing and Director of Admissions, also part of the administrative table of organization, devote most of their attention directly toward the students.

When an academic step affecting students is to be considered, members of this administrative group must lead the way in deciding *if* . . . *when* . . . and *how* something should be done.

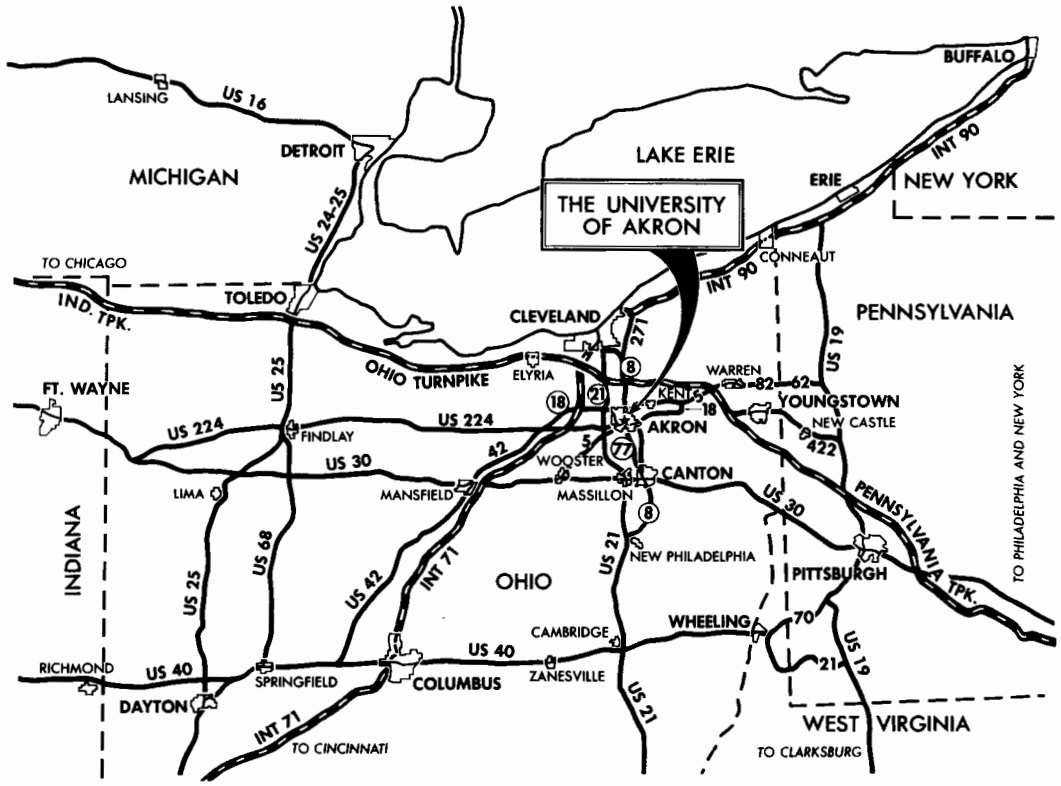
Location

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.

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 the new interstate north-south Highway 71 that stretches from Lake Erie to the Gulf 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 as will patrons of the B & O, Pennsylvania and Erie-Lackawanna railroads. And airline passengers will find Akron the terminal of limousine service from both the Cleveland-Hopkins and the Akron-Canton airports.

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 thirteen acres of ground encompassed only ten buildings. Since then, however, the student body has quadrupled, reaching in the 1967-68 academic year, a record high of more than 15,500. The campus has also grown, covering 70 acres with 44 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. Construction work is now under way to provide housing by 1969 for an additional 490 men in a new 16-story high-rise residence hall; Schrank Hall, new home of the Community and Technical College, is scheduled for completion also in 1969; remodeling projects in three classroom buildings on campus—Ayer, Knight and Kolbe Halls—will soon provide space for general classroom use; construction will

soon begin on a community-university $6.6 million performing arts hall adjacent to downtown Akron to be used for symphonic concerts, opera, drama, ballet and lectures.

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.

Buildings

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. It contains offices of the President, the Vice President for Academic Affairs, the Vice President for Planning, the Vice President for Development, the Dean of Administration, the Dean of the Evening College and the Dean of the General College. Also, it houses the Office of Student Services and the Institute for Civic Education and is headquarters for the Auditor, the Controller and Treasurer, the Business Manager, and the Registrar. It is named for the institution's first benefactor, John R. Buchtel.

BUSINESS ADMINISTRATION AND LAW BUILDING houses the Colleges of Business Administration and Law classrooms and offices plus the John S. Knight Auditorium and C. Blake McDowell Law Library in addition to lecture, laboratory and seminar rooms, and a practice courtroom.

CIVIC EDUCATION BUILDING, at 221 E. Center St., facing the campus, is the location of the Testing and Counseling Bureau and faculty offices.

EDUCATION BUILDING, provides a lecture room that seats 260, 25 general classrooms, a handicrafts room, an auxiliary closed circuit television studio, a complete language laboratory, a teaching demonstration classroom and is headquarters for the Deans of the College of Education and College of Nursing.

FIRESTONE CONSERVATORY OF MUSIC, a gift of the Harvey S. Firestone family, includes two buildings located at East Market and Forge Streets. It provides classrooms, practice rooms and office space for the Department of Music and has a large auditorium for student recitals.

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 Liberal Arts and the College of Fine and Applied Arts, the University Theatre, WAUP-FM radio station, and instructional television studios, as well as the English, speech and geography - geology departments. It is named for the first president of the municipal University.

THE UNIVERSITY LIBRARY houses 225,000 volumes. Another 30,000 volumes are shelved in the new Science-Technology Library in the Auburn Science and Engineering Center.

In the University Library are the circulating, reference, periodicals and government documents collections in the social sciences and humanities. Unique features are the Herman Muehlstein Rare Book Room and the Charles E. and Mabel M. Ritchie Memorial Room, which now houses the University Archives.

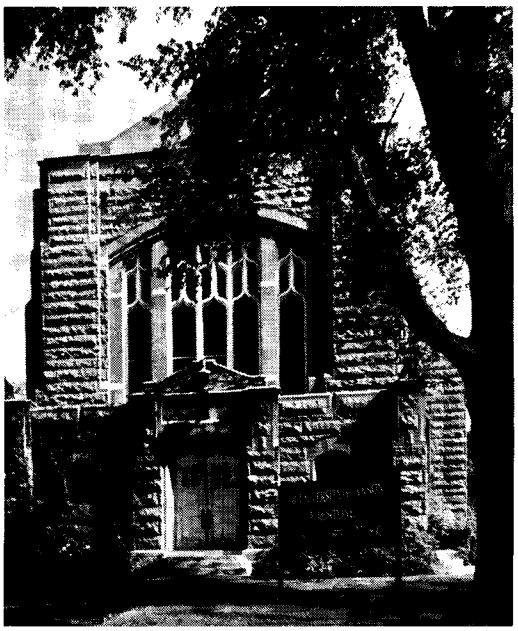
The Art Department is on the third floor of the Library, with classrooms, studios and offices.

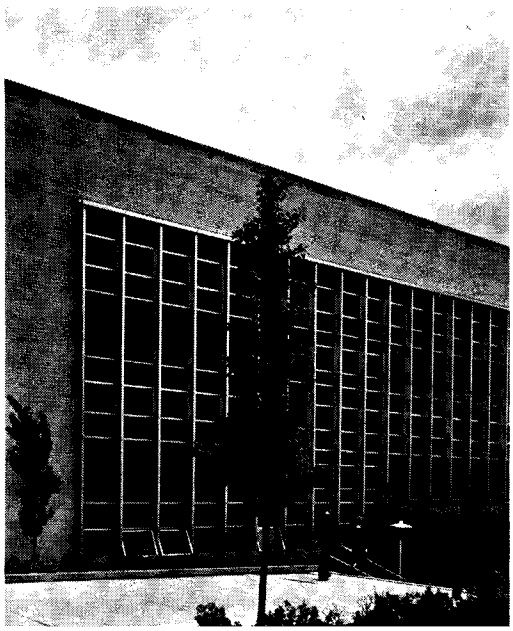
On the ground floor is the Audio-Visual Services office with a library of films and records for student and community use.

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 and staff and the office of University Relations. It is dedicated to the memory of Summit County men and women who died in World War II.

ROTC offices are located in temporary facilities at 142 South Union Street. Air Force ROTC offices are in a building on Buchtel Avenue, at the intersection of Center Street.

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.

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

SPICER SCHOOL, an elementary school under the jurisdiction of the Akron Board of Education, is located east of the campus at Carroll and Elwood Streets. This school is used for administrative offices and classrooms.

Residence Halls

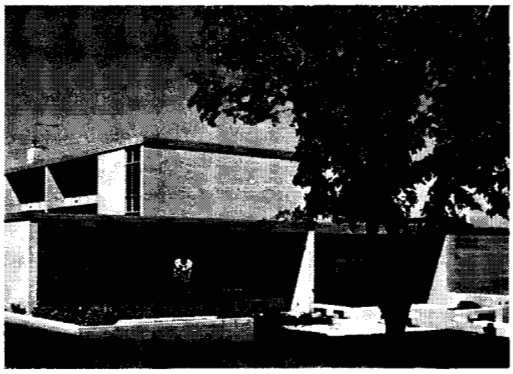
The University's Residence Halls complex is located on the North Campus adjacent to the Main Campus and within easy walking distance of downtown Akron. The complex contains four dormitory buildings capable of housing 660 students, Orr, Ritchie, and Sisler-McFawn Halls, housing a total of 341 women and the Residence Tower which houses 315 men.

All four 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 all are equipped with laundry facilities and storage rooms.

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

GARDNER CENTER houses bowling alleys, music rooms, TV lounge, student activity offices and work rooms, game and billiard room, book store, Alumni Office, 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. Offices for members of the College of Liberal Arts faculty, the Center for Information Services, the Referral Service Network Office, the Army ROTC offices, the Classics Department, the Center for Urban Studies and the Registration Office are all located in buildings on Buchtel Avenue and Union Street. Until the new dormitory facilities are completed several students are being quartered in other buildings near the campus. The Admissions office is located in a converted



residence immediately across Buchtel Avenue from Kolbe Hall. Office Annex No. 1, located directly across Buchtel Avenue from Buchtel Hall, is being used for classrooms and faculty offices. Temporary faculty offices are also located in the Home Economics Annex on East Exchange Street, the Community and Technical College Annex on Center Street, and the Speech and Hearing Clinic on James Street.

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 Resources Center. The Office of Instructional Media incorporates the Instructional Television Center, Audio-Visual Services, WAUP-FM, and the Radio Workshop.

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 an efficient 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. By June, 1969, approximately 70,000 class registrants will have participated in receiving part of their education by television. By then approximately 170 courses will have been presented in whole or in part, by this means since 1960.

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 through allocation of a major portion of the ground floor of the present University Library building to the Audio-Visual Department. 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 artwork 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 also integral parts of the Office of Instructional Media. 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 opportunities for fine professional experience are always enhanced by the traditional and close working relationships which exist between the Department of Speech and the Office of Instructional Media.

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 modernly-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.

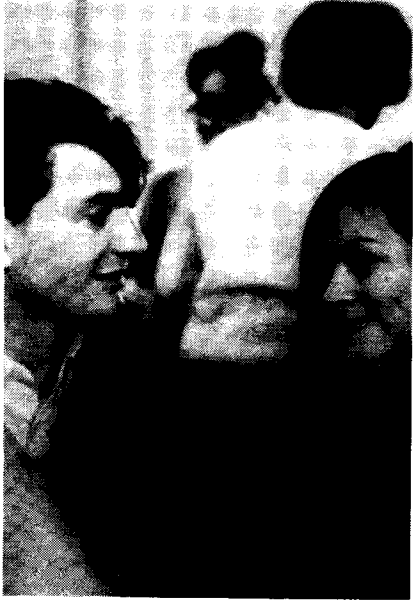
THE SPEECH AND HEARING CLINIC, with its audiology and language laboratories, provides complete hearing and language diagnostic service to both the community and the University. Research and training on the undergraduate and graduate professional levels are assisted by the use of closed-circuit television as well as manual and self-recording audiometers, psychoacoustic 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.

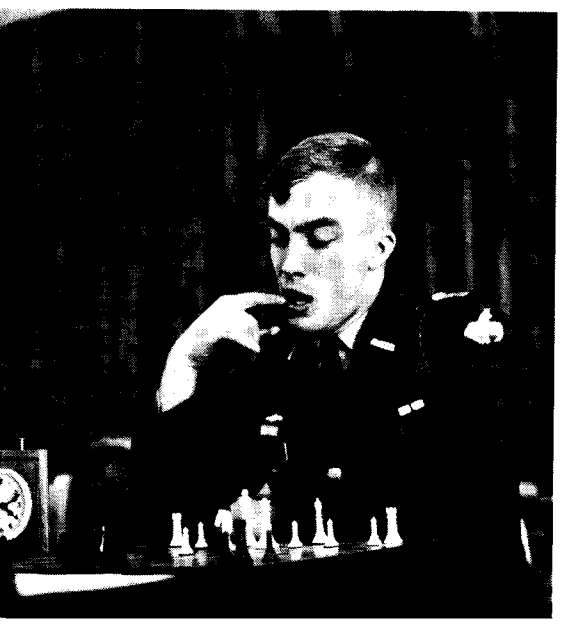
THE COMPUTER CENTER, a recently-expanded and modernized complex for students and faculty, is located in Simmons Hall.

The Center is equipped with the IBM 360/40 computer and 44 computer systems with magnetic disks, tapes, remote terminals and a wide variety of peripheral equipment.

Faculty research receives considerable computer support. The Center's services include the preparation of financial and academic planning, operating and control reports.

The Center's computers are also used for instruction in a number of computer-related courses leading to a two-year associate degree in data processing. Students also use the computers for homework assignments and special projects in numerous other courses.





Extracurricular Activities

Everyone at The University of Akron can be a member of some group, team, club or committee. A student can participate in songfests, Student Council elections, pledge weeks, rush parties, sorority teas, fraternity bull sessions, student meetings of professional societies, kaffee klatsches, University radio workshops, Town and Gown lectures, military balls, ox roasts, Father's Day festivities, intercollegiate sports, intramural sports, May Queen crownings, Forensic Union matches, University plays, Music Department concerts or recitals, Honors Convocations, recognition dinners, Evening College jazz sessions, Founders Day programs, homecoming dances, band practices, newspaper staff meetings, wrestling matches, swimming meets, soccer games, cross country running races, short-wave radio, golf and tennis.

An Extracurricular Activities Committee exercises control over most of the University groups. Its members represent the various colleges and study areas and also the students themselves. At present there are 10 faculty members in addition to the presidents of Student Councils, both daytime and Evening College, and head of the Women's League, serving as members of this committee.

There is a necessary limitation on the individual student so that he won't become involved in so many extracurricular activities that he slights his studies. For this reason, a standard of grades must be maintained before a student can enter some of the more time-demanding extracurricular fields. First semester students must be carrying at least 10 hours; other students must have completed 10 hours with an average grade of 2.0 (C).

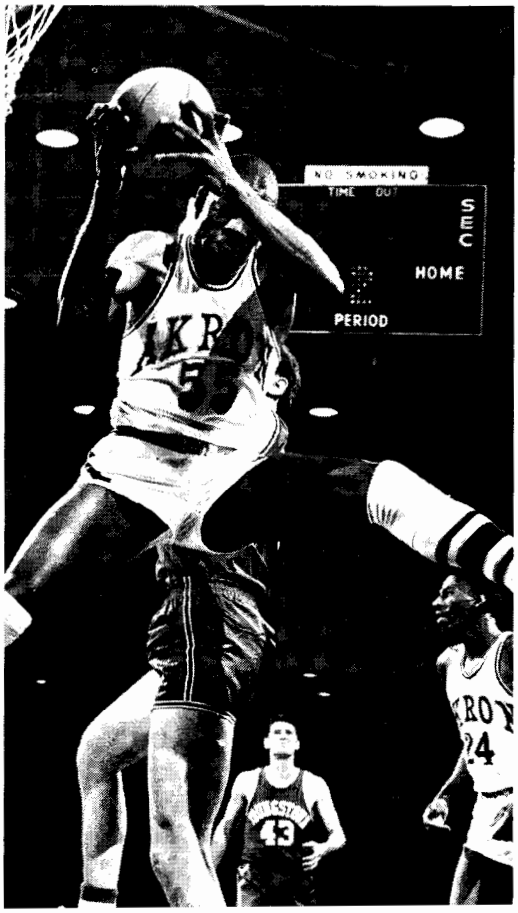
If a student meets these requirements, he may be considered for appointment for activity in these campus groups:

The Buchtelite (University newspaper) staff; *Tel-Buch* (University yearbook) staff; music or speech productions; radio and television workshop staffs; Student Center managerial positions; Memorial Hall (physical education and health center) staffs; majorettes; cheerleaders; Homecoming Queen and Crowner; May Queen and Crowner; Commissioner of intramural sports.

Also, all student groups have faculty advisers. For instance, the student publications function with the assistance of a Publication Committee made up of the Dean of Student Services, the University Treasurer, the faculty advisers and editors of *The Buchtelite* and *Tel-Buch*, and presidents of both the Student Council and the Women's League. In addition, the Director of University Relations acts as Chairman of the Committee.

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 50 recitals by individual music students and faculty members are presented each year in the Firestone Conservatory, which includes classrooms, an auditorium and reception areas which are used by hospitality committees in connection with recitals.

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 their radio or TV sets.

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, four 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 compete 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.

Student Publications

THE BUCHTELITE . . . a weekly newspaper with 25-30 issues in each academic year. This is the campus "voice" with straight news, columns, and photographs describing campus events. It is published tabloid-style on regular newsprint, distributed to students free of charge on newsstands located in various spots on campus. A staff of about 30 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 20 students. At the beginning of each academic year, full-time students may receive their editions of the annual, on presentation of their Student I.D. cards. The *Tel-Buch* is one of the favorite souvenirs of campus life at the University.

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 each semester by the Johnson Club, in which all copy consists of original writings by students.

Sports Activities

A wide program of sports for both intercollegiate and intramural participants is maintained at the University.

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.

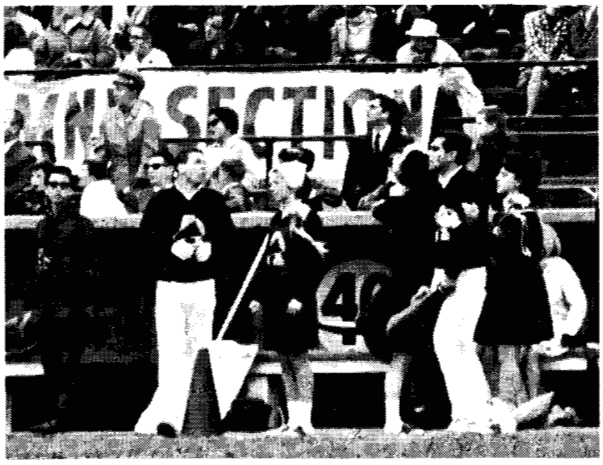
Intercollegiate competition is planned by the R.O.T.C. staffs for The University of Akron rifle team which is a member of the Lake Erie Conference.

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 war dead of Summit County, has two spacious gymnasiums and a regulation size (75'x35') swimming pool for the use of both men and women.

Members of the student body and alumni have pride in the Hall of Fame in Memorial Hall, honoring the "greats" in Summit County sports history.



Fraternities and Sororities

There are eleven national sororities for women and ten national fraternities and one local fraternity for men on the University campus. Although these are University-supervised and faculty guests attend their major social events, the selection of membership and government of each organization is the responsibility of each individual group in accordance with rules of the Panhellenic Council and the Interfraternity Council.

Each sorority and fraternity schedules about five major social events during an academic year, many of them taking place in their own houses and some of them utilizing the facilities of the main campus. Dances are often held in Memorial Hall and big-name bands are frequently brought in for these events.

Members of sororities have limited residence facilities in their houses while most of the fraternities have housing for men. Appointment of housemothers or housefathers is by the organization itself. All fraternities and sororities have faculty members or faculty wives as advisers or honorary members.

Fraternal organizations contribute to the campus color at the University, conducting a "Greek Week" and constructing elaborate floats for special parades. During the year there are several competitive events such as the Interfraternity-Panhellenic Songfest.

Independent students are active in many of these collegiate activities, as well as the men and women who are fraternity and sorority members. An active organization of non-affiliated students numbers about 30 to 100 persons each year.

Also, on campus are nearly 40 honorary organizations which are classified as honor societies, recognition societies or professional fraternities. These cover each of the academic areas, as well as the military and

air force groups. National senior men and women's honoraries are Omicron Delta Kappa and Mortar Board.

All-Campus Meetings

There are four special convocations at which attendance is requested of the student body. These are annual events, scheduled about the same time each year and planned by a faculty Assembly Committee.

The convocations are: the President's Convocation in the early part of the Fall semester; Founders Day Convocation in December honoring John R. Buchtel, first benefactor, and Dr. Parke R. Kolbe, first president of the municipal University; Spring Convocation, usually near Holy Week, with a religious emphasis; Honors Convocation, near the end of the Spring term, honoring outstanding students.

During the academic year there are occasionally other assemblies, usually held in Memorial Hall, when the entire campus population is expected to attend. Assemblies for specialized, smaller groups are frequently held in the University Theatre in Kolbe Hall or in the John S. Knight Auditorium in the building for the Colleges of Business Administration and Law.

During Summer Sessions, a series of art films is offered to students. These and other motion picture presentations are usually in the University Theatre.

Cultural Offerings

Each year there are abundant opportunities for the students and townspeople alike to enjoy special cultural events on campus.

The Institute for Civic Education arranges a yearly "Town and Gown" series which are free to students and are available to townspeople who purchase tickets.

One of the cultural highlights at The University of Akron is the annual Fine Arts Festival. This is offered without admission

charge to the public and is usually scheduled on a Spring weekend.

The Fine Arts Festival offers a richly varied selection of programs related to music, art and theatre featuring such personalities as Heidi Krall, Leon Fleisher, Dr. Henry R. Hope, Len Chandler, Miss Frances Yeend, Grant Johannsen as well as student and faculty artists and members of University musical organizations. The Akron Symphony Orchestra participates each year.

At all times, the cultural schedule is kept as flexible as possible, with constant possibility of enlargement. In keeping with the times, discussion groups and field trips are encouraged so that students may develop their abilities to become responsible, effective citizens.

Wherever possible, students are integrated with off-campus individuals who come to the University to increase their own knowledge and reciprocally, to serve as direct sources of information to the students.

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 Office of Student Services. Its basic rules are as follows:

Unmarried male 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 male 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.

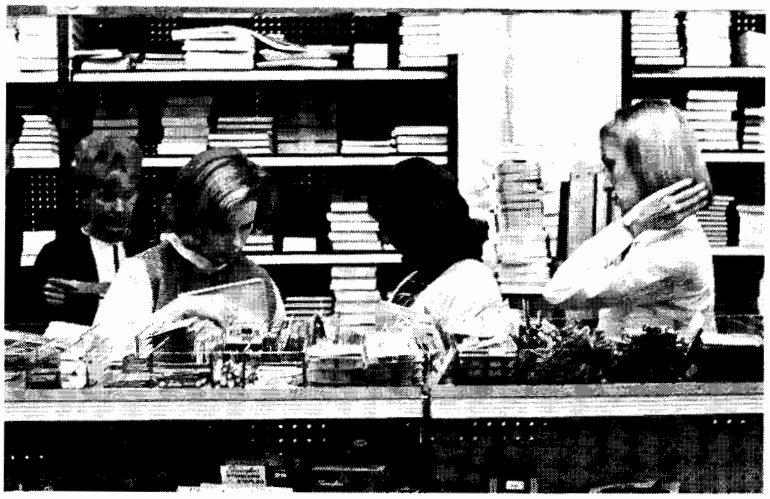
Unmarried female students under 21 years of age are required to live with their parents, legal guardians, relatives with permission of their parents or legal guardians subject to the parietal rules of the University, or in University Residence Halls or other University approved housing.

The University provides four new Residence Halls for non-commuting students, one for men and three for women. Comfortable double room accommodations are thereby provided for 341 women and 315 men. Each room has ample space for books and clothing. The furniture and decor are attractive and modern. Sun bathing areas and outdoor basketball areas are provided for all residents. The University swimming pool is open to Residence Hall students on Sunday afternoon.

For the annual rate of $930, the student receives living accommodations, bed linen and 20 nourishing meals a week.

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 students when problems of a personal nature are obstructing his academic career or his personal life.

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.

Outside Work

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 Student Services, 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.

Career placement assistance is available to students in the Placement Office in business, industry, government, private agen-

cies, and in education. The Office is located on the ground floor of the Gardner Student Center.

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

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

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

Part-time Employment

Many part-time job opportunities are available both on campus and in the community through the Student Financial Aids Office in the basement of the Gardner Student Center. Counselors in the Student Financial Aids office arrange interviews for student applicants for University positions and keep a list of current job openings in many local businesses.

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

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.

First aid services are available at the Student Health Service Center in the Residence Dining Hall adjacent to Men's Residence Tower I. Red Cross lifesaving classes are an integral part of the health and physical education programs, but the University assumes no legal responsibility or obligations for the expense of treating injuries received by athletes while training for or participating in intramural or intercollegiate sports.

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.

Increased numbers of University students have brought about expanded Health Service facilities immediately adjacent to the Residence Halls. An infirmary area is provided for 12 in-patients, with facilities for intermediate care when hospital treatment is required.

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 ill on campus may have to be taken to a local hospital. If, in the opinion of the University physician, this is necessary, the student will be taken to the most convenient hospital. 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 $22.50. The student insurance provides coverage for such items as hospitalization, surgical benefits, and in-hospital medical benefits.

Spiritual Guidance

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

For Protestants: A minister of a Protestant denomination has been appointed by the Akron Area Council of Churches to serve as a full-time spiritual adviser to the students who have indicated affiliation with a Protestant church.

The Protestant chaplain's office is located in the First Evangelical United Brethren Church adjacent to the campus at 164 South Union Street. He is available each weekday for consultation with individual students who have indicated affiliation for discussions and forums and serves as spiritual counselor for those facing individual problems.

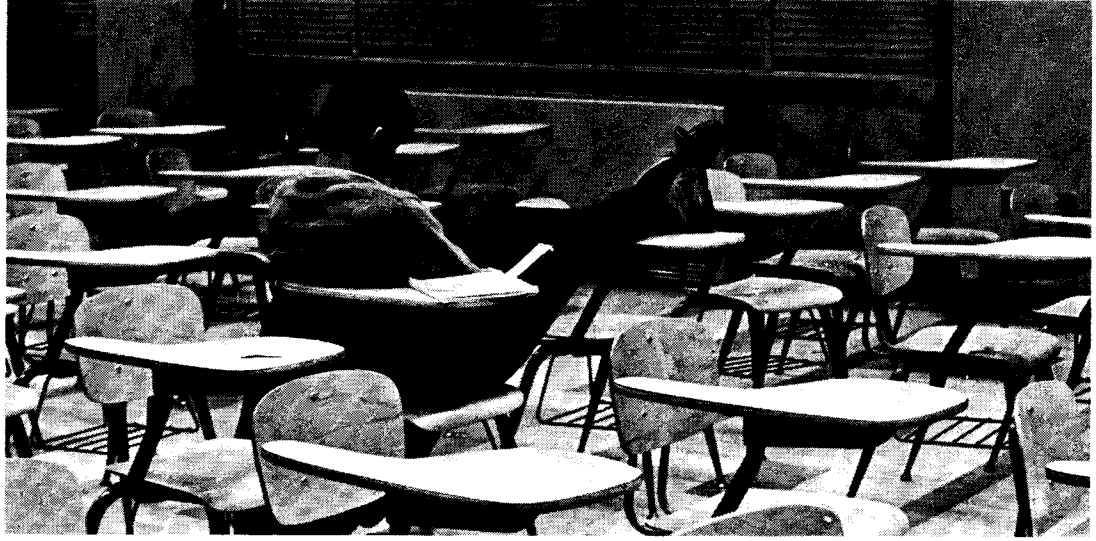
For Eastern Orthodox: A priest is available to all Eastern Orthodox students on campus. Regular meetings are held on alternate Tuesdays at the Greek Orthodox Church of the Annunciation adjacent to the campus at 129 South Union Street. The priest is available before and after the Tuesday meetings for consultation and at other times at his own church.

There are synagogues in the city for students of the orthodox, conservative, and reformed Jewish faith.

For Catholics: A priest is in residence at Newman Hall, branch of the national Catholic club for college students, about one block from the main campus, at 143 South Union Street. He offers Mass each day at noon and conducts formal classes for Catholic students, supplying spiritual guidance to aid them in utilizing most effectively the temporal knowledge which they gain in their college years.

Newman Hall has an assembly room, library, kitchen and conference rooms where students may study or hold discussion groups. The doors open at 7:30 a.m.

This center was established for the benefit of the Catholic students taking daytime courses at the University, authorized and supported by the offices of the Bishop of the Diocese of Cleveland.



Types of Students

A university with an enrollment exceeding 15,000, 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.

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

1. 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.

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.

2. 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.

Required High School Courses

Prior to admission, applicants who have not previously attended an institution of higher learning must have passed certain preparatory courses on the high school level. These are:

- 4 units of English
- 1 unit of mathematics
- 3 units of social studies (including American History)
- 1 unit of natural science
- 1 additional unit from any of these

Additional subject requirements for students planning to major in:

SCIENCE, PREMEDICAL OR PREDENTAL
- 1½ units of high school algebra
- 1 unit of plane geometry

ENGINEERING
- 1½ units of high school algebra
- 1 unit of plane geometry
- ½ unit of solid geometry or
- ½ unit of trigonometry
- 1 unit of physics or chemistry

MANAGEMENT
- 1½ units of high school algebra

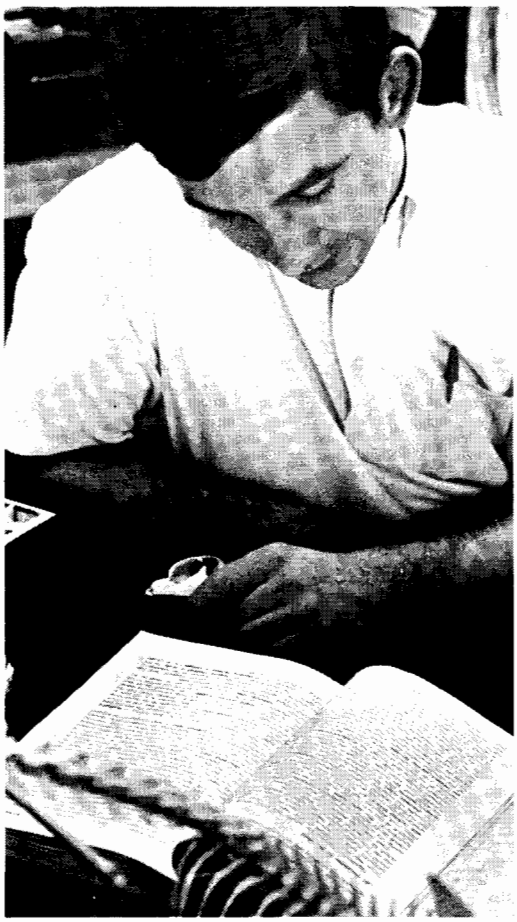
A prospective student who has met the above requirements, has been graduated from a regionally accredited Ohio secondary school and takes one of the college entrance tests, is eligible to enroll. An applicant may submit scores from either the American College Testing Program (ACT) or from the Scholastic 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 is eligible to re-enter 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.

Step-by-Step Way to Gain Admission

1. Get an Application Form from The Admissions Office. If your request is by mail, use this address: ADMISSIONS OFFICE, The University of Akron, Akron, Ohio 44304. FILL IT OUT AND RETURN as soon as possible. If you are applying for admission to the University



for the first time, include the non-refundable Application Fee.

August 15 is the final date for submitting your application.

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 AND COUNSELING 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.

In addition, special counseling tests administered only at the University are required of all new freshman applicants. Generally these tests may be taken at the University on the same day as the ACT or the SAT. They may also be taken during Orientation Week.

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 applied for admission. 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 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 in the University's Community and Technical College who plan a change in objective, 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 admission or transfer.

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 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 en-

countered 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

Registration is the formal function of signing up for specific courses, instructors and classes and for payment of fees. For each quarter specific times are designated for completing the registration process and payment of fees. In emergencies it is possible to register after the registration period but students doing so must present good reasons and must pay a non-refundable Late Registration Fee.

Attendance

Students are expected to attend all class meetings for which they are registered. They may be dropped from a course by the Dean if they are repeatedly absent and the instructor recommends this action. Students can gain readmission only with the permission of the instructor and the Dean.

Modification of Student Schedules

A student must enter 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 and the Registrar.

Withdrawal

The decision to permit a student to withdraw or not to withdraw from a course is a responsibility of the student's Academic Dean. After the mid-point of a quarter or session, however, the Academic Dean does not take action upon a student's request for withdrawal until the student (or his Dean) has conferred with the instructor concerning the matter, nor until the instructor has had an opportunity to present his recommendations to the Dean charged with the decision. This latter requirement need not be met when the student is requesting *complete* withdrawal from the University because of illness or other personal circumstances beyond his control.

If a student withdraws from a course with the permission of his instructor and Dean, no record of failure appears on his record.

If a student leaves a course without going through the withdrawal procedure or is dropped from any course by his Dean, he is given a failing grade in the course.

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 $11.00 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.

Re-examination

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

Repeating Courses

An undergraduate student who has earned a failing grade may repeat a course once, subject to these conditions:

a. A student who has attempted not more than 60 quarter credits may repeat a course in which he has failed if he enrolls when ad-

vised and has permission of his Dean. If he passes the course with a grade of D or better on the second attempt, only the second grade earned will count. If he fails the course on the second attempt, both grades of F will count.

b. A student enrolled at the University must repeat a failed course in the next quarter it is offered.

c. A student must repeat the exact course which he has failed at The University of Akron and must take this course at The University of Akron.

Discipline

The University reserves the right to penalize any student whose conduct at any time is in its judgment detrimental to the institution.

Grades

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 through their campus mail box or to their 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 indicating a student's academic level of achievement.

This method of recording grades is explained as follows:

The Grading System

Percentage	*Grade*	*Quality Points Per Quarter*
93-100 inclusive	A	4
85-92 inclusive	B	3
77-84 inclusive	C	2
70-76 inclusive	D	1
Conditioned*	E	0
Below 70	F	0
Incomplete**	I	
In Progress***	IP	

* "Conditioned" means that although the quarter's work is not of passing grade the deficiency may be made up without repeating the course in class. Failure to remove the deficiency satisfactorily by the close of the student's next quarter in the University converts the grade to F. No higher grade than D is given for the removal of a "Condition."

The grade "Conditioned" may be given for the first quarter's work in a subject continuing through two or more quarters, such as first-year chemistry or first-year foreign language.

** "Incomplete" means that the student has done passing work in the course, but some part, for good reason, has not been completed. FAILURE TO MAKE UP THE OMITTED WORK SATISFACTORILY WITHIN THE FIRST HALF OF THE FOLLOWING QUARTER CONVERTS THE GRADE TO F.

*** 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

A student's grades affect his academic progress in the following ways:

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 may receive priority at registration time and 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 96 credits to be eligible to be promoted 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. 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, to receive a degree.

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.

A student who is dropped from Army or Air Force R.O.T.C. for unsatisfactory work during a quarter shall be dropped from the University with failing grades in those subjects which he is failing and withdrawn from those subjects in which he is passing.

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; "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.

Military Training

A course in either Army or Air Force ROTC is required of all male students at The University of Akron.

Students may indicate a preference for the branch of military training they prefer, subject to certain regulations.

"The only individuals exempt from, and prohibited to take, this required training for Freshman and Sophomore men are:

1. Aliens, unless specific action to become a United States citizen has been initiated.

2. Men classified 4F by a draft board or in receipt of a statement from a doctor who contraindicates participaton in either ROTC program.

3. Men carrying less than 12 credits inluding ROTC.

4. Men above 23 years of age as of class starting date.

5. Men who have completed 48 semester hours or 72 quarter hours at another college or university.

6. Men who submit written declaration to the President of the University of religious or conscientious objections to military service. An ordained minister must validate this declaration of conscientious objector status.

7. Men with over four months prior honorable military service."

Requirements for Baccalaureate and Associate Degrees

(All References to "Credits" Mean "Quarter Hours")

A candidate for the Baccalaureate or the Associate degree must:

1. File an application for graduation with The University of Akron Registrar at the start of his final academic year. Filing deadlines may be obtained from the office of the Registrar; and

Place an order with the University Bookstore for the cap and gown, within dates approved by the University Marshal; and

Participate in Commencement exercises. Degree candidates who wish to be graduated "In Absentia" must make written request to the Dean of their college within established dates.

2. Earn a minimum 2.0* quality point ratio, as computed by The University of Akron:

a. For all collegiate work attempted, including work taken at other accredited institutions; and

b. For all work attempted at The University of Akron; and

c. For all work attempted in the major field, including work taken at other accredited institutions; and

d. For all work attempted in the major field at The University of Akron.

3. Meet all degree requirements in his elected major, program, and college, and be approved for graduation by the appropriate college faculty, University Council, and the Board of Trustees.

* The College of Education and The College of Nursing require a minimum 2.5 quality point ratio in the major field.

Except for doctoral candidates, a student is expected to complete the requirements for a degree in not more than five calendar years from the date of his enrollment, as defined below. The University reserves the right to make changes which alter the number of credits and/or courses required for a degree, in the event the student fails to complete his degree requirements within five calendar years from the date of his enrollment.

The Dean of a College, in consultation with the Department 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 becomes operative. The action of the Dean of the College in granting or refusing a waiver may be reviewed by the Vice President for Academic Affairs on his own motion, or at request of the Dean of the College or the student affected.

For the purpose of this section, "college" means the college or division in which the student is enrolled for a degree; "enrolled" or "enrollment" refers to the date the student registers next following the:

a. date of promotion or transfer to upper college, in the case of students enrolled in the General College or the Community and Technical College;

b. date of his matriculation in the Community and Technical College, the College of Law, or the Graduate Division, or an upper college in the case of post baccalaureate students.

4. Must spend his last year in residence (earning a minimum of 48 credit hours in the Baccalaureate degree total or 24 credit hours in the Associate degree total) at The University of Akron unless excused in writing by the Dean of his college.

5. Take the Graduate Record Examination (Baccalaureate degree candidates only), and discharge all other individual obligations to The University of Akron.

NOTE: A candidate for a second Bachelor's degree must earn a minimum of 48 credit hours in residence which have not counted towards his first Bachelor's degree.

A candidate for a second Associate degree must earn a minimum of 24 credit hours in residence which have not counted towards his first Associate degree.

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 subsequently 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.

Credit and Quality Point Requirements for Graduation

College	*Degrees Granted*	*Minimum Semester Credits***	*Minimum Quarter Credits*	*Qual. Pt. Average Required*
Liberal Arts				
Humanities:	Bachelor of Arts	128	192	2.0
Social Sciences:	Bachelor of Science	128	192	2.0
	Bachelor of Science in Labor Relations	128	192	2.0
Natural Sciences:	Bachelor of Science	128	192	2.0
	Bachelor of Science in Medical Technology	128	192	2.0
Engineering	Bachelor of Science in Chemical Engineering	147	218	2.0
	Bachelor of Science in Civil Engineering	149	216	2.0
	Bachelor of Science in Electrical Engineering	146	218	2.0
	Bachelor of Science in Mechanical Engineering	146	217	2.0
Education	Bachelor of Arts in Education	128	192	2.0*
	Bachelor of Science in Education	128	192	2.0*
Business Administration	Bachelor of Science in Business Administration	128	192	2.0
	Bachelor of Science in Industrial Management	128	192	2.0
	Bachelor of Science in Accounting	128	192	2.0
College of Fine and Applied Arts	Bachelor of Music	128	193	2.0
	Bachelor of Arts	128	192	2.0
College of Nursing	Bachelor of Science in Nursing	133	195	2.0*
Community and Technical College	Associate Degree in:			
	Electronic Technology	69	103	2.0
	Mechanical Technology	68	103	2.0
	Chemical Technology	65	97	2.0
	Transportation	64	101	2.0
	Arts	64	96	2.0
	Sales and Merchandising	64	97	2.0
	Secretarial Science	64-69	96-99	2.0
	Industrial Technology	64	97	2.0
	Commerce	64	96	2.0
	Commercial Art	65	98	2.0
	Survey and Construction Technology	66	100	2.0
	Instrumentation Technology	66	102	2.0
	Data Processing	64	98-101	2.0
	Food Service Management	64	96	2.0

* Quality point average of 2.5 in major field is required.
** To September, 1968.

Fees and Expenses

Despite willingness of taxpayers and generous friends of the University to help support higher education, some portion of his 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:

	Residents of Ohio	*Non-Ohio Residents*
Undergraduate fee for regular load	$495	$1095
General Service Fee	45	45
Books (average	100	100
Food and Housing in Residence Halls	—	930
TOTAL	$640	$2170

* Fees subject to change without notice.

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 fees and 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 status should consult with the Registrar, if in day classes, or with the Dean of the Evening College, if in evening classes.

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.

ADMISSION APPLICATION FEE (Undergraduate & Post Baccalaureate)—A check, money order or cash in the amount of $15 must accompany an undergraduate or post baccalaureate student's application for admission to the University. This nonrefundable application fee is required only once, the first time the student applies for admission to the University.

ADMISSION APPLICATION FEE (Graduate & Law)—A check, money order or cash in the amount of $15 must accompany all applications for prospective graduate and law students.

ADMISSION APPLICATION FEE (Transient Student)—A check, money order or cash in the amount of $15 must accompany the application of a transient student for each period of enrollment.

GENERAL SERVICE FEE—All students pay a General Service Fee of $15.00 for each quarter or session in which they enroll for 9 credits or more. All students pay a General Service Fee of $5.00 for each quarter or session in which they enroll for 8½ credits or less.

INSTRUCTIONAL FEE—For each undergraduate and post baccalaureate quarter credit, paid by both resident and non-resident students:

1 through 15 quarter credits	$ 11.00 per quarter credit
or 15½ through 18 quarter credits at	$165.00 per quarter*
and any additional quarter credits over 18 at	$ 11.00 per quarter credit

NON-RESIDENT SURCHARGE—For each undergraduate and post baccalaureate quarter credit enrolled by non-Ohio students:

1 through 15 quarter credits	$ 13.00 per quarter credit
or 15½ through 18 quarter credits at	$200.00 per quarter*
and any additional quarter credits over 18 at	$ 13.00 per quarter credit

* Does not include special or miscellaneous fees, i.e.: music, late registration, etc.

Explanation: In addition to the Instructional Fee paid by all students, nonresidents pay non-resident surcharge to make up for tax support the University receives from residents of the State of Ohio.

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 $930. Payment plans can be arranged with the Director of Housing.

Graduate and Professional (Law) Fees

Fee for Ohio residents per credit per quarter	$22.00
Fee for nonresidents per credit per quarter	28.00

Late Registration Fee

Fees are payable at the time of registration or by the mail registration deadline. An additional $15.00 is charged each student who has not completed registration and payment of fees before the closing time of registration in the session in which he is to be enrolled.

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.

Music Fees

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

APPLIED MUSIC—For private lessons in Band Instruments, Organ, Piano, Violin, Voice:

	Under-Graduate	*Graduate*
Two individual half-hour lessons per week (4 credits)	$100.00	$140.00
One individual half-hour lesson per week (2 credits)	50.00	70.00
One hour practice per week on pipe organ	10.00	10.00

* Does not include special quarter credit fees in music.

Thesis and Binding

For candidates for advanced degrees (Payable at time of application for degree).

Binding fee, per volume	$ 5.00
Microfilming fee (for Ph.D. degrees only)	25.00

Two volumes must be deposited in the University Library.

Graduation Fee

Each Degree	$11.00
In Absentia (additional)	11.00

Auditors

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

Department of Special Programs

A fee of $18.00 is charged for each Department of Special Programs course unless otherwise noted in the circular which describes the courses.

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 may purchase this insurance at the same annual individual rate of $22.50.

Miscellaneous

One free transcript of record is furnished a student. A fee of $1.00 is charged for each additional copy.

A fee of $11.00 per credit is charged for each examination in college work not taken in course (credit by examination).

A change of schedule fee of $3.00 per course is charged each student who, after completing registration, enrolls for an additional or substitute course or section except when such change is made at the request of the dean having jurisdiction over the student.

In addition to other costs, a fee of $25 is charged students enrolled in course 510:402 (Student Teaching).

A rental fee of $4.00 per year plus a deposit of $1.00 is charged each student who engages a locker on campus. The deposit is refundable.

A towel rental fee of $3.00 and a locker rental fee of $2 ($1 refundable) per quarter are charged each student in Physical Education who uses locker room facilities in Memorial Hall.

A fee of $5.00 for each returned or NSF check.

A laboratory breakage deposit fee (refundable) $10.00

Parking Fees

Credit students—		
enrolled for 9 or more credits	$15.00	(per qtr.)
enrolled for 8½ or less credits	7.00	(per qtr.)
Summer Sessions students	10.00	(per ses.)
Workshop participants	5.00	
Department of Special Programs	5.00	(per qtr.)

(All fees are subject to change without notice.)

Rules Governing Nonresident Surcharge

A student is required to pay a nonresident surcharge unless he qualifies as a bona fide resident. The Board of Directors has adopted a regulation that does these things: (a) Defines the qualifications for residence status: (b) places on the student the burden of proving that he qualifies as a bona fide resident by clear and convincing evidence; (c) assumes that once the student has been properly classified as a nonresident student, this status continues, but provides him with the opportunity to prove by clear and convincing evidence that his status has changed; (d) provides an orderly procedure to permit the student to appeal if he believes his status has been wrongly determined; (e) penalizes false claims or presentation of false evidence in support of a claim (the student's application may be denied, or he may be suspended, expelled, or otherwise disciplined, and he may be fined $25.00 for each offense). The student may get the full text of this regulation from the Office of the Registrar or the Dean of the Evening College.

For purposes of assessing fees and surcharges, the Board defines a "bona fide resident" as a person 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, for at least twelve consecutive months prior to the date of the beginning of a quarter or term for which a person seeks to enroll as a bona fide resident. A fraternity 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 nonresident:

1. The student is under 21 years of age, never married, and one of his natural parents (guardians) is a bona fide resident. If his father is no longer his natural guardian, the next rule applies.

2. The student is under 21 years of age, never married, and a person other than his natural father is his natural or legal guardian, and such natural or legal guardian is a bona fide resident. Such person may be the widowed mother, a grandparent who stands in loco parentis to the child after the death of his mother and father, his legal guardian, his adoptive parents, his mother who has been awarded exclusive custody of the child by a court of competent jurisdiction, or other person who under the laws of the State of Ohio is a natural guardian.

3. The student, whatever her age, is married and her husband is a bona fide resident. If she is legally separated from her husband and the residence of her choice is not the State of Ohio, then she shall not qualify as a bona fide resident under this rule.

4. The student is under 21 years of age, male, married, and is a bona fide resident. That he may be divorced, separated, or a widower is immaterial to the operation of this rule.

5. The student is 21 years of age or older, male, and a bona fide resident. A student who did not qualify as a bona fide resident on his 21st birthday does not qualify until the expiration of at least one year as a bona fide resident. His marital status is immaterial to the operation of this rule.

6. She is an unmarried female student, 21 years of age or older, and is a bona fide resident. A student who did not qualify as a bona fide resident on her 21st birthday does not qualify until the expiration of at least one year as a bona fide resident.

7. She is a widow who has not remarried, or a divorcee who has not remarried, and she is a bona fide resident. Her age is immaterial to the operation of this rule.

8. She is legally separated from her husband, and she is a bona fide resident as a matter of her choice. An interlocutory decree of divorce shall be deemed the equivalent of a legal separation. The age of the female shall be immaterial.

9. In any circumstance involving a married female not covered by the foregoing rules, the wife shall be presumed to be a bona fide resident if her husband is a bona fide resident, and she shall be presumed not to be a bona fide resident if her husband is not a bona fide resident. Her age shall be immaterial to the operation of this presumption.

10. Notwithstanding the foregoing tests of residence, the Committee on Residence Status may determine in proper cases that a minor is a bona fide resident. In addition to facts relating to the establishment of a bona fide dwelling place or abode within the State of Ohio and the intent for the requisite of time to make the State of Ohio a permanent home for purposes other than attending The University of Akron, the Committee on Residence Status shall consider the presence or absence of prior military service, the source and extent of the minor's support, the nature and degree of control by the parent or guardian, the existence or nonexistence of consent by the parent or guardian to the minor's establishing a separate domicile, whether or not the minor has been abandoned by his parent or guardian, and other relevant facts.

"The Committee on Residence Status" means a committee comprised of three persons, i.e., the Controller of the University who shall act as chairman, the University Registrar, and the Dean of the College of Law. In an ex-officio capacity shall be the Auditor and the Dean of the Evening College.

A student who has been properly classified as a bona fide resident or nonresident student as of the first day of a quarter or session retains that status continuously throughout the quarter or session for which he is registered. A student who has been properly classified as a nonresident student retains that status continuously throughout the period of attendance at The University of Akron unless he can show by clear and convincing proof that he qualifies as a bona fide resident.

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

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

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

A person who knowingly submits a false claim or knowingly gives false evidence in

support of a claim commits conduct detrimental to The University of Akron. He may be denied admission, suspended, expelled or otherwise disciplined as the President of the University shall determine. If his proper status is that of a nonresident, he shall pay nonresident tuition and a penalty of twenty-five dollars ($25.00) for each offense.

Regulations Regarding Refunds

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

Fees Subject to Refund are Described Below:

1. Undergraduate and postgraduate (instructional and non-resident surcharge)
2. Graduate
3. College of Law (including Library)
4. Music
5. General Service
6. Special Programs (Informal Courses)
7. Parking (Only if permit is returned)
8. Student Teaching
9. Residence Hall Fees
10. Laboratory Breakage Fee

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, except that a student dismissed or suspended by the University for disciplinary reasons will receive no refund.

3. If the student is drafted into military service by the United States and presents his Notice of Induction. Students who enlist voluntarily, see D below.

B. In full less $10.00

1. Upon written request of the student enrolled in courses other than in the Department of Special Programs, who is officially withdrawn before the first day of the term for which enrolled.

C. In full less $4.00

1. Upon written request of the student enrolled in the Department of Special Programs who is officially withdrawn before the first day of the term for which enrolled.

D. In part according to the following percentages upon written request of the student who is officially withdrawn on or after the first day of the term for which enrolled.

	College Credit Courses	*Department of Special Programs*	*Summer Sessions*
First Week	80%	75%	60%
Second Week	60%	25%	20%
Third Week	40%	0	0
Fourth Week	20%	0	0
Thereafter	0	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 of last attendance in class. Refunds will be mailed within 30 days after date of withdrawal.

Residence Hall Refunds

In the event of cancellation of an accepted housing contract (for any reason) $50.00 will be retained by the University as a forfeiture.

In the event of a cancellation of a housing contract in writing 90 days prior to the start of a quarter, a full refund of monies paid, less $50.00, will be made.

In the event of cancellation of a housing contract in writing less than 90 days, but 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 housing contract in writing less than 90 days 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 $170.00.

In the event of cancellation of a housing 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 $2.15 per day for each day remaining in the quarter.

In the event of cancellation of a housing

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 $4.10 per day for each day remaining in the quarter, but in no event will the refund exceed $260.00.

In the event of cancellation of a housing contract in writing, either before or after the start of a quarter of a *board only* contract, a refund will be made of $2.15 per day for each day remaining in the quarter.

Financial Aids

An entering freshman or an enrolled student at the University in undergraduate, graduate or postgraduate courses has several possibilities of receiving financial aid which can facilitate his earning 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 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 Graduate Study. 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:

Acme-Zip Fund Scholarships

This scholarship fund has been established from the proceeds of the Acme-Zip football games. Scholarships will be awarded to worthy students by the University Scholarship Committee, with an equal amount going to the University General Fund. Special consideration will be given to requests from students enrolled in the Colleges of Business Administration and Engineering.

Akron Area Plumbers and Pipefitters Industry Scholarship Fund

These scholarhsips 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 College 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 District Society of Professional Engineers Scholarship

A scholarship in the amount of $250 a year for a junior or senior engineering student.

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.

The Akron Junior Chamber of Commerce Scholarship

This scholarship is awarded to a continuing male student residing in Akron. The scholastic average should be at least 3.0 with outstanding performance in extracurricular activities. (Sports may be included, but should not be the only activity.)

Akron National Bank & Trust Company Award in Trusts

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

Akron-Summit County Federation of Women's Clubs Fine Arts Award

An award of $50 is made to an outstanding art student.

Akron-Summit County Federation of Women's Clubs Speech Award

An award of $100 is made to an outstanding senior woman in speech.

Akron Rubber Group Scholarships in Chemistry

An award of $400 a year is available for entering students and undergraduate students majoring, or intending to major, in chemistry. Outstanding ability in science and chemistry will be given primary emphasis in the awarding of these scholarships. Renewal of the scholarship for succeeding years is contingent upon satisfactory scholarship.

Akron Section of the American Chemical Society Award

The award of student memberships and subscriptions to two of the Society's official publications is made to two chemistry major students of junior rank on the basis of scholarship.

Akron Soap Box Derby Scholarship

An award of $500 to the winner of the Akron Soap Box Derby is made by the Chevrolet Dealers of the Akron area. The scholarship is payable at the time the winner becomes enrolled as a full-time student at The University of Akron.

Akron University Alumni Fund Scholarships

Akron University alumni designated the total amount of their 1959 annual fund drive for scholarships for young men or women of excellent scholastic accomplishment in high school work. It is the intention that these scholarships be four-year awards, subject to review of the University Scholarship Committee each quarter. There are no geographical restrictions.

Akron University Associates Scholarships

The purpose of these scholarships is to encourage well-qualified students to attend The University of Akron. The scholarships will be administered by the University Scholarship Committee. Scholarships can be applied toward registration fees only and may be renewed each year contingent upon high scholastic achievement.

Akron University Awards

Upon recommendation of the University Scholarship Committee, students who possess talent in athletics, the dramatic arts, journalism, music or fine arts and an over-all academic record of acceptable quality, The University of Akron provides an award to the student. Such awards are subject to review each quarter.

Alpha Lambda Delta Award

The National Chapter of Alpha Lambda Delta, scholastic honorary for women, awards a book to the graduating senior member with the highest scholastic average.

American Cyanamid Company Grant

This grant is to be used by the Department of Chemistry in its graduate training and research program.

American Institute of Chemists Award

A student membership in the American Institute of Chemists and a medal are given to an outstanding student majoring in chemistry. 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 College of Law for high scholarship and leadership in student affairs, in each of the four classes.

American Marketing Association Award

An 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 Engineers 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 Engineering College as representing the best qualities of a civil engineer.

W. H. Anderson Company Award

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

Ashton Prizes
A fund of $3,000 was established in 1887 by Oliver C. Ashton of Bryan, Ohio, endowing the O. C. Ashton Prizes for excellence in reading and speaking. Three contests are held during the year, one in original oratory, one in interpretative reading and one in extemporaneous speaking. The amounts of the prizes awarded at each contest vary from $5 to $30.

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 chemistry will be given preference.

The Summerfield Baldwin III Scholarship
This fund was established by the family of Summerfield Baldwin III. The income is to be used to assist 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. All awards will be made by the University Scholarship Committee.

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.

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.

Botzum Brothers Company Scholarship
This fund has been established by The Botzum Brothers Company 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.

Brewster Scholarship
A fund established by Mr. and Mrs. Evan B. Brewster (Margaret Zink '25) to provide scholarship assistance to upper-class students in the amount of $200 a year.

Brewster Award
A fund established by Mr. and Mrs. Evan B. Brewster (Margaret Zink '25) in the amount of $120 a year to aid under-class students who are affiliates of Lone Star and/or Phi Delta Theta and/or Kappa Kappa Gamma.

Brewster Lawbook Award
An annual award established by Mr. and Mrs. Evan B. Brewster (Margaret Zink '25) 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.

Mildred Heter Buckingham Memorial Scholarship
The Mildred Heter Buckingham Memorial Scholarship Fund was established in 1954 by Mr. Lisle M. Buckingham in memory of his wife, Mildred Heter Buckingham. The income from this fund shall be used to assist any full-time student at the University who shows promise in the field of applied music and who is recommended for the scholarship by the Music Department. Music majors are to receive preference if equally well qualified. Final approval will rest with the University Scholarship Committee.

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 will be used to assist worthy students who are selected by the University Scholarship Committee. Memorial contributions are still being accepted as additions to this fund.

Builders Exchange Scholarship
A fund established by the Builders Exchange of Akron and Vicinity for the purpose of granting financial assistance to worthy students attending The University of Akron. Preference will be given to students whose families are members of the Exchange, employees of members, contributors to the Construction Advancement Program and/or students whose fathers are members of a building trades union affiliated with the Tri-County Building Trades Council. The University Scholarship Committee selects the recipients. This scholarship applies to the two-year Associate degree program as well as the four-year programs leading to a Bachelor's degree in civil, electrical or mechanical engineering.

The Bureau of National Affairs, Inc.

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

Cabot Fellowship

This award is provided by the Cabot Corporation to a graduate student in polymer science.

Homer C. Campbell Fund

A fund established under the will of the late Homer C. Campbell provides for assistance by loan or gift from its income to needy students dependent on their own resources. Preference is given to young men who have been newsboys in Akron.

Hervey E. Chambers Scholarship

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

College Club of Akron Scholarship

This scholarship is offered by the College Club of Akron and is awarded to an outstanding entering freshman girl at The University of Akron. It is a one year only scholarship in the amount of $250.

Columbian Carbon Research Fellowship

This award is provided by the Columbian Carbon Company to a graduate student in rubber and polymer chemistry.

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 in 1967, providing the sum of $50 to be awarded each year to a political science major graduating with an average above 3.5 and with at least a 3.2 overall average, such student to be designated by the Dean of the Buchtel College of Liberal Arts.

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.

Elizabeth C. Dellenberger Award

This fund has been established by Mrs. 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 will provide assistance on the basis of need, to a visually handicapped undergraduate or graduate student who is a resident of Summit County. The applicant need not be a full-time student, but must be approved by the University and the Akron Delta Gamma Alumnae Scholarship Committee.

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. Students apply directly to the Delta Gamma Foundation.

Delta Kappa Gamma Scholarship

This scholarship is offered by the Delta Kappa Gamma Society. An award of $200 annually is granted to a woman in her junior or senior year who expects to enter the field of teaching. The University Scholarship Committee will make the award upon the recommendation of the Scholarship Committees of the Delta Kappa Gamma Society.

Delta Pi Iota Sorority Scholarship

This scholarship of $200 a year is available to full-time women students. Either entering or continuing students are eligible. The candidate must have a satisfactory scholastic record, and evidence of need, good character, and leadership will be considered. A committee of Delta Pi Iota shall nominate a list of candidates for this annual award with the cooperation of the Scholarship Committee of the University.

Mr. and Mrs. Charles C. 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.

Division of Rubber Chemistry of the American Chemical Society Scholarship

This scholarship was established by the Division of Rubber Chemistry of the American Chemical Society, Inc., for the purpose of encouraging advanced study in the fields of elastomer and polymer chemistry and engineering. It provides for payment of tuition and fees for one school year up to $1,000. The recipient must be a graduate student in the polymer program at The University of Akron.

Betty Dobkin Nursing Scholarships

Awards in the amount of $400 are made annually by the Women's Auxiliary to the Summit County Medical Society to girls entering nursing in an Akron Hospital. $200 given the first year, $100 the second and $100 the third year, contingent on satisfactory performance and scholarship. The award is a gift if the girl graduates from the Akron school of her choice. If she does not graduate, the money must be repaid to the scholarship fund.

DuPont Fellowship

This grant is to support a fellowship to a graduate student in the field of polymer science.

East Akron Board of Trade Scholarship

A scholarship in the amount of $400 a year for a graduate from one of the East Akron high schools, including East, Springfield or Hoban High (the graduate from Hoban must be a resident of East Akron). Scholarship recipient will be judged on scholarship, need, and leadership.

Ellet Women's Club Scholarships

Scholarships in varying amounts to graduates of Ellet High School who are financially deserving and who wish to attend The University of Akron as full-time students. Recipients must have maintained a 3.0 average in high school.

Ernst and Ernst Accounting Achievement Award

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

Esso Research and Engineering Grant

This grant to be used by the Department of Chemistry to further excellence in its graduate training and research or in its undergraduate teaching.

The Evans Foundation Scholarship

The Evans Foundation Scholarships in the amount of $500 a year 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.

Fellows of the Ohio State Bar Association Foundation Award

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

The Firestone Tire and Rubber Company Fellowship

The Firestone Tire and Rubber Company Fellowship in Chemistry is in the value of $2100 per annum if single and $2300 per annum if married, and pays fees and tuition for the Fellowship Recipient.

Fischbach Trucking Company Scholarship

A fund established by the Fischbach Trucking Company provides scholarship assistance to worthy students. Recipients are selected by the University Scholarship Committee.

Dr. E. B. Foltz Pre-Medical Prize

Under the provisions of the will of the late Dr. E. B. Foltz a fund was established to provide for a pre-medical 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 pre-medical course and who plans to enter medical college the following year. The name of the winner is announced at Commencement, but the actual award is not made until the winner has enrolled in medical college.

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 to be determined by the University Scholarship Committee.

Ervin D. Fritch and Ada B. Fritch Scholarships

Scholarships in varying amounts are awarded 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.

Frontiers Club Scholarship

These scholarships are made available by The Akron Chapter of the Frontiers Club and are granted to outstanding graduates of the Akron Public High Schools.

General Electric Fellowship

This award is provided by the General Electric Foundation in support of a graduate research and study grant in chemistry.

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 Com-

mittee selects an entering freshman student on the basis of academic potential and achievement and leadership qualities.

The General Tire & Rubber Company Research Fellowship

This fellowship is given to a graduate student in the Department of Chemistry who is interested in working in the field of polymer chemistry.

The Glaus, Pyle and Schomer Scholarship

The firm of Glaus, Pyle and Schomer, 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 will support a fellowship to a graduate student in the field of polymer science.

Goodyear International Corporation Fellowship

The Goodyear International Corporation Fellowship is in 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.

The Goodyear Service Pin Association Scholarship

This scholarship is in the amount of $400 per academic year for a maximum of four years. It was established by the Goodyear Service Pin Association for students whose parents are employees with five or more years of service with the Goodyear Tire & Rubber Company, or one of its domestic subsidiaries. Scholarships will be awarded each year to a freshman, a sophomore, a junior, and a senior. Selection of the recipients will be made by the University Scholarship Committee.

Goodyear Tire and Rubber Company Fellowship

The Goodyear Research Fellowship in Chemistry is in the value of $2100 per annum if single and $2300 per annum if married, and pays fees and tuition for the Fellowship Recipient. To be eligible for this Fellowship, a candidate must be a United States citizen, be working toward a Ph.D. degree with a major in Chemistry, and have a desire to enter industry upon graduation.

Grand Lodge of Free and Accepted Masons of Ohio Scholarship

One $400 scholarship for 1967-68 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.

M. M. Harrison Memorial Chemistry Scholarships

The income from this fund is to provide an annual scholarship for male chemistry students, Sophomore or above. Recommendation is made by the head of the Chemistry Department.

The Otis C. Hatton Scholarship

A four-year scholarship in the amount of $300 per year is awarded for the purpose of aiding a graduate of an Akron public high school who is planning to enter the educational profession. Preference will be given to well-qualified male students. Candidate must be in upper third of high school graduating class. The scholarship was established by the Akron Council of Parent Teachers Association in honor of Otis C. Hatton, former Superintendent of Schools.

Bancroft W. Henderson Fellowship

This grant sponsored by the International Institute of Synthetic Rubber Producers is offered to a graduate student in the field of polymer science.

Walter and 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 shall be awarded by the University Scholarship Committee in accordance with normal scholastic requirements.

Mr. and 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 M. 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.

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 Physics Department.

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

The Clarence L. Hyde Memorial Scholarship was created in 1946 by Mrs. Harriet Williams and Mrs. E. B. Perrin. The scholarship shall be a living memorial to Dr. Hyde and his service to humanity. The sum of $150 is to be awarded each year to a senior student residing in Akron, and shall be determined by scholarship and by need on the part of the student; race, color, creed, or sex shall not be considered.

Inside Advertising Week Award

This award, consisting of a week's trip to New York City for the purpose of interviewing and observing advertising agencies, is made to the senior student excelling in the field of Advertising by the Akron Advertising Club.

Interfraternity–Panhellenic Council Scholarships

These scholarships are not to exceed $300 per year and are available to one fraternity man and one sorority woman, funds permitting, who have completed not less than 90 and not more than 144 credits with a minimum accumulative grade point average of 2.5. Recipients must have participated in extracurricular activities at The University of Akron. Funds are provided by the Interfraternity and Panhellenic Council.

Junior Women's Civic Club Scholarship

An annual scholarship covering tuition, fees and book expenses is awarded to a deserving student. 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 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.

Dr. Kevin E. Kelleher Memorial Fund

An endowed fund established by the immediate family of the late Dr. Kevin E. Kelleher, Assistant Professor of Biology. The income will be used to provide scholarship assistance to worthy students majoring in a biological science. Recipients will be selected by the University Scholarship Committee upon recommendation of the Head of the Department of Biology.

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 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.

The Frank J. Lausche Scholarship

The fund serves to assist worthy students in the form of scholarship assistance. Recipients are selected by the University Scholarship Committee.

Lawyers Co-operative Publishing Company and Bancroft-Whitney Company Award

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 publications.

Isaac Liberman Memorial Scholarship Fund

This scholarship was established by the Wooster Sheet Metal and Roofing Company in memory of Isaac Liberman, the founder of the company. It is a single scholarship in the amount of $150 per year. The recipient will be selected by the University Scholarship Committee on the basis of his ability, college potential, and financial need. If qualified candidates are available, family members of employees of the company will be given primary consideration.

The Betty Jane Lichtenwalter Scholarship

This scholarship was established from a special 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.

The Louis Lockshin Scholarship

An award of $350 per year for a deserving 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 relatives of employes. Race, color, creed or sex shall not be considered.

Lubrizol Scholarship

An award to a chemistry student, with no restriction as to year of study; $400 per year is awarded to the recipient, with a matching amount put into the General Fund.

George W. Mathews Scholarship Fund

Established in 1964 by 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's current operating fund.

C. Blake McDowell Scholarships

The proceeds from this fund will 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.

The McNeil Corporation Scholarships

Four-year scholarships have been established by the McNeil Corporation in the amount of $1,700 each, with an equal amount going to the University General Fund. A scholarship will be renewable each year contingent upon the student's satisfactory scholastic progress. The scholarships will be awarded primarily to students enrolling in the College of Engineering with preference for those in the field of mechanical engineering although a deserving student in mathematics, chemistry or business may be considered.

Mercator Clubs of America Scholarship

The Mercator Club of Akron in cooperation with the Mercator Clubs of America have established scholarships in the amount of $400 a year to students in their junior or senior years. These scholarships are awarded on the basis of financial need and academic achievement. Applicants are recommended by the University Scholarship Committee with final approval resting with the Mercator Clubs of America Scholarship Committee.

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 Chemistry Department.

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.

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.

Mobay Chemical Company Research Fellowship

This fellowship is awarded to a graduate student in the Institute of Rubber Research who is working in the field of urethane polymers.

Leon F. Moldavsky Scholarship

This scholarship, in the amount of $250 a year, will be awarded to an outstanding sophomore student majoring in the biological sciences. Candidates will make application to the University Scholarship Committee, and must have at least a 3.0 point average for all work taken in the freshman year. In addition to scholarship, the student must have demonstrated high quality of citizenship, good moral character and high aptitude and motivation in his major field. Financial need also will be considered.

Victor I. Montenyohl Scholarship

The Victor I. Montenyohl Scholarship Fund for advanced study was established in 1946 by Mrs. Elizabeth Montenyohl, his wife, and his son and daughter, Victor and Patricia, in memory of Victor I. Montenyohl, in recognition of Mr. Montenyohl's devotion to the rubber industry, and his belief that The University of Akron offered a unique opportunity for rubber research. It is considered appropriate that the income from this fund be made available whenever possible to a student well qualified and interested in the field of rubber chemistry.

Herman Muehlstein Fund for Scholarship Aid

Earnings on a $250,000 grant from the Herman Muehlstein Foundation of New York will provide scholarships for qualified men students at The University of Akron who come from the New York City area.

Julius Muehlstein Scholarships

These scholarships amount to $300 a year and are given to help promising students continue their education in the field of rubber chemistry on the basis of need and satisfactory work. The committee shall make no discriminations as to race, color, or creed.

National Aeronautics Association—Akron Women's Chapter

The scholarships are offered by the Akron Women's Chapter of the National Aeronautics Association. The scholarships are to assist students who are primarily interested in studying some phase of aeronautics.

National Association of Accountants Award

An award made annually by the Akron-Canton Chapter of the National Association of Accountants to the outstanding senior student in the Account-

ing Department of the College of Business Administration.

National Secretaries Association Scholarship

In 1951, Tire Town Chapter of the National Secretaries Association established an annual scholarship in the amount of registration fees and books for an outstanding woman in Secretarial Science to defray normal collegiate expenses. The student is selected on the basis of criteria mutually acceptable to the University and to Tire Town Chapter, N. S. A. This scholarship is known as the Louise Gamble Memorial Scholarship.

Office of Naval Research Grant

A grant to be used by the Department of Chemistry for research in organoboron chemistry.

New York Rubber Group Scholarship

A scholarship in the amount of $500 a year is available for a student entering his junior year intending to seek a graduate degree in rubber and polymer chemistry. The recipient must be a citizen of the United States living within 250 miles of New York City. The same recipient may continue this scholarship through his senior year providing he maintains scholastic standards.

Ohio State University Graduate Scholarship

In the Spring of 1935 a number of graduate scholarships were established by The Ohio State University, one to be assigned to each of the Ohio colleges fully accredited by the North Central Association of Colleges and Secondary Schools. The scholarship entitles the student to the exemption of tuition and fees of all kinds except a matriculation fee. Selection is left to the individual colleges.

Eugene O'Neil Scholarship

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

Hugh Michael O'Neil Scholarship

Originally established in 1959 as the Ferdinand A. and Lorry 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. O'Neil Company Scholarships

The M. O'Neil Company has established scholarships to be awarded to students from the junior class and students from the senior class who are preparing to enter the field of general business. The scholarships are renewable each year upon satisfactory performance, scholarship and the student's continued preparation for a career in retail business. Students selected shall have a minimum of a 2.5 quality point ratio for all previous college work. Achievement, citizenship, leadership and promise of success in the business field will be used as a basis for making the awards.

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

A scholarship in the amount of $200 a year 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.

Panhellenic Council Scholarship

The Panhellenic Council of The University of Akron has established a scholarship of $300 a year for a woman student, to be applied entirely on the payment of fees. This scholarship shall be awarded by the University Scholarship Committee to a full-time student irrespective of race, religion, creed, field of study, or sorority membership, after completion of at least one quarter's work (12 or more credits) at The University of Akron, and shall be on the basis of scholarship and need. A ratio of at least 3 points in the major and 2.5 in over-all scholarship is required.

Judge and Mrs. W. E. Pardee Memorial Scholarship

Established in 1965, in memory of Judge and Mrs. W. E. Pardee, this scholarship, maximum amount of $500 per year, will be awarded to a full-time student in The University of Akron College of Law day program.

Judge W. E. Pardee Memorial Award

The Judge W. E. Pardee Memorial Award of $150 (established 1963-64) presented annually to a participant or team of participants in Bracton's Inn (the Case Club of the College of Law) who best displays advocatory skill and professional decorum.

William E. Paschal and Grace 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.

Petro-Tex Scholarship

The Petro-Tex Chemical Corporation has established a scholarship of $500 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 Fellowship

This award is provided by the Phillips Petroleum Company to a graduate student in polymer science.

Phi Sigma Award

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

Phi Sigma Alpha Junior Prize

The Phi Sigma Alpha Junior Prize of $50, first awarded in spring 1961, to the student in Buchtel College of Liberal Arts having the highest average for 80-96 credits in residence.

Phi Sigma Alpha Scholarship

This scholarship is awarded to a full-time Buchtel College of Liberal Arts junior or senior with at least a 3.0 cumulative average. The grant is in the amount of $400 per year of the academic year.

Phi Sigma Alpha Sophomore Prize

The Phi Sigma Alpha Sophomore Prize of $50, first awarded in spring 1961, to the student in the General College having the highest average for 72-96 credits in residence.

Pixley Scholarships

In accordance with the will of Isabel McRoy Pixley, wife of Frank Pixley, class of 1887, a fund of $50,000 was established in 1931. Awards are made each quarter to students of outstanding ability and promise in the fields of literature, music and speech. To be eligible for one of these awards the student must be enrolled in an upper college or qualified to enter an upper college and must be a major in the department in which the scholarship is awarded, or a divisional major in the humanities division. The awarding of these scholarships is made by a University committee. To be eligible for a Pixley Scholarship, a student must have a quality point ratio of at least 2 in all work taken; in the field of the award the quality of scholarship is expected to be much higher.

Radney Cigarette Service Scholarship

This scholarship is 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 this award. The amount of this scholarship is $300 a year, payable $100 a 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 the Department of Chemistry.

Merle David Riedinger Scholarship

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

William Eber Robinson Scholarship

A scholarship in the amount of $400 per 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 a 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 Scholarship Fund

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 Age Award

An award of $100 each to the students writing the best master's thesis and the best doctoral thesis on some aspect of rubber chemistry or technology.

Morris Sacks Scholarship

Mr. and Mrs. Alex Schulman established this scholarship in memory of Morris Sacks. The income from this fund is to be used annually for scholarships, with matching amount 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.

Senior Alumni Prize

A fund has been established by the Alumni Association for the purpose of awarding an annual cash prize of $50 to that senior student who has completed the regular undergraduate curriculum with the highest average grade for the work taken, having carried an average load of 12 credits per quarter.

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.

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.

The H. E. Simmons Memorial Scholarship

The H. E. Simmons Memorial Scholarship was established in memory of President Emeritus H. E. Simmons. The earnings from this endowed scholarship 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.

Society for Advancement of Management Award

This award is made by The University of Akron Chapter of the Society for Advancement of Management to the outstanding senior in the Department of Industrial Management.

Sohio Research Fellowship

This award is provided by the Standard Oil Company of Ohio to a graduate student in polymer chemistry.

South Akron Board of Trade Scholarships

The South Akron Board of Trade has established four scholarships to be awarded to an outstanding graduate from Coventry, South, Garfield, and St. Mary's High Schools in the amount of $150 for the freshman year, payable at $50 per quarter. The candidate must be in the upper third of his graduating class and must become a full-time University student. Scholastic achievement, citizenship, promise and leadership are the qualities used as the basis for the awards.

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 amounts and periods of coverage. Scholastic achievement, citizenship, athletic ability, need and leadership will be used as a basis for making these awards.

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 and awards to students to cover the cost of courses in applied music in the Department of Music for one quarter of the academic year.

Union Carbide Corporation Research Fellowship

This award is provided by the Union Carbide Corporation to a graduate student in polymer chemistry.

The University of Akron Memorial Fund

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

The University of Akron National Merit Scholarship

Through an arrangement with the National Merit Scholarship Corporation, The University of Akron is sponsoring one National Merit Scholarship beginning with the fall semester 1964. Only National Merit finalists are eligible. The recipient will be a man in the New York City area. The amount of the award will be a minimum of $100 and a maximum of $1,500 depending upon the student's needs as estimated by the National Merit Scholarship Corporation. The award is made possible by a $100,000 grant from the Herman Muehlstein Foundation of New York City through its Herman Muehlstein Fund for Student Aid. Additional scholarships will be awarded in subsequent years.

The University of Akron Pre-medical Scholarship Fund

This scholarship of $500 per year is awarded to a worthy Freshman student who intends to pursue the study of medicine. The Sacks Electric Supply Company established the scholarship but the selection of the candidate is made by the University Scholarship Committee.

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 pre-medical training at The University of Akron, Class of 1935.

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.

Lynn F. (Pindy) Wagner Scholarships

These scholarships amount to fees, not to exceed $165 per quarter and are awarded to high school senior men and women who are candidates for admission to The University of Akron. They extend over two school years.

To qualify the individual must be a member of the Akron Junior Bowling Congress and must be a high school student in his final semester. For each later quarter the award is contingent upon satisfactory performance in college. The applicant must be of good repute and recommended by his high school. The applicant must be in the upper half of his class and accepted for admission to The University of Akron. He must enroll as a full-time student. Decision as to the winner is made jointly by a committee of the Akron Junior Bowling Congress and the University Scholarship Committee.

The award will be made regardless of race, creed, color, national origin, or course of study and will be made jointly by the above awards committee each Spring.

Wall Street Journal Award

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

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 recipient will be selected by the University Scholarship Committee.

Mr. and Mrs. E. D. Warner Scholarship

This fund has been established by Mr. and Mrs. E. D. Warner 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.

West Publishing Company Awards

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 has displayed leadership and scholarship.

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 first or second 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.

WHLO Radio Scholarship

A scholarship awarded by Radio Station WHLO to a student displaying a strong interest in broadcasting. Selection to be made by the University Scholarship Committee.

The Witco Chemical Company Fellowship

The Witco Chemical Company Fellowship in Chemistry awards $2500 to a qualified graduate student in the Department of Chemistry for an academic year.

Women's Art League of Akron Awards

Awards made to promising art students.

Women's Auxiliary of the Akron District Society of Professional Engineers Scholarship

An award of $300 a year is made to a sophomore in the College of Engineering who has acquired a minimum of 42 credits at The University of Akron. The student selected must be enrolled as a full-time student and will be selected on the basis of scholarship, leadership, and need.

Mr. and Mrs. William D. Zahrt Scholarships

This scholarship was established by Mr. and Mrs. William D. Zahrt for high scholarship students. The scholarship is in the amount of $500 a year for two students upon scholarship performance. The University Scholarship Committee will make the selection.

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.

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 $800 per year. Preference will be given to entering freshmen. 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 Defense 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.

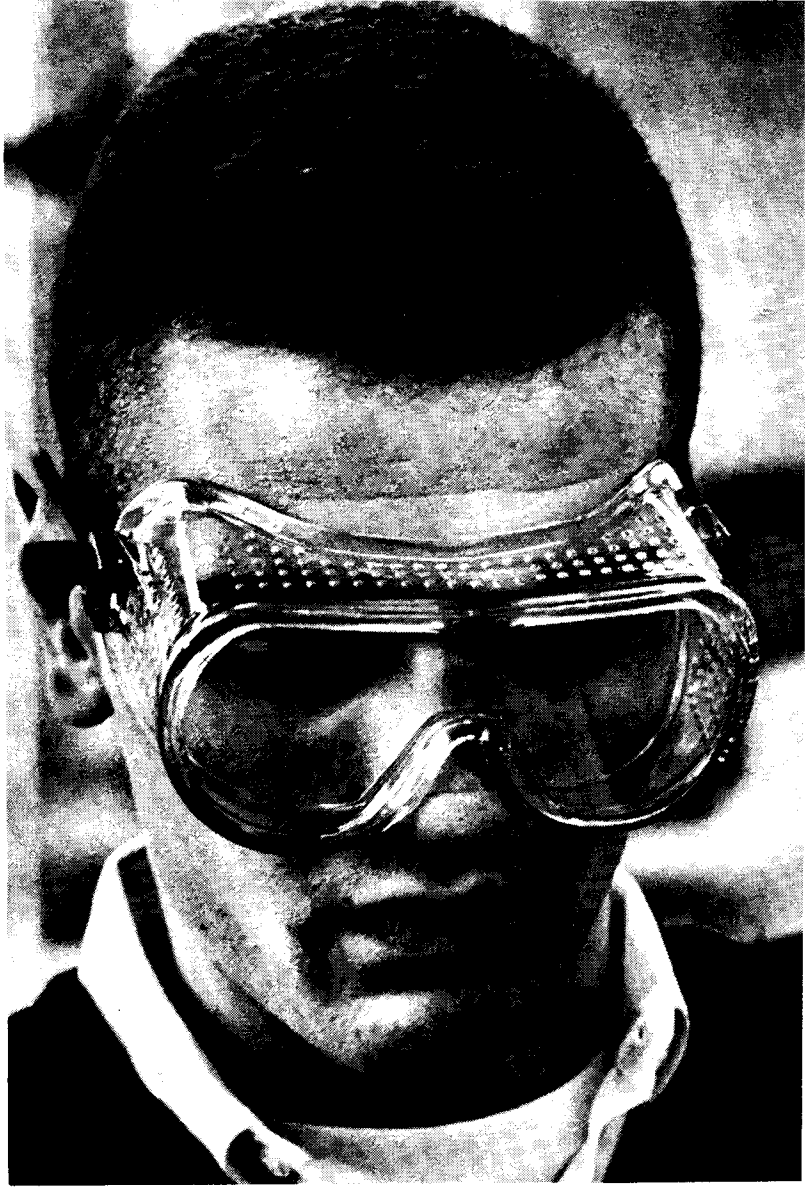
National Defense Student Loan Fund

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%. Up to one-half of any loan (plus interest) is canceled for service as a full-time teacher in a non-profit elementary or high school or a college.

Other Student Loan Funds

Akron Council of Parent-Teacher Associations Loan Fund
Altrusa Loan Fund
Maxwell P. Boggs Loan Fund
Homer C. Campbell Fund
Stephen Richard Chesrown Loan Fund
Katherine Claypole Loan Fund
Cuyahoga Portage Chapter D.A.R. Loan Fund
Evening College Loan Fund
Harriet Hale Loan Fund
Hermine Z. Hansen Loan Fund
Jessie and William Hyde Memorial Fund
Indian Trail Chapter of Daughters of the American Colonists Loan Fund
Lodge No. 547 Independent Order of Odd Fellows Loan Fund
Lichter Foundation Loan Fund
Litchfield-Thomas Fund
Ellen Nadolski 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 Loan Fund
May Steves Memorial Loan Fund
Richard J. Witner Memorial


USA



IV. The University of Akron

Academic Programs

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

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

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 Liberal Arts.*

A DIVISION OF INSTRUCTION—a generic grouping within a college. *For example: The Buchtel College of Liberal Arts 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 Liberal Arts 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 about 108 subjects of instruction.*

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 right from the start 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).

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 another story. In addition to pinpointing the precise course involved, they 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:

000-099 General Studies courses.
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.

Understanding some of the terms that are used, it now becomes easier to understand the organization of the University. The following table lists the various colleges, including their respective divisions and departments. The number in parentheses following department name is that department's *Code Number, and is used as a prefix for all courses taught in that department.*

THE UNIVERSITY OF AKRON

The General College (100)

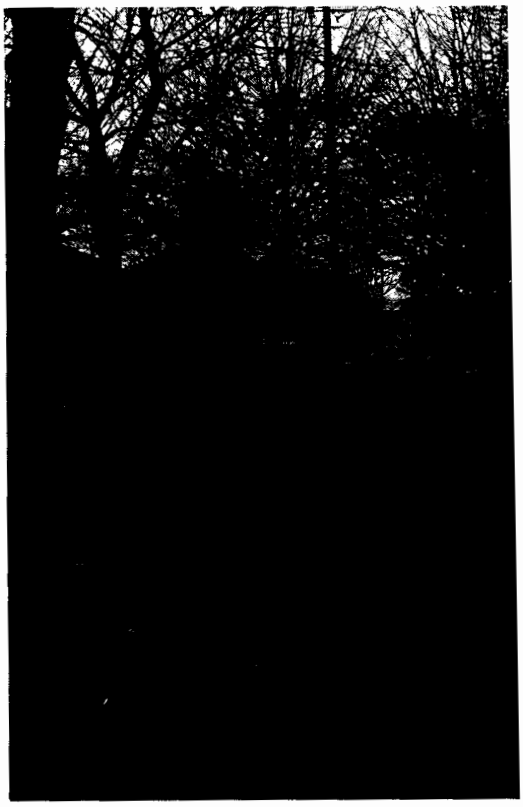
100 General Studies
150 Air Force ROTC
160 Army ROTC

The Community and Technical College (200)

202 Associate Studies
224 Commercial Art
228 Food Service Management
242 Commerce
244 Data Processing
252 Sales and Merchandising
254 Secretarial Science
256 Transportation
270 Preclinical Nursing
284 Chemical Technology
286 Electronic Technology
288 Industrial Technology
290 Instrumentation Technology
292 Mechanical Technology
298 Surveying and Construction Technology

The Buchtel College of Liberal Arts (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
350 Modern Languages
352 French
353 German
355 Italian
357 Russian
358 Spanish
360 Philosophy
365 Physics
370 Political Science
375 Psychology
385 Sociology
390 Interdisciplinary Programs
394 Polymer Science
398 Urban Studies



THE COLLEGE OF ENGINEERING (400)
410 General Engineering
420 Chemical Engineering
440 Electrical Engineering
460 Mechanical Engineering
430 Civil Engineering

THE COLLEGE OF EDUCATION (500)
510 General and Foundations
520 Elementary
530 Secondary
555 Physical Education
557 Men's Physical Education
559 Women's Physical Education
560 Guidance and Counseling
565 Educational Psychology
570 School Administration
580 Special Programs
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
780 Speech

THE COLLEGE OF NURSING (800)
820 Nursing

THE COLLEGE OF LAW (900)
920 Law

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

WILLIAM M. PETRY, M.S.M.E., *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 Commerce, Applied Science, Nursing and Health.

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 associate degree or certificate 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.

Departments within the four divisions of the College offer programs of study leading to the Associate Degree in:

Associate Studies Division
- Arts
- Commercial Art

Business and Office Technology Division
- Commerce
- Data Processing
- Food Service Management
- Sales and Merchandising
- Secretarial Science
  - Medical and Dental
  - Technical
  - Executive
  - Legal
  - International
- Transportation

Engineering and Science Technology Division
- Chemical Technology
- Electronic Technology
- Industrial Technology
- Instrumentation Technology
- Mechanical Technology
- Surveying and Construction

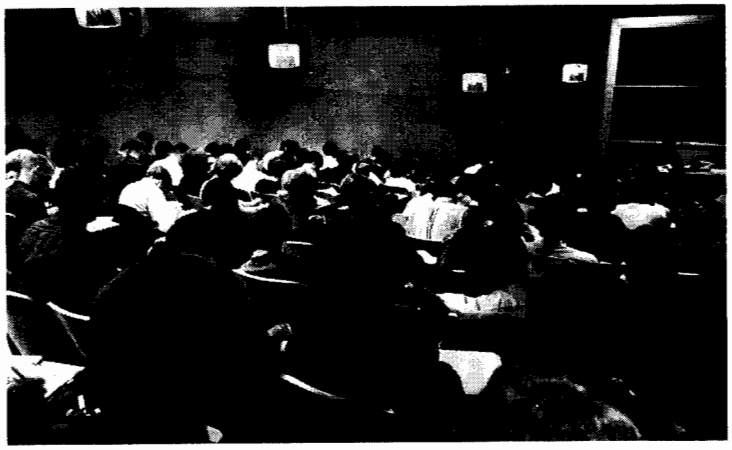
Health Technology Division
- Nursing (Diploma)

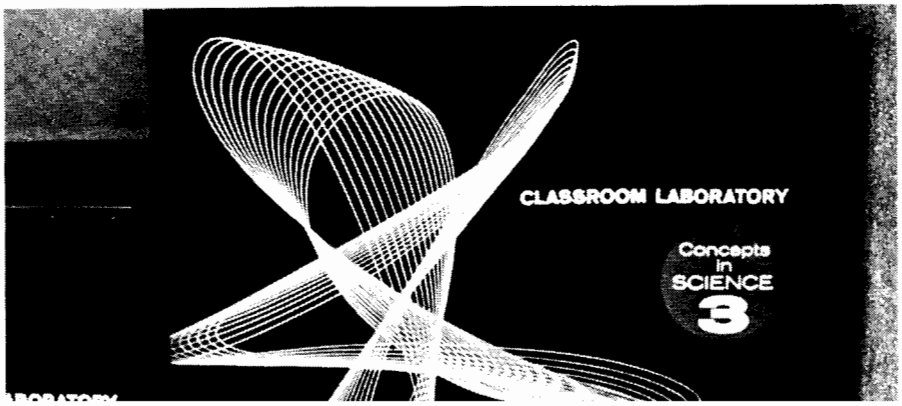
Requirements for Graduation

Candidates for the Associate Degree must

1. Earn credit in all of the required courses listed in the program;
2. Complete successfully a minimum of 96 credits;
3. Earn a minimum quality point ratio of 2.0 in all work attempted and all work taken at The University of Akron and;
4. Be recommended by the faculty.
5. Spend his last two quarters in residence (earning a minimum of 24 credits) at the University unless excused by the Dean of the College.
6. 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.





ASSOCIATE PROGRAMS

THE ARTS

First Year

First Quarter		*Credits*
110:101	English Composition	3
110:115	Institutions in U.S.	3
110:211	Numbers Communication	4
	ROTC or Elective	1.5
	Elective	4
		15.5

Second Quarter		
110:102	English Composition	3
110:116	Institutions in U.S.	3
110:121	Physical Education	1
	ROTC or Elective	1.5
	Elective	8
		16.5

Third Quarter		
110:103	English Composition	3
110:117	Institutions in U.S.	3
110:122	Physical Education	1
	ROTC or Elective	1.5
	Elective	8
		16.5

Second Year

First Quarter		*Credits*
110:108	Effective Speaking	4
110:213	R & U in Science	3
110:317	Western Cultural Traditions	3
	ROTC or Elective	1.5
	Elective	4
		15.5

Second Quarter		
110:205	Types of Literature	4
110:214	R & U in Science	3
110:318	Western Cultural Traditions	3
	ROTC or Elective	1.5
	Elective	4
		15.5

Third Quarter		
110:215	R & U in Science	3
110:319	Western Cultural Traditions	3
	ROTC or Elective	1.5
	Elective	9
		16.5

Total Credits 96

224: COMMERCIAL ART

First Year

Fall Quarter		*Credits*
110:121	Physical Education	1
202:119	English	3
252:103	Principles of Advertising	3
292:121	Technical Drawing I	3
710:125	Drawing—Design I	5
	ROTC or Elective	1.5
		16.5

Winter Quarter		
202:120	English Composition	3
224:124	Commercial Art Studio Mechanics	3
292:122	Technical Drawing II	3
710:126	Drawing—Design II	5
	ROTC or Elective	1.5
		15.5

Spring Quarter		
110:108	Effective Speaking	4
110:122	Physical Education	1
224:140	Typography and Lettering	3
710:146	Spatial Awareness	2
710:147	Two Dimensional Design	3
	ROTC or Elective	1.5
		14.5

Second Year

Fall Quarter		*Credits*
110:211	Numbers Communication	4
202:242	American Society	4
224:242	Commercial Art Problems I	3
224:221	Photography I	3
224:247	Packaging and Display Design	3
	ROTC or Elective	1.5
		18.5

Winter Quarter		
202:247	Survey of Basic Economics	5
224:222	Photography II	3
224:243	Commercial Art Problems II	3
710:269	Life Drawing	3
	ROTC or Elective	1.5
		15.5

Spring Quarter		
202:240	Human Relations	4
224:223	Photography III	3
224:244	Commercial Art Problems III	3
224:245	Design in Commercial Art	3
224:248	Presentation Techniques	3
	ROTC or Elective	1.5
		17.5

Total Credits 98

228: FOOD SERVICE MANAGEMENT

First Year

First Quarter	*Credits*
202:119 English	3
202:247 Survey of Basic Economics	5
228:121 Fundamentals of Food Preparation I	3
740:133 Nutrition Fundamentals	3
ROTC or Elective	1.5
	15.5

Second Quarter	
110:108 Effective Speaking	4
110:121 Physical Education	1
202:120 English	3
228:122 Fundamentals of Food Preparation II	3
310:177 Introductory Bacteriology	3
ROTC or Elective	1.5
	15.5

Third Quarter	
110:122 Physical Education	1
228.123 Fundamentals of Food Preparation III	3
228:135 Food Purchasing	4
252:101 Elements of Distribution	4
254:170 Business Math	3
ROTC or Elective	1.5
	16.5

Second Year

First Quarter	*Credits*
228:233 Quantity Food Service	5
252:102 Personnel Practices	4
254:211 Basic Accounting I	3
254:293 Business Communications	3
ROTC or Elective	1.5
	16.5

Second Quarter	
228:236 Menu Planning and Cost Control	4
228:237 Food Service Internship I	4
254:180 Essentials of Law	4
254:212 Basic Accounting II	3
ROTC or Elective	1.5
	16.5

Third Quarter	
202:240 Human Relations	4
228:238 Food Service Internship II	4
228:243 Food Equipment and Plant Operations	3
252:103 Principles of Display and Advertising	3
ROTC or Elective	1.5
	15.5
Total Credits	96

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

	Credits
110:101 and 102 English	3 and 3
110:121 Body Mechanics	1
110:122 Physical Education	1
310:133 Microbiology	4
310:147, 148, 149 Anatomy and Physiology	3, 3 and 3
315:124 Chemistry	4
375:141 General Psychology	5
375:151 Developmental Psychology	5
385:101 General Sociology	3
740:133 Nutrition Fundamentals	3
740:143 Foods and Nutrition	4

Nursing Advisory Committee

Mrs. Julia B. Fishbaugh, R.N., M.A.Ed., Director, Akron General Hospital School of Nursing; Mrs. Bernadette Griggy, R.N., B.S.N.E., Director, St. Thomas Hospital School of Nursing; Mrs. Mary J. Knapp, R.N., B.S.N., Executive Director, Visiting Nurse Service of Summit County; Miss Ella Mae Murdie, R.N., M.S., Director, Akron City Hospital School of Nursing; Miss Dorothy Chambers, R.N., B.S.N.E., Director of Nursing, Summit County Receiving Hospital; Mr. James DeMarco, R.N., B.S.N., Director of Nursing, Children's Hospital.

242: COMMERCE

First Year

First Quarter	*Credits*
202:119 English	3
254:153 Typing Principles	3
254:170 Business Math	3
640:161 Business Organization	4
ROTC or Elective	1.5
	14.5
Second Quarter	
110:121 Physical Education	1
202:120 English	3
252:101 Elements of Distribution	4
254:121 Office Problems	4
254:211 Basic Accounting I	3
ROTC or Elective	1.5
	16.5
Third Quarter	
110:122 Physical Education	1
202:240 Human Relations	4
252:102 Personnel Practices	4
254:212 Basic Accounting II	3
254:293 Business Communications	3
ROTC or Elective	1.5
	16.5
Recommended Electives:	
202:122 Technical Report Writing	3
244:121 Introduction to Information Processing II	3

Second Year

First Quarter	*Credits*
202:247 Survey of Basic Economics	5
244:120 Introduction to Information Processing I	4
254:125 Business Machines	2
256:110 Transportation Economic Policies I	3
ROTC or Elective	1.5
	15.5
Second Quarter	
254:180 Essentials of Law	4
288:032 Labor Management Relations	4
288:043 Survey in Finance	3
Elective	5
ROTC or Elective	1.5
	17.5
Third Quarter	
110:108 Effective Speaking	4
202:242 American Society	4
252:111 Public Relations	3
252:212 Principles of Sales	3
ROTC or Elective	2.5
	16.5
Total Credits	96
252:103 Advertising Principles	3
252:104 Display Techniques	3
254:154 Typing Practices	3

244: DATA PROCESSING

First Year

First Quarter	*Credits*
110:121 Physical Education	1
202:119 English	3
202:131 Math Analysis I	4
244:120 Introduction to Information Processing I	4
640:161 Business Organization and Management	4
ROTC or Elective	1.5
	17.5

Second Year

First Quarter	*Credits*
202:235 Math Analysis V	3
202:240 Human Relations	4
244:232 Computer Programming III	3
244:240 Business and Manufacturing Systems I	3
*Option A or B	3 or 4
ROTC or Elective	1.5
	17.5 or 18.5

Second Quarter

202:120	English	3
202:132	Math Analysis II	4
244:121	Introduction to Information Processing II	3
244:130	Computer Programming I	3
254:125	Business Machines	2
	ROTC or Elective	1.5
		16.5

Third Quarter

110:122	Physical Education	1
202:122	Technical Report Writing	3
202:133	Math Analysis III	3
202:247	Survey of Basic Economics	5
244:131	Computer Programming II	3
	ROTC or Elective	1.5
		16.5

* Option A: (Manufacturing Oriented) 254:211 Basic Accounting—3 credits, 250:212 Accounting II—3 credits, and 650:263 Organization—3 credits.

Second Quarter

202:234	Math Analysis IV	3
244:233	Computer Programming IV	3
244:241	Business and Manufacturing Systems II	2
244:251	Data Processing Project I	4
	*Option A or B	3 or 4
	ROTC or Elective	1.5
		16.5 or 17.5

Third Quarter

110:108	Effective Speaking	4
244:234	Computer Programming V	3
244:252	Data Processing Project II	2
	*Option A or B	3 or 4
	ROTC or Elective	1.5
		13.5 or 14.5

Total Credits 98 or 101

* Option B: (Business and Finance Oriented) 620:221 Accounting—4 credits, 620:222 Accounting—4 credits, plus 620:270 or 620:290.

252: SALES AND MERCHANDISING

First Year

First Quarter — *Credits*

110:121	Physical Education	1
202:119	English	3
252:111	Public Relations	3
254:170	Business Math	3
640:161	Business Organization	4
	ROTC or Elective	1.5
		15.5

Second Quarter

110:122	Physical Education	1
252:101	Elements of Distribution	4
252:102	Personnel Practices	4
254:211	Accounting	3
710:137	Design and Composition in Modern Art	3
	ROTC or Elective	1.5
		16.5

Third Quarter

202:120	English	3
202:240	Human Relations	4
252:103	Principles of Advertising	3
252:104	Display Techniques	3
254:212	Accounting	3
	ROTC or Elective	1.5
		17.5

Second Year

First Quarter — *Credits*

202:147	Survey of Basic Economics	5
252:210	Wholesaling and Service Fundamentals	3
252:211	Mathematics of Retail Distribution	3
202:242	American Society	3
	ROTC or Elective	1.5
	Elective	1
		16.5

Second Quarter

244:120	Introduction to Information Processing	4
252:202	Retailing and Franchise Fundamentals	3
252:212	Principles of Salesmanship	3
288:143	Survey in Finance	4
	ROTC or Elective	1.5
		15.5

Third Quarter

110:108	Effective Speaking	4
252:203	Techniques of Retail Merchandising	3
254:180	Essentials of Law	4
	ROTC or Elective	1.5
	Elective	3
		15.5

Total Credits 97

It is suggested that elective work be taken in the areas of Human Relations, Sociology, and/or Psychology.

254: SECRETARIAL SCIENCE

Executive Secretarial Science

First Year

First Quarter	*Credits*
202:119 English	3
202:240 Human Relations	4
254:125 Business Machines	2
254:153 Typing Principles	3
254:161 Shorthand Principles I	4
ROTC or Elective	1.5
	17.5
Second Quarter	
110:101 English Composition	3
110:121 Physical Education	1
254:121 Office Problems	4
254:154 Typing Practices	3
254:162 Shorthand Principles II	4
ROTC or Elective	1.5
	16.5
Third Quarter	
110:122 Physical Education	1
254:155 Typing Projects	3
254:163 Shorthand and Transcription	4
254:170 Business Mathematics	3
254:293 Business Communications	3
ROTC or Elective	1.5
	15.5

Recommended Electives:

244:120 Introduction to Information Processing I	3
252:101 Elements of Distribution	4
252:111 Public Relations	3

Second Year

First Quarter	*Credits*
202:247 Survey of Basic Economics	5
254:211 Basic Accounting I	3
254:257 Secretarial Machines I	3
254:263 Advanced Dictation and Transcription	4
ROTC or Elective	1.5
	16.5
Second Quarter	
254:180 Essentials of Law	4
254:212 Basic Accounting II	3
254:258 Secretarial Machines II	3
254:264 Executive Dictation and Transcription I	4
ROTC or Elective	1.5
	15.5
Third Quarter	
110:108 Effective Speaking	4
202:242 American Society	4
252:102 Personnel Practices	4
254:265 Executive Dictation and Transcription II	4
ROTC or Elective	1.5
	17.5
Total Credits	99

252:212 Principles of Sales	3
256:110 Transportation Economic Policy I	3
288:243 Survey in Finance	5

Medical and Dental Secretarial Science

First Year

First Quarter	*Credits*
202:119 English	3
254:153 Typing Principles	3
254:161 Shorthand Principles I	4
315:124 Chemistry	4
ROTC or Elective	1.5
	15.5
Second Quarter	
110:121 Physical Education	1
202:120 English	3
254:154 Typing Practices	3
254:162 Shorthand Principles II	4
254:181 Office Nursing Techniques I	3
ROTC or Elective	1.5
	15.5

Second Year

First Quarter	*Credits*
254:180 Essentials of Law	4
254:211 Basic Accounting I	3
254:257 Secretarial Machines I	3
310:191 Human Physiology	4
ROTC or Elective	1.5
	15.5
Second Quarter	
202:240 Human Relations	4
254:121 Office Problems	4
254:212 Basic Accounting II	3
254:258 Secretarial Machines II	3
254:282 Medical and Dental Machine Transcription	3
ROTC or Elective	1.5
	18.5

Third Quarter

110:122	Physical Education	1
254:155	Typing Projects	3
254:163	Shorthand and Transcription	4
254:182	Office Nursing Techniques II	3
254:293	Business Communications	3
	ROTC or Elective	1.5
		15.5

Recommended Electives:

244:120	Introduction to Information Processing I	3
252:101	Elements of Distribution	4
252:111	Public Relations	3

Technical Secretarial Science

First Year

First Quarter — *Credits*

202:119	English	3
254:125	Business Machines	2
254:153	Typing Principles	3
254:161	Shorthand Principles I	4
254:170	Business Mathematics	3
	ROTC or Elective	1.5
		16.5

Second Quarter

110:101	English Composition	3
110:121	Physical Education	1
254:121	Office Problems	4
254:154	Typing Practices	3
254:162	Shorthand Principles II	4
	ROTC or Elective	1.5
		16.5

Third Quarter

110:108	Effective Speaking	4
110:122	Physical Education	1
254:155	Typing Projects	3
254:163	Shorthand and Transcription	4
254:293	Business Communications	3
	ROTC or Elective	1.5
		16.5

Recommended Electives:

244:120	Introduction to Information Processing I	3
252:101	Elements of Distribution	4
252:111	Public Relations	3

Third Quarter

110:108	Effective Speaking	4
252:102	Personnel Practices	4
254:125	Business Machines	2
254:170	Business Mathematics	3
	ROTC or Elective	1.5
	Elective	2
		16.5
	Total Credits	97

252:212	Principles of Sales	3
256:110	Transportation Economic Policy I	3
288:243	Survey in Finance	5

Second Year

First Quarter — *Credits*

254:211	Basic Accounting I	3
254:257	Secretarial Machines I	3
254:263	Advanced Dictation and Transcription	4
315:124	Chemistry	4
	ROTC or Elective	1.5
		15.5

Second Quarter

202:242	American Society	4
254:212	Basic Accounting II	3
254:258	Secretarial Machines II	3
254:269	Technical Dictation and Transcription I	4
	ROTC or Elective	1.5
		15.5

Third Quarter

202:122	Technical Report Writing	3
202:240	Human Relations	4
202:247	Survey of Basic Economics	5
254:270	Technical Dictation and Transcription II	4
	ROTC or Elective	1.5
		17.5
	Total Credits	98

252:212	Principles of Sales	3
256:110	Transportation Economic Policy I	3
288:243	Survey in Finance	5

Legal Secretarial Program

First Year

First Quarter	*Credits*
202:119 English	3
202:240 Human Relations	4
254:125 Business Machines	2
254:153 Typing Principles	3
254:161 Shorthand Principles I	4
ROTC or Elective	1.5
	17.5
Second Quarter	
110:101 English	3
110:121 Physical Education	1
254:121 Office Problems	4
254:154 Typing Practices	3
254:162 Shorthand Principles II	4
ROTC or Elective	1.5
	16.5
Third Quarter	
110:122 Physical Education	1
254:155 Typing Projects	3
254:163 Shorthand and Transcription	4
254:170 Business Mathematics	3
254:293 Business Communications	3
ROTC or Elective	1.5
	15.5
Recommended Electives:	
244:120 Introduction to Information Processing I	3
252:101 Elements of Distribution	4
252:111 Public Relations	3

Second Year

First Quarter	*Credits*
254:211 Basic Accounting I	3
254:257 Secretarial Machines I	3
254:263 Advanced Dictation and Transcription	4
202:242 American Society	4
ROTC or Elective	1.5
	15.5
Second Quarter	
110:108 Effective Speaking	4
254:212 Basic Accounting II	3
254:258 Secretarial Machines II	3
254:267 Legal Dictation and Transcription I	4
ROTC or Elective	1.5
	15.5
Third Quarter	
202:247 Survey of Basic Economics	5
254:180 Essentials of Law	4
254:268 Legal Dictation and Transcription II	4
ROTC or Elective	1.5
Elective	1
	15.5
Total Credits	96
252:212 Principles of Sales	3
256:110 Transportation Economic Policy I	3
288:243 Survey in Finance	5

International Secretarial Science*

First Year

First Quarter	*Credits*
202:119 English	3
254:125 Business Machines	2
254:153 Typing Principles	3
254:161 Shorthand Principles I	4
Beginning Foreign Language	4
	16
Second Quarter	
110:101 English Composition	3
110:121 Physical Education	1
254:154 Typing Practices	3
254:162 Shorthand Principles II	4
Beginning Foreign Language	4
	15

Second Year

First Quarter	*Credits*
202:242 American Society	4
254:257 Secretarial Machines I	3
254:263 Advanced Dictation and Transcription	4
Intermediate Foreign Language	3
202:240 Human Relations	4
	18
Second Quarter	
254:121 Office Problems	4
254:170 Business Mathematics	3
254:258 Secretarial Machines II	3
Executive or Legal Dictation and Transcription I	4
Intermediate Foreign Language	3
	17

Third Quarter

110:122	Physical Education	1
254:155	Typing Projects	3
254:163	Shorthand and Transcription	4
254:293	Business Communications	3
	Beginning Foreign Language	4
		15

Recommended Electives:

244:120	Introduction to Information Processing I	3
252:101	Elements of Distribution	4
252:111	Public Relations	3
252:212	Principles of Sales	3
256:110	Transportation Economic Policy I	3
288:243	Survey in Finance	5

Third Quarter

340:209	Modern Europe 1870-Present	3
370:220	American Foreign Policy Procedures and Problems	5
	Executive or Legal Dictation and Transcription II	4
	Intermediate Foreign Language	3
		15
	Total Credits	96

* Male students must include six credits of ROTC.

256: TRANSPORTATION

First Year

First Quarter	*Credits*
110:121 Physical Education	1
202:119 English	3
202:242 American Society	4
256:110 Transportation Economic Policy I	3
256:115 Transportation Commercial Motor.	3
ROTC or Elective	1.5
	15.5

Second Quarter	
110:122 Physical Education	1
202:120 English	3
202:240 Human Relations	4
256:111 Transportation Economic Policy II	3
256:116 Transportation Commercial Air	3
288:141 Safety Procedures	3
ROTC or Elective	1.5
	18.5

Third Quarter	
252:101 Elements of Distribution	4
254:180 Essentials of Law	4
256:117 Transportation Commercial Water.	3
256:118 Transportation Freight Rates and Classification	3
ROTC or Elective	1.5
	15.5

Second Year

First Quarter	*Credits*
202:247 Economics Survey	5
256:220 Transportation Terminal Management and Operations	3
256:225 Interstate Traffic Practices and Procedures I	3
640:161 Business Organization and Management	4
ROTC or Elective	1.5
	16.5

Second Quarter	
110:108 Effective Speaking	4
254:293 Business Communications	3
256:221 Transportation Traffic Principles	3
256:226 Interstate Traffic Practices and Procedures II	3
254:170 Business Mathematics	3
ROTC or Electives	1.5
	17.5

Third Quarter	
202:122 Technical Report Writing	3
252:102 Personnel Practices	4
252:111 Public Relations	3
256:222 Transportation Traffic Practices and Procedures	3
256:227 Interstate Traffic Practices and Procedures III	3
ROTC or Elective	1.5
	17.5

Total Credits 101

284: CHEMICAL TECHNOLOGY

First Year

First Quarter	*Credits*
202:119 English	3
202:131 Math Analysis I	4
284:101 Physical Principles of Chemistry I	4
292:121 Technical Drawing I	3
ROTC or Elective	1.5
	15.5
Second Quarter	
202:120 English	3
202:132 Math Analysis II	4
202:152 Basic Physics II	3
284:102 Physical Principles of Chemistry II	3
284:121 Organic Principles	3
ROTC or Elective	1.5
	17.5
Third Quarter	
110:121 Physical Education	1
202:122 Technical Report Writing	3
202:133 Math Analysis III	3
202:153 Basic Physics III	3
284:122 Organic Methods	4
ROTC or Elective	1.5
	15.5

Second Year

First Quarter	*Credits*
202:151 Basic Physics I	4
202:234 Math Analysis IV	3
284:201 Principles of Analysis	4
284:204 Chemical Stoichiometry	2
284:208 Chemical Quality Control	2
284:210 Scientific Glassblowing I	1
ROTC or Elective	1.5
	17.5
Second Quarter	
202:247 Survey of Economics	5
284:202 Instrumental Methods I	4
284:211 Scientific Glassblowing II	1
284:250 Elements of Physical Chemistry	4
ROTC or Elective	1.5
	15.5
Third Quarter	
110:108 Effective Speaking	4
110:122 Physical Education	1
284:203 Instrumental Methods II	4
284:255 Literature of Chemistry	1
284:270 Polymer Chemistry Methods	4
ROTC or Elective	1.5
	15.5

Total Credits 97

286: ELECTRONIC TECHNOLOGY

First Year

First Quarter	*Credits*
110:121 Physical Education	1
202:119 English	3
202:131 Math Analysis I	4
202:151 Basic Physics I	4
286:153 Electricity and Magnetism	4
ROTC or Elective	1.5
	17.5
Second Quarter	
110:122 Physical Education	1
202:132 Math Analysis II	4
286:122 Circuit Theory	4
286:123 Electronics I	3
286:127 Measurements	4
ROTC or Elective	1.5
	17.5
Third Quarter	
202:120 English	3
202:133 Math Analysis III	3
202:153 Basic Physics III	3
286:124 Electronics II	3
286:128 Electronic Drafting	3
ROTC or Elective	1.5
	16.5

Second Year

First Quarter	*Credits*
202:234 Math Analysis IV	3
286:225 Electronics III	4
286:237 Digital Computers	4
286:242 Machinery	4
286:255 Shop Practices	1
ROTC or Elective	1.5
	17.5
Second Quarter	
202:122 Technical Report Writing	3
202:240 Human Relations	4
286:245 Analog Computers	4
286:249 Industrial Electronics	4
ROTC or Elective	1.5
	16.5
Third Quarter	
202:247 Survey of Basic Economics	5
286:226 Integrated Circuits	2
286:250 Electronic Project	2
286:251 Communications Systems	4
286:253 Control Systems	3
ROTC or Elective	1.5
	17.5

Total Credits 103

288: INDUSTRIAL TECHNOLOGY

First Year

First Quarter	*Credits*
110:121 Physical Education	1
202:131 Math Analysis I	4
202:119 English	3
292:121 Technical Drawing	3
640:161 Business Organization and Management	4
ROTC or Elective	1.5
	16.5

Second Quarter	
110:122 Physical Education	1
202:120 English	3
202:132 Math Analysis II	3
202:247 Economics Survey	5
288:141 Safety Procedures	3
ROTC or Elective	1.5
	16.5

Third Quarter	
110:108 Effective Speaking	4
202:240 Human Relations	4
254:125 Business Machines	2
288:120 Work Measurement Procedures	5
ROTC or Elective	1.5
	16.5

Second Year

First Quarter	*Credits*
252:102 Personnel Practices	3
254:211 Basic Accounting I	3
288:231 Factory Planning and Materials Handling	4
292:247 Shop Methods	4
ROTC or Elective	1.5
	15.5

Second Quarter	
202:122 Technical Report Writing	3
254:212 Basic Accounting II	3
288:232 Labor Management	4
ROTC or Electives*	1.5
Electives	3
	14.5

Third Quarter	
202:242 American Society	4
288:242 Production and Quality Control	6
288:245 Plant Equipment Maintenance	3
ROTC or Electives*	1.5
Electives	3
	17.5

Total Credits 97

* To be approved by Department.

290: INSTRUMENTATION TECHNOLOGY

First Year

First Quarter	*Credits*
110:121 Physical Education	1
202:119 English	3
202:131 Math Analysis I	4
202:151 Basic Physics I	4
286:153 Electricity and Magnetism	4
ROTC or Elective	1.5
	17.5

Second Quarter	
110:122 Physical Education	1
202:132 Math Analysis II	4
286:122 Circuit Theory	4
286:123 Electronics I	3
286:127 Measurements	4
ROTC or Elective	1.5
	17.5

Third Quarter	
202:120 English	3
202:133 Math Analysis III	3
202:153 Basic Physics III	3
286:124 Electronics II	3
290:120 Instrumentation Drafting	3
ROTC or Elective	1.5
	16.5

Second Year

First Quarter	*Credits*
202:234 Math Analysis IV	3
202:240 Human Relations	4
286:225 Electronics III	4
290:121 Fundamentals of Instrumentation	5
ROTC or Elective	1.5
	17.5

Second Quarter	
202:122 Technical Report Writing	3
290:230 Control Principles	4
290:232 Computer Principles	5
290:240 Calibration and Standardization	2
ROTC or Elective	1.5
	15.5

Third Quarter	
202:242 American Society	4
202:247 Economics Survey	5
290:231 Control Systems Analysis	4
290:241 Instrumentation Project	3
ROTC or Elective	1.5
	17.5

Total Credits 102

292: MECHANICAL TECHNOLOGY

First Year

First Quarter	*Credits*
110:121 Physical Education	1
202:131 Math Analysis I	4
202:151 Physics I	4
202:119 English	3
292:121 Technical Drawing	3
ROTC or Elective	1.5
	16.5

Second Quarter	
202:120 English	3
202:132 Math Analysis II	4
202:152 Physics II	3
202:240 Human Relations	4
292:122 Technical Drawing	3
ROTC or Elective	1.5
	18.5

Third Quarter	
110:122 Physical Education	1
202:133 Math Analysis III	3
202:153 Physics III	3
292:123 Technical Drawing	3
292:125 Statics/Dynamics	5
ROTC or Elective	1.5
	16.5

Second Year

First Quarter	*Credits*
110:108 Effective Speaking	4
202:234 Math Analysis IV	3
292:241 Strength of Materials	5
292:243 Kinematics	3
ROTC or Elective	1.5
	16.5

Second Quarter	
202:122 Technical Report Writing	3
292:242 Design Materials	4
292:244 Mechanical Design I	4
292:247 Shop Methods	4
ROTC or Elective	1.5
	16.5

Third Quarter	
202:242 American Society	4
292:245 Mechanical Design II	5
292:249 Applied Thermal Energy	4
292:251 Elementary Fluid Mechanics	4
ROTC or Elective	1.5
	18.5

Total Credits 103

298: SURVEYING AND CONSTRUCTION TECHNOLOGY

First Year

First Quarter	*Credits*
110:121 Physical Education	1
202:119 English	3
202:131 Math Analysis I	4
202:151 Basic Physics I	4
292:121 Technical Drawing	3
ROTC or Elective	1.5
	16.5

Second Quarter	
110:122 Physical Education	1
202:120 English	3
202:132 Math Analysis II	4
202:152 Basic Physics II	3
292:122 Technical Drawing	3
ROTC or Elective	1.5
	15.5

Third Quarter	
202:133 Math Analysis III	3
292:123 Technical Drawing	3
292:125 Statics/Dynamics	5
298:122 Basic Surveying	4
ROTC or Elective	1.5
	16.5

Second Year

First Quarter	*Credits*
202:234 Math Analysis IV	3
202:240 Human Relations	4
292:241 Strength of Materials	5
298:232 Construction	3
ROTC or Elective	1.5
	16.5

Second Quarter	
110:108 Effective Speaking	4
202:122 Technical Report Writing	3
292:242 Design Materials	4
298:233 Construction Administration	3
298:235 Material Testing Lab	2
ROTC or Elective	1.5
	17.5

Third Quarter	
292:251 Elementary Fluid Mechanics	4
298:223 Applied Surveying	4
298:242 Soil Mechanics	3
298:243 Soils Lab	2
298:245 Cost Analysis and Estimating	3
ROTC or Elective	1.5
	17.5

Total Credits 100

Baccalaureate Degree Programs

Students wishing to earn a baccalaureate degree will find fully accredited courses offered in liberal arts, engineering, education, business, nursing and fine and applied arts. Students with less than 96 credits seeking the baccalaureate degree are enrolled in the General College where they are given the opportunity to learn to express ideas effectively and to grasp the processes involved in accurate, logical thinking. Successful completion of courses in the General College qualifies students for entrance into one of the Upper Colleges. At this point, students select a specific field of study in one of the colleges of the University and begin course work which directly applies toward that field of study.

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 Education through the curriculum of the 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.

1: 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 Written English, Types of Literature, Effective Speaking, Numbers Communication, Reasoning and Understanding in 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 firmly convinced that he knows what he wants to become.

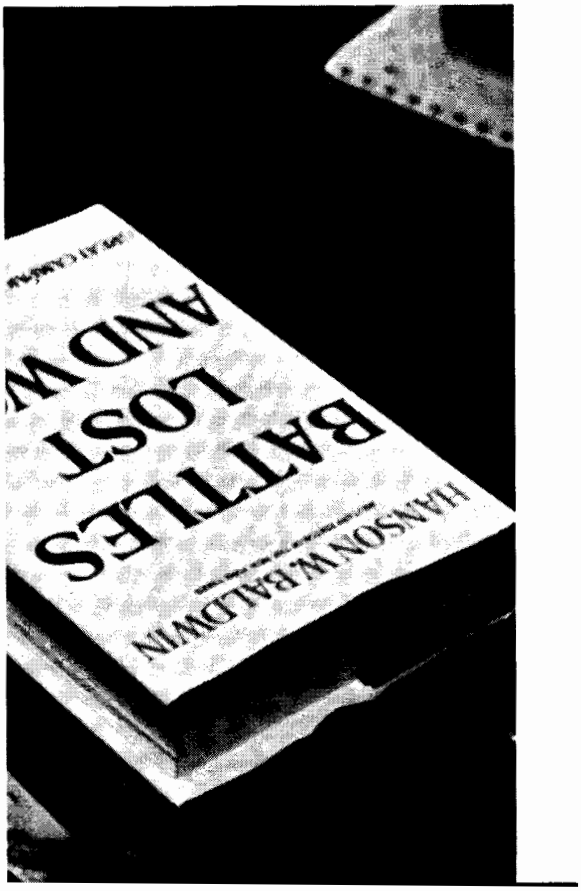
Students who complete the courses outlined in the General College curriculum, earning a total of approximately 96 credits (slightly more for Engineering) and achieving a quality point ratio of 2.0 (C) or better, are eligible for promotion to the Upper College of their choice.

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.

These are the required courses in the

110: Department of General Studies

110:102-102-103	Written English—9 credits, first year
110:108	Effective Speaking—4 credits, before 96 credits
110:115-116-117	Institutions in the United States —9 credits, first year
110:121-122	Physical Education—2 credits, first year
110:205	Types of Literature—4 credits, before 96 credits
110:211	Numbers Communication— 4 credits, before 96 credits
110:213-214-215	Reasoning and Understanding in Science—9 credits, second year
110:303-304	Eastern Civilizations—6 credits, after 96 credits
110:317-318-319	Western Cultural Traditions— 9 credits, before 144 credits
110:401	Senior Seminar—2 credits, final year, either semester



An important phase of life on the Akron U campus is the men's participation in military training. During most of the University's history as an urban institution, it has been actively involved in the education of its male citizens for either reserve or active duty in the armed forces. A branch of the Army ROTC was organized in 1919, making it one of the oldest in the country.

At that time there was a military encampment on the Hilltop and it was in the University barracks that a marching band was organized—the first formal instrumental group on campus!

In 1946, a unit of the Air Force ROTC was formed to give both basic and advanced instruction to University men, just as the Army ROTC had been doing in the preceding quarter century.

A basic course in either Army or Air Force ROTC is required of all male students at the University.

Normally first year students may indicate a preference for the branch of military training they prefer subject to certain regulations. Upon successful completion of the first year (three quarters), the student has the right to choose the other ROTC program if he so desires. This is accomplished by simply registering with the other ROTC unit at the beginning of his

sophomore year. During the basic courses extending over two years, they receive uniforms and equipment, for which they are responsible. These must be returned at the end of that year or upon leaving the program.

The only individuals exempt from, and prohibited to take, this required training for Freshman and Sophomore men are:

1. Aliens, unless specific action to become a United States citizen has been initiated.
2. Men classified 4F by a draft board or in receipt of a statement from a doctor who contraindicates participation in either ROTC program.
3. Men carrying less than 12 credits including ROTC.
4. Men above 23 years of age as of class starting date.
5. Men who have completed 48 semester hours or 72 quarter hours at another college or university.
6. Men who submit written declaration to the President of the University of religious or conscientious objections to military service. An ordained minister must validate this declaration of conscientious objector status.
7. Men with over four months prior honorable military service.

Principal objectives of the training programs are to develop character and good moral habits and heighten each man's awareness of his responsibilities as a citizen. It is a goal that the Army and Air Force ROTC be integral and useful parts of the University and community.

Both areas of training are important sources of qualified career officers and reserve officers in the U.S. Army and U.S. Air Force.

The Army ROTC is a General Military Service unit. Its graduates may be commissioned in any of 13 arms and services of the Army. The selection of each graduate's area of service depends on his own personal choice, his major academic field and the current needs of the Army.

The Air Force ROTC embodies a generalized curriculum which educates and motivates potential junior officers for the advanced phases of Air Force training. In addition to this, it provides an opportunity for qualified young men to take pilot or navigation training after receiving their commission at the University. It also provides opportunities in many fields such as engineering, intelligence, administration, personnel, finance, computers, law, aerospace medicine, education, meteorology and a multitude of others.

Advanced courses are available for men at the University as well as Advanced Summer Camps for both of the military units.

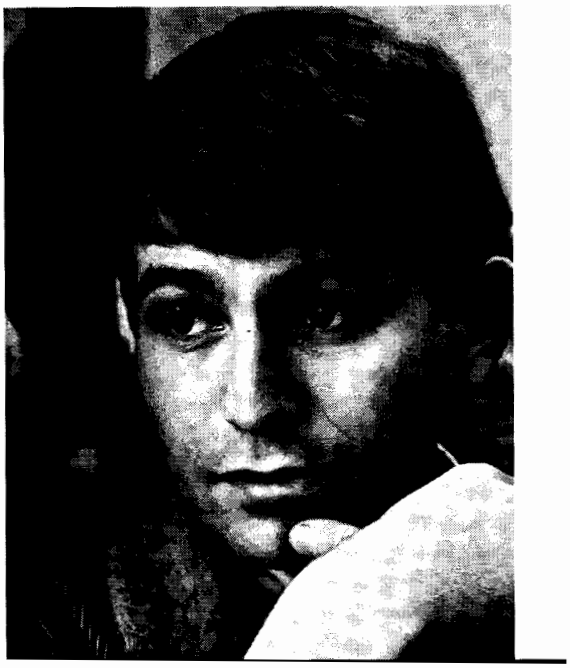
The Advanced ROTC Course

Advanced ROTC programs leading to a commission in the Reserves are offered by both the Army and the Air Force.

The Advanced course is open to students who have satisfactorily completed the basic course; students who have been accepted into an upper college but have not taken basic ROTC, provided such students successfully complete a pre-advanced summer training camp of six weeks duration. Transfer students with less than 64 credits, but with programs that will permit them to graduate in ten quarters or less, have the option of taking six quarters of basic ROTC or entering the two-year advanced program.

Applicants for Advanced ROTC programs must pass a physical exam and be approved by the University and the Professor of Military Science (Army) or Professor of Aerospace Studies (Air Force).

Once a student enters the Advanced ROTC program he must complete requirements for a degree as well as the Advanced program



prior to receiving a commission. He also is under obligation to complete the Advanced course in order to qualify for a University degree unless specifically excused by the President of the University.

Entry into the Advanced Army ROTC Course commits the student to active service as a commissioned officer for a period of two years and service in the active reserve for an additional four years. Entry into the Army's Flight Training Program requires an active duty stay of three years but a student disqualified prior to completing the flight program reverts to a two-year obligation.

Entry into the Advanced Air Force ROTC Course commits the student to active service as a commissioned officer for a period of four years but has no additional requirement for active reserve status. Entry into the Air Force ROTC pilot training program adds another year to the active duty requirement with the same reversion to original contract time in case of disqualification.

Flight Training Programs

Both the Army and the Air Force ROTC programs offer flight training options. Army cadets may, during their senior (graduating) year, enroll in the Army Flight Training Program, an extra-curricular program offering 35 hours of flying instruction and 35 of ground instruction. The program leads to an FAA approved pilot's license and is offered without cost to the cadet. It is designed to afford an opportunity for those who desire to qualify for Army Pilot training after entry on active duty.

Senior Air Force ROTC students who have been selected for pilot training receive 36½ hours of flight instruction from an approved flying school at no cost to the student and a private pilot's license may be obtained if the student completes the necessary FAA requirements.

Advanced ROTC Camp

Six-week Advanced ROTC camps are conducted each summer. Students going into the Advanced ROTC programs will be required to complete one summer camp. Students receive the pay of the first enlisted grade while at the advanced camp and are reimbursed for travel to and from camp.

The Buchtel College of Liberal Arts

DON A. KEISTER, Ph.D., *Dean*
PAUL S. WINGARD, Ph.D., *Associate Dean*

OBJECTIVES

The purpose of the Buchtel College of Liberal Arts is to further the objectives of The University of Akron by providing a quality program of undergraduate and graduate education in the humanities, the social sciences, and the natural sciences and to pursue the following aims:

To maintain departments of instruction for the preparation of student majors in various academic fields.

To 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.

To provide appropriate instruction for the General Studies program.

To provide a wide range of elective courses available to students who wish to enrich or diversify their academic programs.

To offer courses designed to meet the curricular needs in Engineering, Education, Business Administration, Fine and Applied Arts and Nursing.

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 Liberal Arts 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 its College of Liberal Arts. 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 breadth of liberal arts education at the University is most readily explained by describing its three administrative divisions. They are as follows:

I. THE HUMANITIES DIVISION—stresses cultural development and teaches an awareness of classics, languages, philosophy and the written word.

Among the countless careers which graduates of this division enter are: writing, translating, researching, teaching and lecturing. Also, Humanities Division graduates have excellent preparation for the specialized fields of language, and library science.

II. THE SOCIAL SCIENCES DIVISION—stresses intelligent participation in community affairs through education in such fields as history, economics, geography, political science, psychology and sociology.

Graduates in the Social Sciences Division often become teachers, businessmen, public administrators, social workers and politicians. Also, they are prepared for graduate study in business, law, psychology, sociology, social work, geography, public administration and urban studies.

III. THE NATURAL SCIENCES DIVISION—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 on such subjects as biology, chemistry, geology, mathematics or physics.

A graduate of this division reaches an excellent point of departure for entering such areas of specialization as medicine or dentistry. Biology majors may go on to become parasitologists, entomologists, embryologists or botanists; chemistry majors usually continue into fields of organic, inorganic, physical or polymer chemistry; geology majors advance into such diverse specialties as petroleum, petrology, geochemistry and paleontology; physics majors may become specialists in such fields as atomic, solid state or polymer physics.

Even with no further study after receiving their bachelor's degree, graduates in this division are equipped to become, for example, computer programmers, professional scientists or mathematicians.

Requirements for Admission

To be admitted to the Buchtel College of Liberal Arts the student must have completed satisfactorily at least 96 credits of work with at least a 2.0 ratio, have completed the required General Studies courses, have completed the departmental or divisonal prerequisites 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 3 credits of physical education activities, 12 of applied music, 6 of music organizations and 9 of courses in the Community and Technical College 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. Except in the labor economics and medical technology curricula, completion of the second year of a foreign language on the university level (i.e., Russian, French, German, Greek, Italian, Spanish or Latin).

The general University requirements for 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 Science; Bachelor of Science in Medical Technology. (At the discretion of the Dean, students majoring in mathematics or biology may be granted the Bachelor of Arts degree if at least 26 credits of their work is in the humanities or social sciences. The 26 credits must be earned in more than one department. Students majoring in Geology will receive the Bachelor of Science degree.)

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 from 36 to 96 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 or second year when the student is still under the guidance of the Office of Student Services. The shorter Liberal Arts majors need not be declared before the end of the second year when the student is ready for promotion to Buchtel College.

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, the social sciences 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 Liberal Arts. Generally the Liberal 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 Liberal Arts degree. Additional elective credits will generally enable the student to qualify in a second teaching field, which facilitates teacher placement, without exceeding the 192 credits necessary for graduation from the Buchtel College of Liberal 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.

The number of credits in a teaching field required for certification may be determined by reference to the table entitled "Statement of Number of Hours Required For Certification in Various Teaching Fields" located in the College of Education section of this Bulletin.

The major field must include 9 credits more than the number shown in the table except where that number is 45 or more. A second teaching field must include the number of credits shown in the table.

The professional courses in education and psychology required for certification are listed in the table below, which shows how they may be scheduled over a two-year period. They may be spread over three years or taken in three quarters and two Summer Sessions.

Third Year

		Credits
375:141	General Psychology	5
510:156	Education in American Society	3
565:157	Human Development and Learning	4

Fourth Year

		Credits
530:313	Principles and Practices in Secondary Education	5
510:401	Problems in Education	5
510:402	Student Teaching	12*
510:403	Student Teaching Seminar	3

Buchtel College of Liberal Arts students preparing for high school teaching must signify their intention in conference with the Dean of the College of Education near the end of the sophomore year.

* If taken during the Summer Session, 510:402 becomes a nine credit course.

DIVISIONS OF INSTRUCTION

Humanities

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 9 credits in each of any five of the following: English, Philosophy, French, German, Italian, Spanish, Russian, Latin, Greek, and the Classics.
2. At least 9 credits in the Department of History.

Natural Sciences

The Natural Sciences Division consists of the Departments of Biology, Chemistry, Polymer Science, Mathematics, and Physics. The divisional major must include the following, in addition to the General Studies and the second year of a foreign language:

1. At least 81 credits in the division.
2. At least 18 credits each in 4 of the following: Biology, Chemistry, Geology, Mathematics, including statistics, and Physics.
3. At least 9 additional credits on the Upper College level in the division.

Social Sciences

The Social Sciences Division consists of the Departments of Economics, Geography-Geology, History, Political Science, Psychology, Sociology and Urban Studies. The divisional major must include the following, in addition to the General Studies and the second year of a foreign language:

1. At least 82 credits in the division.
2. At least 27 credits and not more than 32 credits in each of two of the six departments. No credits in excess of 32 in any department will be accepted unless the student meets the major requirements of such department for graduation.
3. At least 14 credits in each of two other departments, or 28 credits in one other department.
4. At least 36 credits of divisional courses on the Upper College level.
5. At least 36 credits outside the division.
6. In some instances, passage of a general final examination in the second quarter of the senior year.

310: BIOLOGY

In addition to the General Studies courses and a second year of a foreign language, Biology major 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 schools for advanced work in biology.

All majors in biology are strongly advised to 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; 315:132-4 Principles of Chemistry, (or with permission 315:121-3 Inorganic Chemistry); 345:111 Elementary Functions.

Second year: 310:246 General Genetics; 310:271 General Ecology; 310:272 Organic Evolution; 315:263-268 Organic Chemistry; (Medical Technologists should substitute 315:201-3 Organic and Biological Chemistry; other Biology majors may enroll in this latter course only by permission).

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; 310:411-3 Plant Physiology; 310:415 Plant Anatomy; 310:416 Mycology; 310-417 Phycology; 310:418 Plant Morphology; 310:-419 Plant Morphology.

Advisors: D. Goldstrohm, L. W. Macior, W. P. Stoutamire.

ECOLOGY:

310:341 Invertebrate Zoology; 310:344 General Entomology; 310:313 Fall Flora, or 310:-315 Spring Flora; 310:458 Vertebrate Zoology; 310:453 Developmental Anatomy; 310:416 Mycology or 310:417 Phycology; 310:418,419 Plant Morphology; 347:251,252 Introduction to Statistics.

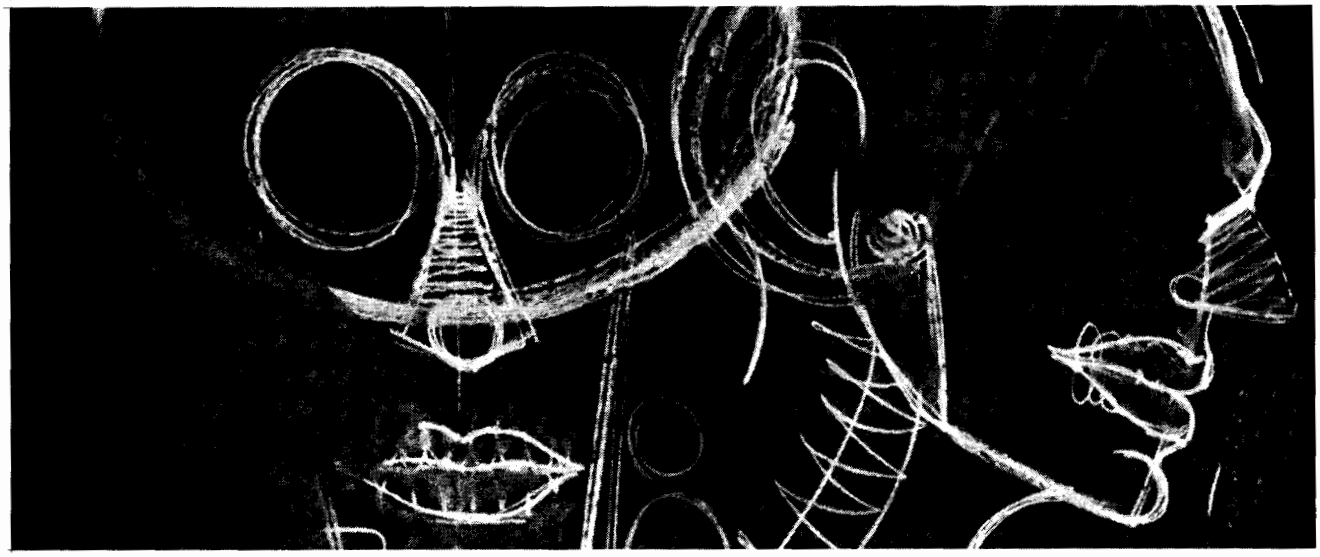
Advisor: D. L. Jackson

HIGH SCHOOL TEACHING

For State Certification see College of Education section.

310:191 Introductory Human Physiology; 310:458 Vertebrate Zoology; 310:341 Invertebrate Zoology; 310:307 Microbiology; 310:416 Mycology or 310:417 Phycology; 310:418,419 Plant Morphology; 310:313 Fall Flora or 310:315 Spring Flora; 310:227,228 Techniques in Biology.

Advisor: R. F. Keller



MEDICAL TECHNOLOGY

A three year program (144 credits) at the University of Akron.

310:191 Introductory Human Physiology; 310:343 Parasitology; 310:227 Techniques in Biology; 310:328 Histology; 310:307,308 Microbiology.

The three year University Curriculum is followed by twelve months of Medical Technology instruction in one of the five approved schools of Medical Technology in the Akron area: Akron City Hospital, Akron General Hospital, Barberton Citizens Hospital, Children's Hospital, or St. Thomas Hospital.

The hospital period is completed by taking the examination of the Registry of Medical Technologists, which grants the certificate M.T. (A.S.C.P.). The University grants the B.S. in Medical Technology after receipt of evidence that the examination has been passed.

Advisors: R. Nokes, D. Nunn.

MICROBIOLOGY:

310:307,308,309 Microbiology; 310:416 Mycology; 310:443 Pathogenic Bacteriology; 310:-444 Immunoolgy; 310:440,441 Bacterial Physiology; 310:417 Phycology; 310:480 Radiation Biology; 315:410 Biochemistry.

Advisors: D. Nunn, E. Flaumenhaft.

PHYSIOLOGY AND PRE-PROFESSIONAL:

Including pre-medical, pre-dental, pre-veterinary medical students.

310:453,454,455 Developmental Anatomy; 315:423, 426 Analytical Chemistry; 365:101, 102,103 Physics; 310:480 Radiation Biology; 345:225 Differential Equations; 310:491,492 Human Physiology.

Advisor: R. F. Keller, R. Nokes, R. Mostardi.

ZOOLOGY:

310:341 Invertebrate Zoology; 310:344 General Entomology or 310:343 Parasitology; 310:227 Techniques in Biology; 310:313 Fall Flora or 310:315 Spring Flora; 310:458 Vertebrate Zoology; 310:453,454,455 Developmental Anatomy; 310:491,492 Human Physiology.

Advisor: D. L. Jackson

At the discretion of the Dean, the Bachelor of Arts Degree may be conferred upon students who have met the General Studies requirements, completed the second year of a foreign language, and have at least 36 credits in courses approved by the Head of the Department of Biology, together with appropriate courses in the Humanities or Social Sciences. The following courses are suggested as a survey of the major current theories and advances in the biological sciences: 310:121, 122, 123 Principles of Biology; 310:246 General Genetics; 310:271 General Ecology; 310:-272 Organic Evolution; 310:301 Cell Biology. In addition one of the introductory courses in chemistry would be helpful in understanding

some of the interactions in biological systems. Philosophy of Science 360: 464 is also recommended for this degree.

315: CHEMISTRY

Requirements for a major:

The General Studies and German 353:201, 202, 203.

Chemistry courses: 132, 133, 134, 263, 264, 265, 266, 267, 268, 313, 314; 315, 316, 317, 318, 423, 424, 425, 426, 427, 428, 463, 464, 472, 473.

Mathematics: Must complete 345:225.

Physics 365:201, 202, 203.

320: 321: 322: CLASSICS

Requirements for a major:

The General Studies. At least 36 credits in the department, including: 320:161, 162, 163 Comparative Literature; 320:313, 314, 315 Classical Archaeology.

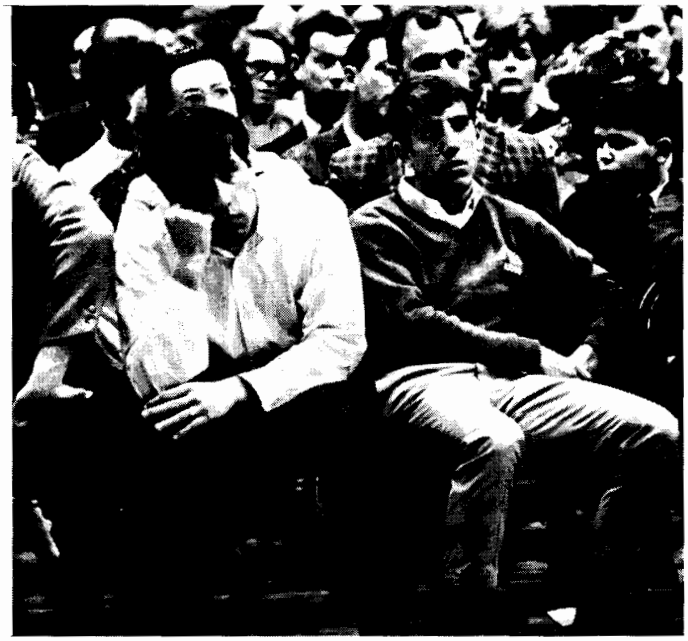
325: ECONOMICS

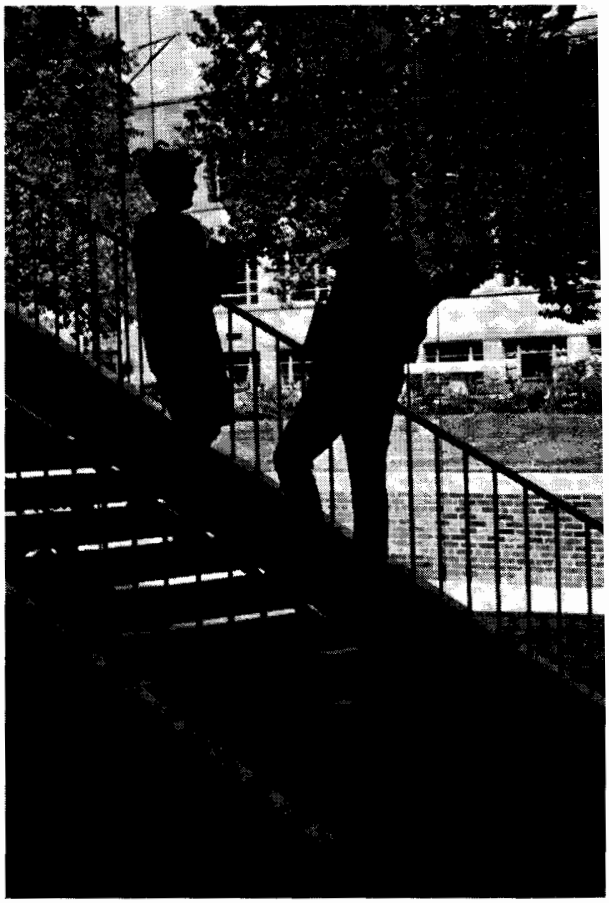
Requirements for a major in Economics:

1. The General Studies and the second year of a foreign language.
2. At least 45 credits in the department including 325:245-246-247; 325:400; 325:410.
3. Mathematics 345:101-102-103.
4. Statistics: One of the following: 650:346-347 or 347:251-252 or 347:461-462.

Requirements for a major in Labor Economics:

1. The General Studies.
2. At least 45 credits in the department including: 325:245-246-247; 325:330 and two of the following: 325:431; 325-432; 325:333.
3. Statistics. One of the following: 650:346-347 or 347:251-252 or 347:461-462.
4. At least 12 credits in Upper College Sociology, History, Psychology, Geography or Political Science.





330: ENGLISH

Requirements for a major:

The General Studies and the second year of a foreign language. At least 39 credits in the Department, including 330:240, 241, 246, 265, 266, 267. Of the Journalism courses, only 331:201 and 206 may be included in the required 39 credits.

335: GEOGRAPHY

Requirements for a major:

The General Studies. The second year of a foreign language. At least 36 credits in Geography, including 335:100, 481, 484. At least one course from the following: 335:350, 353, 354, 356, 358, 360, 361, 362, or 363. Successful completion of one of the following options:

Physical Geography—210 and any three of the following: 312, 314, 415, 418.

Economic Geography—220 and any three of the following: 324, 326, 422, 428.

Urban Geography—230 and any three of the following: 336, 433, 435, 438.

Cartography—240 and any three of the following: 342, 346, 444, 448.

337: GEOLOGY

Requirements for a major:

The General Studies. The second year of a foreign language, preferably French, German or Russian. At least 45 credits in Geology, including 337:101, 102, 310, 313, 315, 316, 317, 318, 360 or 363 and field camp at another institution acceptable to the Department. Chemistry, 315:132, 133 and 134. Biology, 310:121, 122 and 123. Physics, 365:201, 202 and 203. Mathematics, 345:111, 221.

Depending on each student's major field of interest within geology, additional work in the supporting science will be strongly recommended.

340: HISTORY

Requirements for a major:

The General Studies and the second year of a foreign language. At least 36 credits in the department including courses 340:201, 202, 203, 207, 208, 209 or their equivalents, and 498.

345: MATHEMATICS

Requirements for a major:

The General Studies and the second year of French, German or Russian.

The courses 345:221, 222, 223, 224, 225, 311, 312, 413, 421, 422, 423 and a minimum of 15 additional credits of 400-level courses.

The courses 345:101, 102, 103, 111 and 110:111 do not meet major requirements.

347: STATISTICS

Requirements for a major:

The General Studies and the second year of French, German or Russian.

The courses 345:221, 222, 223, 224, 225, 311, 421, 422, 423; 347:450, 451, 452, 453, 461, 462, 463.

The courses 110:111 and 345:101, 102, 103, 111 and 347:200, 251, 252 do not meet major requirements.

352:, 353:, 355:, 357:, 358: MODERN LANGUAGES

Requirements for a major:

The General Studies. Completion of 36 credits above the level of 203 in one of the languages, French, German, Italian, Russian or Spanish. A minimum of 18 of these 36 credits must be in literature courses.

All incoming language students, including transfer students, who have completed two or more years in the target language must take the placement test in that language prior to enrollment. Students with one year or less of a foreign language will enroll in 352:101 (French), 353:101 (German), 355:101 (Italian), 357:101 (Russian) or 358:101 (Spanish), depending on their choice of majors.

Students wishing to prepare for teaching certification in a modern language should have credit for the Conversation and Composition course in the language they wish to teach.

360: PHILOSOPHY

Requirements for a major:

The General Studies and the second year of a foreign language. At least 44 credits in the department, to include 360:120, 170, 211, 212, 213, 480, 488, 489 = 28. 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

Requirements for a major:

The General Studies and the second year of a foreign language, preferably German or Russian.

Physics courses: A total of 60 quarter credits, including 365:201, 202, 203, 405, 406, 407, 410, 411, 412, 413, 430, 431, 432, 433, 451, 452 and 453, plus 10 additional credits of approved Physics electives. For students preparing for graduate study, courses 365:441, 442, 443 and 420 are particularly recommended.

Mathematics courses: 345:221, 222, 223, 224 and 225. Courses 345:421, 422 and 425 are recommended but not required.

Chemistry courses: 315:126, 127, 128 or 132, 133, 134. Courses 315:313, 314, 315 are recommended but not required.

370: POLITICAL SCIENCE

Requirements for a major:

The General Studies and the second year of a foreign language. At least 45 credits in the department, including 370:100 or 330; 370: 200 and at least one other course in Comparative Government; 370:220 or 310; two courses in Political Theory; 370:360 and 361, and two courses in the field of American Government and Politics; Proseminar 370:495; plus two 400-level courses.

375: PSYCHOLOGY

Requirements for a major:

The General Studies and the second year of a foreign language. At least 45 credits in the department, including 375:141, 145, 147, 315, 407, 412, 430. Finite Math is recommended.

385: SOCIOLOGY

An undergraduate major in Sociology will be expected to meet the following requirements:

To fulfill the requirements of the General Studies curriculum: two years of a foreign language; minimum cumulative average of 2.00; minimum of 45 quarter hours in Sociology, including:

		Credits
385:101, 102, 103	General Sociology	9
385:301, 302, 303	Methods of Social Research	9
385:414	History of Social Thought	3
385:415	Contemporary Sociological Theory	3
	Total	24
Additional courses in Sociology		21
	Total	45

The credits beyond the 24 of required courses are elective for all majors except those desiring an emphasis in Social Welfare or Anthropology. In these areas, students will be counseled by the department into the appropriate sequence of courses to complete the major, plus the area of emphasis.

The College of Engineering

MICHAEL J. RZASA, Ph.D., *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 or master's degree in accordance with his level of accomplishment.

The "heart" of the Engineering College is its five-year cooperative program which was begun in 1914, the same year that the college itself was established. This plan of alternating work with study begins in a student's third year when he is formally admitted to the College of Engineering, following his two years of fundamental training in the General College.

A graduate program was established in 1957 for students who study part-time in the Evening College. The degrees of Master of Science in Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering and Mechanical Engineering are awarded. The Doctor of Philosophy in Engineering program has been approved for planning purposes by the Ohio Board of Regents.

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 cooperative plan provides for a coordinated sequence of alternate periods of classroom instruction and industrial employment.

During the cooperative phase of the five-year course, the student is employed in industry during the Fall quarter of the third or Pre-Junior year. During the Winter quarter the student attends class. The schedule of alternation between quarters of classroom studies and industrial co-op employment continues during the Pre-Junior and Junior years. The complete schedule for the five-year course is shown in the table of "Engineering Schedule."

The cooperative plan provides simultaneously for the development of fundamental principles in the classroom and for their application in industrial practice. The cooperative 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 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.

The Engineering Schedule

	Fall	*Winter*	*Spring*	*Summer*
Freshman	School	School	School	
Sophomore	School	School	School	School
Pre-Junior	Work 1	School	Work 2	School
Junior	School	Work 3	School	Work 4
Senior	School	School	School	

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 1½ units
Plane Geometry 1 unit
Solid Geometry or Trigonometry ½ unit
Chemistry or Physics 1 unit

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

Since the Engineering curricula have been designed to operate on an annual rather than on a quarter basis, beginning students are regularly admitted only in September. In special cases, admission may be granted during other months.

All beginning students register in the General College. Those admitted in Engineering will be eligible for promotion to the College of Engineering after satisfactory completion of the sixth quarter Engineering schedule.

Degrees

The College of Engineering offers curricula on the cooperative plan in Chemical, Civil, Electrical and Mechanical Engineering. The degrees conferred include the Bachelor of Science in Chemical, Civil, Electrical and Mechanical Engineering.

For the Master's degree programs in Engineering, see the Graduate School Section.

Requirements for Graduation

1. Compliance with University requirements, chapter 3, this BULLETIN.
2. Successful completion of all the required courses listed in the schedule.
3. Completion of required cooperative work periods.
4. The recommendation of the student's department head.

Any Junior or Senior Engineering student with a quality point ratio of 2.50 over-all and 2.75 Engineering or better may substitute not more than two approved upper college courses in mathematics, science or engineering for equal number of certain required engineering courses.

420: CHEMICAL ENGINEERING

Chemical Engineering is the branch of engineering concerned with the development and application of manufacturing processes in which chemical and/or physical changes of material are involved. The manufacturing process can usually be resolved into a series of related momentum, mass, and energy transport processes. Industries based on chemical or physical changes are called the Chemical Process Industries and manufacture products such as inorganic and organic chemicals, rubber, plastics, petroleum, detergents, metals, pharmaceuticals, and foodstuffs.

The chemical engineer will usually be concerned with one of the following areas: research and development, plant design and construction, or plant operation and management. In addition to the traditional Processing Industries, chemical engineers are increasingly finding employment in new areas, such as biomedical engineering, nuclear power, the space program, and environmental control.

SCHEDULE OF REQUIRED COURSES

Freshman Year

First Quarter	*Credits*
110:101 English Composition	3
110:121 Physical Education	1
315:126 Inorganic Chemistry	4
345:221 Analytic Geometry Calculus I	5
410:101 Engineering Design	2
ROTC	1.5
	16.5

Second Quarter	
110:102 English Composition	3
315:127 Inorganic Chemistry	4
345:222 Analytic Geometry Calculus II	5
460:125 Engineering Graphics I	3
ROTC	1.5
	16.5

Third Quarter	
110:103 English Composition	3
110:122 Physical Education	1
315:128 Inorganic Chemistry	4
345:160 Computer Science I	2
345:223 Analytic Geometry Calculus III	5
ROTC	1.5
	16.5

Summer I	
	0
Summer II	
	0

Sophomore Year

First Quarter	*Credits*
315:313 Physical Chemistry	3
315:316 Physical Chemistry Lab	2
345:224 Analytic Geometry Calculus IV	5
365:201 Elementary Classical Physics I	4
420:200 Process Calculations I	3
ROTC	1.5
	18.5

Second Quarter	
315:314 Physical Chemistry	3
345:225 Differential Equations	5
365:202 Elementary Classical Physics II	4
420:201 Process Calculations II	3
ROTC	1.5
	16.5

Third Quarter	
110:205 Types of Literature	4
315:315 Physical Chemistry	3
365:203 Elementary Classical Physics III	4
420:220 Staged Operations	4
ROTC	1.5
	16.5

Summer I	
315:263 Organic Chemistry	3
315:264 Organic Chemistry	3
315:266 Organic Chemistry Lab	2
	8
Summer II	
110:108 Effective Speaking	4
315:265 Organic Chemistry	3
	7

Pre-Junior Year

First Quarter	*Credits*
410:301 Cooperative Work Period I	0
Second Quarter	
110:115 Institutions in the U.S.	3
420:305 Materials Science	3
420:310 Chemical Process Industries	3
430:304 Mechanics I	4
440:300 Analog Computers	3
	16

Third Quarter	
410:302 Cooperative Work Period II	0
Summer I	
110:116 Institutions in the U.S.	3
110:317 Western Cultural Traditions	3
Summer II	
110:318 Western Cultural Traditions	3
430:305 Mechanics II	4
	7

Junior Year

First Quarter	*Credits*
365:301 Modern Physics	4
420:321 Transport Phenomena I	4
420:425 Chemical Engineering Thermodynamics I	3
440:290 Circuits I	3
	14

Second Quarter	
410:403 Cooperative Work Period III	0
Third Quarter	
110:319 Western Cultural Traditions	3
325:244 Economics	4
420:322 Transport Phenomena II	4
420:426 Chemical Engineering Thermodynamics II	2
440:356 Electrical Machinery	3
	16
Summer I	
410:404 Cooperative Work Period IV	0

Senior Year

First Quarter	*Credits*
440:368 Electronic Fundamentals	3
420:415 Unit Operations Lab I	2
420:423 Transport Phenomena III	4
Elective	3
420:440 Process Economics	3
	15

Second Quarter	
420:416 Unit Operations Lab II	2
420:430 Reaction Kinetics	4
420:435 Process Control	3
420:441 Plant Design I	3
Elective	3
	15

Third Quarter	
110:304 Eastern Civilizations	3
110:401 Senior Seminar	2
420:417 Unit Operations Lab III	2
420:442 Plant Design II	2

420:443 Plant Trip	1
Elective	3
	13
Total Credits	218

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 transportation systems (highways, railroads, airports, canals), for much of our public health (water supply, sewage treatment, air and stream pollution), for the structures important to our daily living (building, bridges, dams), and for much of our ordered way of life (surveying and mapping, traffic management, community planning), and plays an important role in the exploration of space and the sea (design of launch facilities, space vehicles, deep submergence vehicles).

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) water resources 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 institutions throughout the United States and the rest of the world; others are engaged in private practice. Their work involves research and development in many specialized areas: design of engineering structures ranging from submarines, buildings, highways, cities, space bases to space vehicles; and work in construction engineering.

SCHEDULE OF REQUIRED COURSES

Freshman Year

First Quarter	*Credits*	*Second Quarter*	
110:101 English	3	100:102 English	3
110:121 Physical Education	1	110:122 Physical Education	1
345:221 Calculus I	5	345:222 Calculus II	5
365:101 Physics	4	365:102 Physics	4
410:101 Engineering Design	2	460:125 Graphics	3
ROTC	1.5	ROTC	1.5
	16.5		17.5
Third Quarter		365:103 Physics	4
110:103 English	3	ROTC	1.5
110:108 Effective Speaking	4		17.5
345:223 Calculus III	5	Total Credits for Freshman Year	50.5

Sophomore Year

First Quarter	*Credits*	*Second Quarter*	
110:205 Literature	4	110:318 Western Culture	3
110:317 Western Culture	3	315:121 Chemistry I	3
345:224 Calculus IV	5	345:225 Differential Equations	5
430:301 Engineering Mechanics I	4	430:302 Engineering Mechanics II	4
ROTC	1.5	ROTC	1.5
	17.5		16.5

Third Quarter	
110:319 Western Culture	3
315:122 Chemistry II	3
430:303 Engineering Mechanics III	4
450:305 Materials Science	3
ROTC	1.5
	14.5

Summer	
110:115 Institutions	3
430:231 Surveying I	4
430:350 Urban Planning	4
345:160 Computer Science	3
	14

Total Credits for Sophomore Year 62.5

Pre-Junior Year

First Quarter	*Credits*
410:301 Co-op I	0
Second Quarter	
430:306 Theory of Structures I	4
430:351 Transportation Engineering I	4
460:300 Thermodynamics	3
460:310 Fluid Mechanics	3
	14

Third Quarter	
410:302 Co-op II	0
Summer	
110:116 Institutions	3
430:307 Theory of Structures II	4
430:332 Surveying II	4
430:352 Transportation Engineering II	4
	15

Total Credits for Pre-Junior Year 29

Junior Year

First Quarter	*Credits*
110:303 Eastern Civilizations I	3
337:101 Physical Geology	5
430:321 Environmental Engineering I	4
430:401 Steel Design I	3
	15
Second Quarter	
410:403 Co-op III	0

Third Quarter	
345: Math Elective	4
430:322 Environment Engineering II	4
430:402 Steel Design II	3
430:440 Water Resources Engineering	5
	16
Summer	
410:404 Co-op	0

Total Credits for Junior Year 31

Senior Year

First Quarter	*Credits*
430:403 Reinforced Concrete Design I	3
430:411 Soil Mechanics	4
*Electives	7
	14
Second Quarter	
430:404 Reinforced Concrete Design II	3
430:412 Foundations	4
*Electives	7
	14

Third Quarter	
110:401 Senior Seminar	2
*Electives	12
	14

Total Credits for Senior Year 42

Total Credits 216

* Elective credits will generally be taken to supplement the student's major interest in Civil Engineering. An elective schedule must have departmental approval, by the end of the Junior year.

440: ELECTRICAL ENGINEERING

The many branches of electrical engineering include production and distribution of electrical energy; research, development and manufacture of varied electrical and electronic products; design, installation and operation of communication systems including telephone, radio, television and microwave links; adaptation of electrical and electronic principles to industrial needs such as instrumentation and process control, automation of production machinery and machine tools through use of computers and magnetic tape; participation at all levels in government projects in the space age, instrumentation, tracking, telemetry and data gathering and evaluation relating to satellites and space crafts; design of modern lighting, both indoors and out; cooperation in such fields as nuclear physics, electro-chemistry, metallurgy, bio-chemistry and medicine.

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 merchandising, production control, warehouse control, banks and the stock exchange.

The wide use of electrical means for measurements and controls has resulted in the need for electrical engineers in all types of industries besides those of electrical manufacture, utilities and communications.

SCHEDULE OF REQUIRED COURSES

Freshman Year

First Quarter	*Credits*	*Second Quarter*	
110:101 English I	3	110:102 English II	3
110:121 Physical Education	1	110:108 Speaking	4
315:126 Inorganic Chemical Engineering	4	315:127 Inorganic Chemical Engineering	4
345:221 Calculus I	5	345:222 Calculus II	5
410:101 Engineering Design	2	ROTC	1.5
ROTC	1.5		17.5
	16.5		
Third Quarter		*Summer*	
110:103 English III	3		0
110:115 Institutions	3		
110:122 Physical Education	1		
345:223 Calculus III	5		
460:125 Graphics	3		
ROTC	1.5		
	16.5		

Sophomore Year

First Quarter	*Credits*	*Second Quarter*	
110:205 Literature	4	110:318 Western Culture II	3
110:317 Western Culture I	3	345:169 Computer Science	2
345:224 Calculus IV	5	345:225 Differential Equations	5
365:201 Physics I	4	365:202 Physics II	4
ROTC	1.5	ROTC	1.5
	17.5		15.5
Third Quarter		*Summer*	
110:319 Western Culture III	3	365:301 Modern Physics	4
345: Math Elective	3	440:300 Analog Computers	3
365:203 Physics III	4	440:334 Circuits II	3
420:305 Materials Science	3	440:340 Measurements I	3
ROTC	1.5	440:351 Fields I	3
	17.5		17

Pre-Junior Year

First Quarter	*Credits*
410:301 Co-op	0
Second Quarter	
110:116 Institutions II	3
430:304 Mechanics I	4
440:335 Circuits III	3
440:341 Measurements II	3
440:352 Fields II	2
	15

Third Quarter	
410:302 Co-op	0
Summer	
325:244 Economics	4
430:305 Mechanics II	4
440:336 Circuits IV	3
440:365 Electronics I	4
	15

Junior Year

First Quarter	*Credits*
440: *Electrical Engineering Elective	4
440:353 Machines I	4
440:366 Electronics II	4
460:300 Thermodynamics	3
	15
Summer	
410:404 Co-op	0

Second Quarter	
410:403 Co-op	0
Third Quarter	
440:354 Machines II	4
440: *Electrical Engineering Elective	9
	13

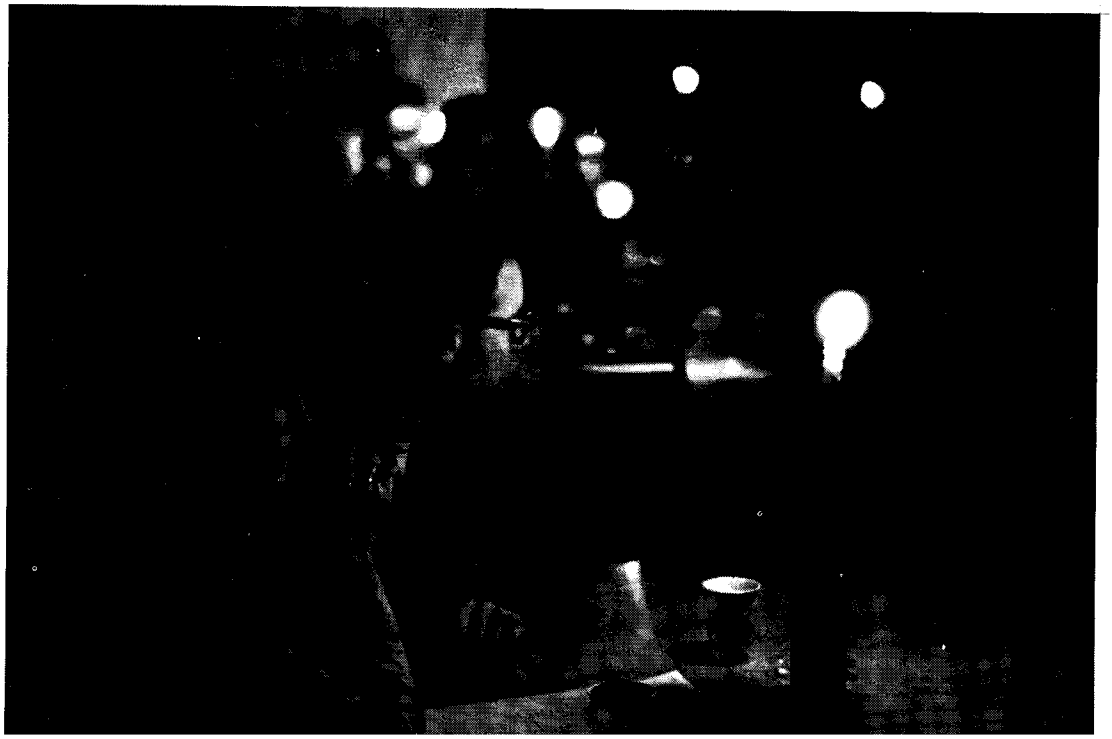
Senior Year

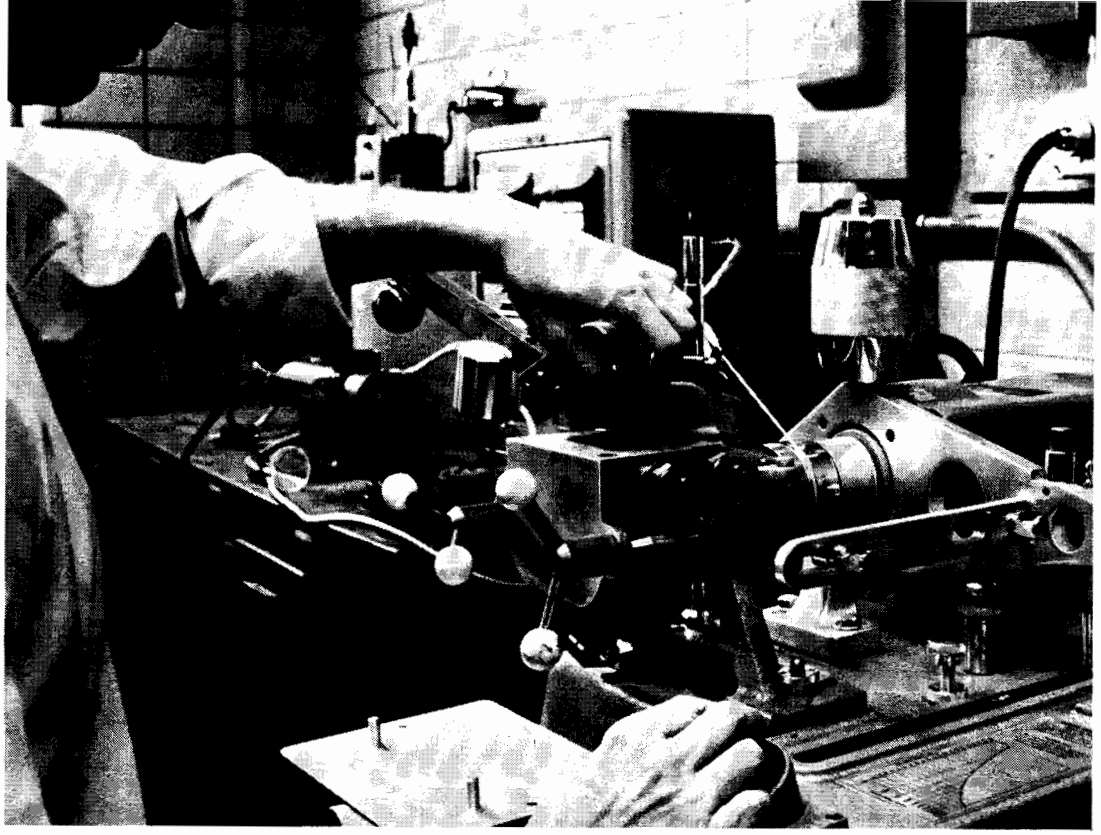
First Quarter	*Credits*
110:304 Eastern Civilizations	3
440: *Electrical Engineering Elective	11
	14
Third Quarter	
110:401 Senior Seminar	2
440. *Electrical Engineering Elective	12
	14

Second Quarter	
440: *Electrical Engineering Elective	11
Non-Technical Elective	3
	14

Total Credits 218

* Student must submit a proposed elective schedule for departmental approval by the beginning of the Junior year.





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, fluids, energy, and electricity. Among the many subtopics included in these major headings are stress analysis, vibrations, compressible and incompressible fluid flow, 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. It is interesting to note that the aerospace industry employs far more mechanical than aerospace engineers. The difference between the two curricula is so little, that vary few universities see fit to distinguish between the two degrees.

The Mechanical Engineering 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.

SCHEDULE OF REQUIRED COURSES

Freshman Year

First Quarter		*Credits*	*Second Quarter*		*Credits*
110:101	English I	3	110:102	English II	3
110:121	Physical Education	1	110:122	Physical Education	1
345:21	Calculus I	5	345:222	Calculus II	5
365:101	Physics I	4	365:102	Physics II	4
410:101	Engineering Design	2	460:125	Graphics I	3
	ROTC	1.5		ROTC	1.5
		16.5			17.5

Third Quarter

110:103	English III	3
345:223	Calculus III	5
365:103	Physics III	4
460:126	Graphics II	2
	ROTC	1.5
		15.5

Total Credits for Freshman Year 49.5

Sophomore Year

First Quarter		*Credits*
110:205	English	4
110:317	Western Culture I	3
345:224	Calculus IV	5
430:301	Engineering Mechanics I	4
	ROTC	1.5
		17.5

Second Quarter		
110:308	Western Culture II	3
315:111	Chemistry I	3
345:225	Differential Equations	5
430:302	Engineering Mechanics II	4
	ROTC	1.5
		16.5

Third Quarter		
110:309	Western Culture III	3
315:112	Chemistry II	3
345:	Math Elective	3
345:160	Computer Science	3
430:303	Engineering Mechanics III	4
	ROTC	1.5
		17.5

Summer		
110:115	Institutions in U.S. I	3
110:108	Speech	4
365:301	Modern Physics	4
460:300	Thermodynamics I	3
		14

Total Credits for Sophomore Year 65.5

Pre-Junior Year

First Quarter		*Credits*
410:301	Co-op I	0

Second Quarter		
420:305	Materials Science	3
460:301	Thermodynamics II	3
460:310	Fluid Mechanics	3
460:320	Kinetics of Machinery	4
460:360	Engineering Analysis I	3
		16

Third Quarter		
410:302	Co-op II	0

Summer		
110:304	Eastern Civilizations	3
110:116	Institutions in U.S. II	3
460:302	Thermodynamics III	3
460:440	Automatic Control I	3
325:244	Economics	4
		16

Total Credits for Pre-Junior Year 32

Junior Year

First Quarter		*Credits*
440:290	Circuits I	3
460:325	Vibrations	3
460:335	Analog Mechanical Computers	4
460:441	Automatic Controls II	3
460:361	Engineering Analysis	3
		16

Second Quarter		
410:303	Co-op III	0

Third Quarter		
440:356	Electronic Machines	3
460:315	Heat Transfer	4
460:330	Dynamics of Machinery	4
	Elective	3
		14

Summer		
410:304	Co-op IV	0

Total Credits for Junior Year 30

Senior Year

First Quarter		*Credits*
440:368	Electronics Fundamentals	3
460:420	Mechanical Design I	4
460:340	Mechanical Measurements	3
	Elective	3
		13

Second Quarter		
460:311	Compressible Flow	3
460:421	Mechanical Design II	4
	Elective	6
		13

Third Quarter		
110:401	Senior Seminar	2
	Elective	12
		14

Total Credits for Senior Year 40

Total Credits 217

AN UPPER COLLEGE:

The College of Education

H. KENNETH BARKER, Ph.D., *Dean*
JOHN S. WATT, Ph.D., *Associate Dean*

OBJECTIVES

The purpose of the College of Education is to further the objectives of The University of Akron by providing a quality program for students of Education and by helping them develop the following competencies:

An interest in education as a field of study and an enthusiasm for teaching as a profession.

A knowledge of the principles of human growth and development and an understanding of the processes of learning.

Skill in applying this knowledge to planning, motivating, directing, and evaluating the learning of youngsters.

Personal attributes, behavior traits, and sense of professional responsibility which are desirable in a teacher.

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

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, are offered. Graduate degrees include the Master of Arts and Master of Science in 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 96 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 Committee on Admission and Retention, subject to review by the Dean. This evaluation will take place when the student officially indicates his intention to work for certification, and periodically thereafter if deemed necessary by the faculty of the College of Education. 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 of the College of Education.

Art . . . . . Miss Davis
Business Education . . . Mr. Misko, Mrs. Tucker
Elementary . . . . . Mrs. Badger, Mr. Beisel, Mr. Ferguson, Mr. Maben, Mr. Barr, Mr. Carrino, Mr. Meconi, Mrs. Seifert, Mr. Williams
Secondary . . . . . Mr. Johnson, Miss Lindbeck, Mr. Ocasek, Miss Orlinoff, Mrs. Pfeiffer, Mr. Rich, Mr. Watt, Mr. Wood
Home Economics . . . . . Mrs. Sullivan
Music . . . . . Mr. MacDonald
Physical Education . . . . . Mr. Ewers, Mr. Cochrane, Miss Ruman
Speech . . . . . Mr. Baker
Graduate . . . . . Mr. Doverspike, Mr. Ferguson, Miss Riedinger, Mr. Rich, Mr. Watt

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, Speech and Speech Therapy. 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. The B.S. in Education is granted to those whose major is in one of the special fields or in elementary education.

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

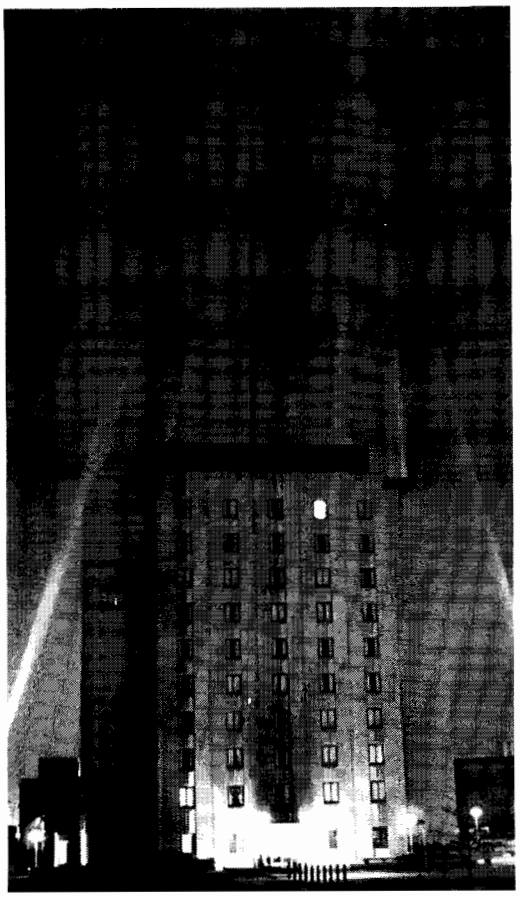
Every teacher in Ohio public schools is required to have a certificate covering the fields in which he is teaching. This certificate is issued by the State Department of Education upon recommendation of the Dean of the College of Education. The student must make out an application form which may be obtained 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 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 preprofessional 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 Kindergarten-Primary program is for students preparing to teach in the kindergarten through the third grade. The Elementary program is for those preparing to teach in grades one to eight inclusive.

All students working for a degree in Elementary Education will be required to obtain a minor in a non-professional field chosen from among those fields approved by the Department of Elementary Education and consisting of a minimum of 27 credits of academic work. In addition, students are required to complete a "Field Participation" experience prior to student teaching.

A typical schedule arranged by academic years appears below. Further information may be obtained from the Department of Elementary Education.

KINDERGARTEN-PRIMARY AND ELEMENTARY

First Year

First Quarter	*Credits*
110:101 English Composition	3
110:115 Institutions in U.S.	3
110:121 Physical Education	1
375:141 General Psychology	5
752:161 Fundamentals of Music	3
ROTC	1.5
	15-16.5

Second Quarter	
110:102 English Composition	3
110:116 Institutions in U.S.	3
110:122 Physical Education	1
565:157 Human Development and Learning/or	4
710:121 Design	3
Elective	3-5
ROTC	1.5
	14-16.5

Third Quarter	
110:103 English Composition	3
110:117 Institutions in U.S.	3
520:141 Handicrafts	3
520:162 Elementary School Music Literature and Appreciation	3

565:157 Human Development and Learning/or	4
Elective	3-5
ROTC	1.5
	15-18.5

Second Year

First Quarter	*Credits*
110:211 Numbers Communications	3
110:205 Types of Literature or/	
110:108 Effective Speaking	4
110:213 Reasoning and Undertsanding Science	3
335:100 World Cultural Geography	3
510:156 Education in American Society	3
ROTC	1.5
	16-17.5

Second Quarter	
110:205 Types of Literature or/	
110:108 Effective Speaking	4
110:214 Reasoning and Understanding Science	3
340:201 U.S. History or/	3
370:100 Government and Politics in U.S.	5
510:156 Education in American Society/or.	3
520:286 Children's Literature	5
ROTC	1.5
	15-18.5

Third Quarter	
110:215 Reasoning and Understanding Science	3
335: Elective in Geography	3
340: U.S. History or/	3
370:100 Government and Politics in U.S.	5

510:156 Education in American Society/or.	3
520:286 Children's Literature/or	5
Elective	3
ROTC	1.5
	15-17.5

Third Year

First Quarter	*Credits*
110:317 Western Cultural Traditions	3
335: Geography Elective	3
520:330 *Early Elementary Education	3

Second Quarter	
110:318 Western Cultural Traditions	3
335: Geography Elective	3
520:331 *Early Elementary Education	3

Third Quarter	
110:319 Western Cultural Traditions	3
335: Geography Elective	3
520:332 *Early Elementary Education	3

The following courses should be scheduled for the Junior Year: 520:331, Art for the Grades; 520:332, Science in the Elementary Grades; 520:322, Primary-Elementary Music Education; 555:338, Health and Physical Education Activities; 520,337, Teaching Language Arts; 520:338, Teaching Social Studies; 520:335, Teaching of Reading; 520:336, Arithmetic in Elementary Grades; 520:400, Student Participation. 520,335, Teaching of Reading and 520:336, Arithmetic in Elementary Grades should be scheduled concurrently. Language Arts and Social Studies should also be elected concurrently.

* Elected by those who wish the Kindergarten-Primary Certificate.

Fourth Year

The following courses should be distributed over the three quarters with one quarter left SOLELY FOR STUDENT TEACHING.

	Credits
110:303 Eastern Civilizations	3
510:350 Tests and Measurements	3
110:304 Eastern Civilizations	3
510:401 Problems in Education	5
110:401 Senior Seminar	2
510:402 Student Teaching	12
510:403 Student Teaching Seminar	3
Total	192

Any elementary certificate will be validated for kindergarten teaching provided the applicant submits evidence of completion of nine credits in kindergarten methods and materials. The three courses Early Elementary Education 520:330, 331 and 332 serve this purpose.

By taking the following courses, students in the Kindergarten-Primary program may also receive University recommendations as Director or Teacher in Nursery Schools:

		Credits
385:101-102	General Sociology	6
510:402	Student Teaching (In Nursery School) (after 4 credits in Kindergarten-Primary program)	6
510:360	Nursery School Laboratory	3
555:311	Red Cross First Aid	2
740:145-146	General Foods	6
740:165	Child Development	5

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.

Certification of Non-Professional Degree Holders for Elementary School Teaching in Ohio

The State Department of Education will, upon the request of the Superintendent in an employing city, county, or exempted village, and the recommendation of the institution in which the credit is completed, grant a temporary elementary certificate to the holder of an appropriate bachelor's degree, who submits evidence of the completion of the 18 credits listed in the section following.

To qualify for a Provisional Elementary Certificate the holder of a baccalaureate degree should complete a program of courses substantially equivalent to that required for the degree in elementary education. Typically this requires approximately 54 quarter credits of course work.

Retraining from Secondary to Elementary Certificate

The holder of a Provisional, Professional, or Permanent High School or Special Certificate may obtain a certificate valid for elementary teaching upon submitting evidence of the satisfactory completion of the following 18 credits:

		Credits
565:157	Human Development and Learning or	
375:307	Child Psychology	4
520:335	Teaching of Reading	5
520:336	Arithmetic in Elementary Grades	5
520:451	Elementary Education	4

Such certification shall be designated as a "Retraining" certificate and may be renewed only by submitting evidence of the completion of 18 credits of additional course work applicable to a degree in elementary education. Then, when qualified, application may be made for the Provisional Elementary Certificate.

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
751:	Music Organization	3
510:402	Student Teaching**	3
520:323	Teaching and Supervision of Music in the Primary Grades*	2
520:324	Teaching and Supervision of Music in the Elementary Grades*	2
750:151	Theory I	3
750:152	Theory II	3
750:153	Theory III	3
750:154	Music Literature I	2
750:155	Music Literature II	2
750:156	Music Literature III	2
750:160	Sight Singing	2
750:260-261	Keyboard Harmony	4
752:124	Voice	2
	Total	33

* Since these courses may be substituted for 520:122 Primary-Elementary Music Education (3 quarter credits) in the regular Elementary Program, the net increase in the student's program would be 29 quarter credits. This recommended program has the approval of the music staff.

** Successful completion of Musicianship Examination is a prerequisite.

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 the course 530:313, *Principles and Practices in Secondary Education,* taken during the Junior year; 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.

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 Dean of the College.

Recommended Sequence for Secondary Education

First Year

First Quarter	*Credits*	*Second Quarter*	
110:101 English Composition	3	110:102 English Composition	3
110:115 Institutions in U.S.	3	110:116 Institutions in U.S.	3
110:121 Physical Education	1	110:122 Physical Education	1
375:141 General Psychology	5	510:156 Education in American Society	3
Electives	3	565:157 Human Development and Learning/or	4
ROTC	1.5	Electives	3-5
	15-16.5	ROTC	1.5
			13-17.5
Third Quarter		565:157 Human Development and Learning	4
110:103 English Composition	3	Electives (Teaching Field)	6
110:117 Institutions in U.S.	3	ROTC	1.5
510:156 Education in American Society/or	3		15-17.5

Second Year

First Quarter	*Credits*	*Second Quarter*	
110:211 Numbers Communications	4	110:211 Numbers Communications	4
110:205 Types of Literature/or	4	110:205 Types of Literature/or	4
110:108 Effective Speaking	4	110:108 Effective Speaking	4
110:213 Reasoning and Understanding Science	3	110:214 Reasoning and Understanding Science	3
Electives (Teaching Field)	4-8	Electives (Teaching Field)	4-8
ROTC	1.5	ROTC	1.5
	15-16.5		15-16.5
Third Quarter		Electives (Teaching Field)	8-12
110:211 Numbers Communications	4	ROTC	1.5
110:215 Reasoning and Understanding Science	3		15-16.5

Third Year

First Quarter	*Credits*	*Second Quarter*	
110:317 Western Cultural Traditions	3	110:318 Western Cultural Traditions	3
510:350 Tests and Measurements	3	510:350 Tests and Measurements	3
530:313 Principles and Practices in Secondary Education	5	530:313 Principles and Practices in Secondary Education	5
Electives (Teaching Field)	8-13	Electives (Teaching Field)	8-13
Third Quarter		530:313 Principles and Practices in Secondary Education	5
110:319 Western Cultural Traditions	3	Electives (Teaching Field)	8-13
510:350 Tests and Measurements	3		

Fourth Year

The following courses should be distributed over the three quarters with one quarter left SOLELY FOR STUDENT TEACHING.		510:401 Problems in Education	5
		510:402 Student Teaching	12
110:303 Eastern Civilizations	3	510:403 Student Teaching Seminar	3
110:304 Eastern Civilizations	3		
110:401 Senior Seminar	2	Total	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 teaching field is forty-five 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, a student should consult the Head of the Department of Secondary Education who will appoint an advisor.

Statement of Number of Hours Required for Certification in Various Teaching Fields

As Specified by the State Department of Education
In High School and Special Areas

Field	*Number of Credits* *High School Teaching Fields**	*Special Teaching Fields***
Art	36	75
Business		
Bookkeeping	14	
†Bookkeeping—Basic Business	14	
Salesmanship—Merchandising	23	
†Stenography—Typing	30	
Typing	8	
Business Education Comprehensive	68	
English	36	
Health Education	36	
Health Education and Physical Education	36	60
History and Government	41	
Home Economics	45	
Latin	23	
Library Science	24	
‡Modern Languages	30	
Mathematics	27	
Music	36	75
Science		
Biological Science	23	
Earth Science	23	
General Science	32	
Physical Science	32	
Science Comprehensive	68	
Social Studies Comprehensive	68	
Speech	27	60

* High School teaching fields entitle the holder of the certificate to teach the subjects in all grades 7-12 in a secondary school and in grades 7 and 8 of an elementary school if the work is departmentalized.

** A special teaching field entitles the holder of the certificate to teach that subject in any grade of the public schools.

† If used as major 45 credits will be required.

‡ The 30 credits will *not* include any credit earned in the beginning College course in the language. Such credits (if earned) are used to satisfy the State requirement of two units of high school language as prerequisites for College study.

SPECIAL FIELDS

Students preparing to teach in the Special Fields of Art, Business Education, Home Economics, Music, Health and Physical Education, and Speech will follow the pattern of courses outlined under RECOMMENDED SEQUENCE FOR SECONDARY EDUCATION in this chapter. Lists of specific course requirements and recommended yearly and quarter patterns will be provided to the student by his advisor.

Special Education

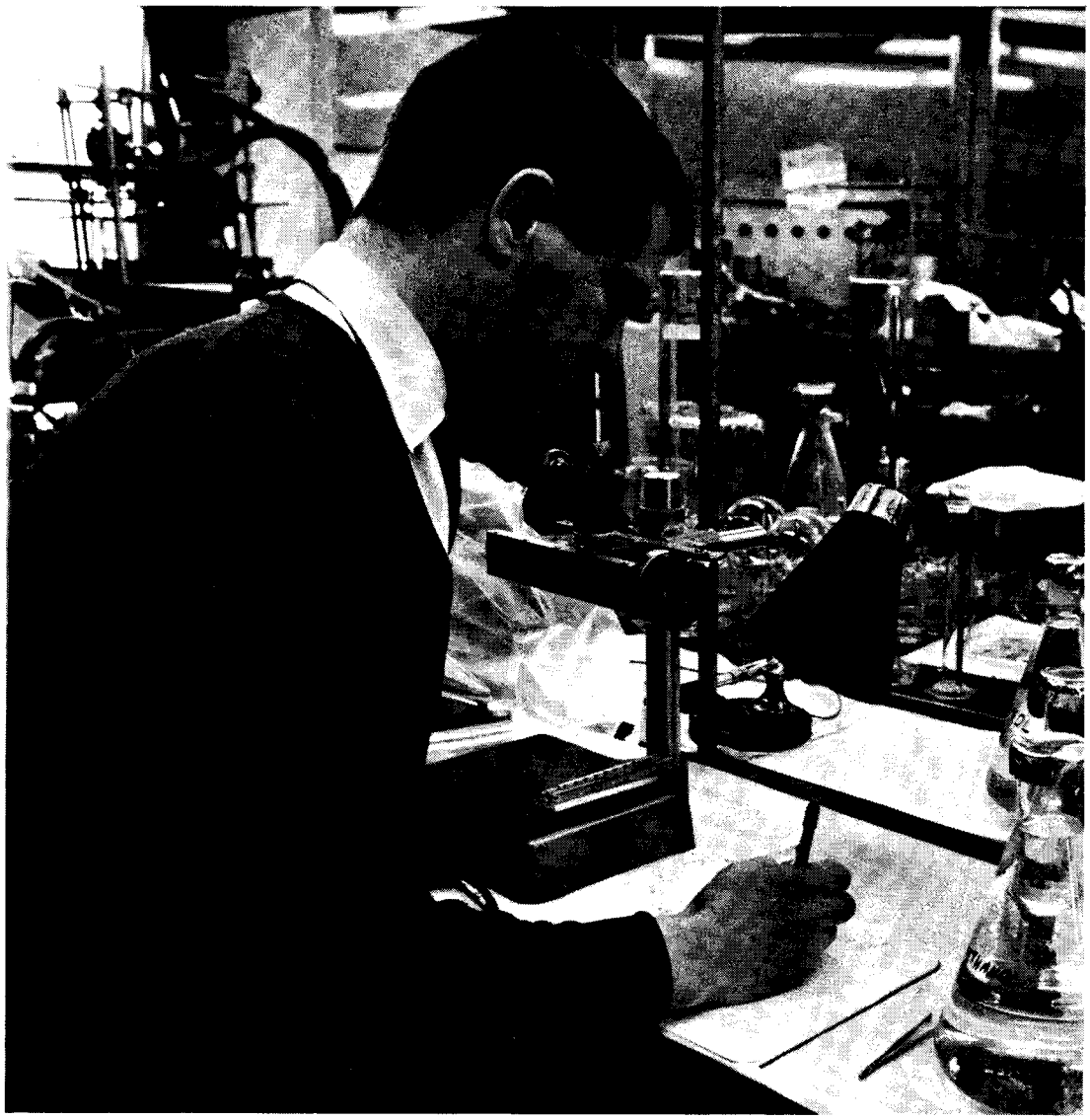
Teacher of Slow-Learning Children

Students preparing to teach either at the elementary or secondary level may include the following sequence of courses in their regular program of studies, as a second teaching field for secondary majors or as elective hours for elementary majors. With successful completion of their respective programs, they will then be eligible to secure this special education certification as well as the regular teaching certification.

		Credits
375:404	Psychopathology of Childhood	4
510:402	Student Teaching	6-12
580:460	Developmental Characteristics of Slow-Learning Children	5
580:461	Principles of Teaching Exceptional Children	4
580:462	Methods and Materials for Teaching Slow Learners	3
580:464	Reading and Language Arts for the Slow Learner	3
580:465	Social Studies for the Slow Learner	3
580:466	Number Concepts for the Slow Learner	3
580:468	Occupational Orientation and Job Training for Exceptional Children	3

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 Speech Clinic.



AN UPPER COLLEGE:

The College of Business Administration

WILBUR EARLE BENSON, Ph.D., *Dean*

OBJECTIVES

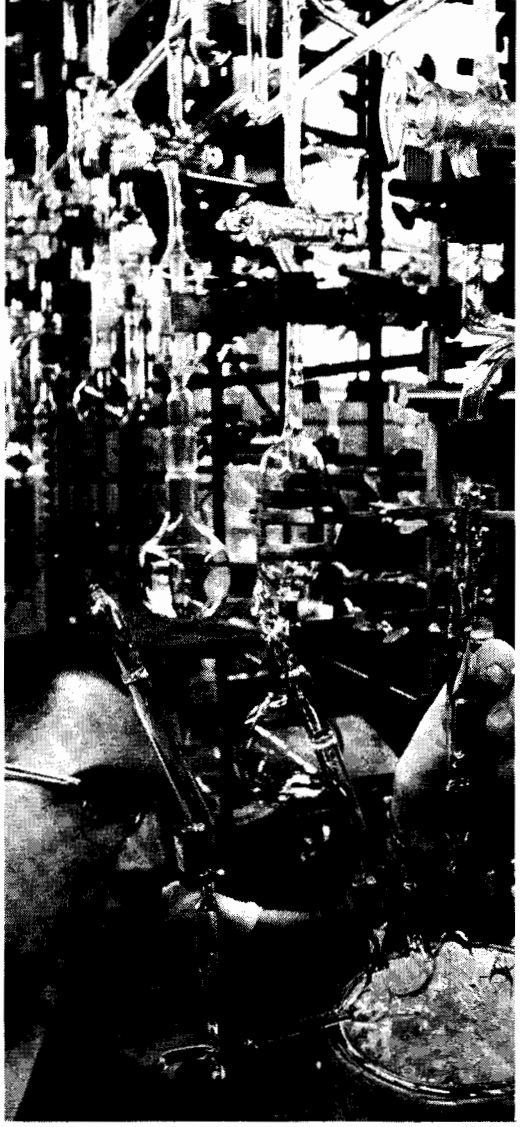
The purpose of the College of Business Administration is to further the objectives of The University of Akron by providing a quality program of collegiate education for business and to pursue the following aims:

To prepare students for a career in business by providing them opportunities to develop a synthesized perception of the role of business institutions in a dynamic industrial society.

To develop in students an awareness and skill in the analytical approach of quantitative methods and an understanding of the application of behavioral science techniques to the field of business administration.

To promote in students an understanding of the ethics and responsibilities in the area of business administration.

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



Baccalaureate degrees offered in this Upper College are the Bachelor of Science in Accounting, Bachelor of Science in Business Administration and the Bachelor of Science in Industrial Management. At the graduate level the Master of Business Administration, the Master of Business Administration with International Business Option, the Master of Science in Accounting and the Master of Science in Industrial Management degrees are offered through day and evening courses.

Graduates of this Upper College can expect to enter fields of business or governmental administration, accounting, finance, marketing, advertising or industrial management or advanced study for law, business, or teaching. Study programs follow the University philosophy of teaching each student in the broad areas of knowledge; superimposed on this fundamental education are the specific knowledge areas pertaining to the functional operations of modern commerce and industry.

At The University of Akron, there is a long history of education relating to the field of commerce and industry. Since 1919 there have been courses offered in the Department of Commerce. It was in 1953 that these were combined with other related fields and made into a separate college.

Since its inception, the College of Business Administration's curriculum has been designed with equal emphasis on the broad basic principles as well as the immediate practices. Textbook knowledge is consistently made more significant by field trips and inspection tours to witness business operations "on the scene."

Similarly, the College maintains a sound balance between liberal education and professional courses. Half of the courses of study are in a field of liberal education; the remaining courses are divided between courses of general business subjects and the individual student's own indicated area of specialization.

Requirements for Admission

The College of Business Administration accepts students after they have completed two years of General College work. The admission of a student will depend upon his preparation, ability to do college work, his interests, moral character and fitness for an effective business or professional career. The entrance requirements to the College are:

1. Completion of 96 credits with a 2.0 quality point average in all work taken, or permission of the Dean.
2. A general educational background as indicated by the satisfactory completion of the General College program as specified for the various areas of Business Administration.
3. Evidence of satisfactory competence in oral and written English and applied mathematics.

The College reserves the right to require examinations of students transferring work to validate the credits, if necessary, or properly to place the student where the more advanced courses presume a certain background of knowledge, as in accounting.

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) the major and all courses taken in the College, and (b) all courses undertaken here and elsewhere.
4. Recommendation of the student's department head.

Basic Curriculum Pattern for Business Administration

PRE-BUSINESS PREPARATION TWO YEARS

Liberal Education —to Provide:

1. Facility in use of English—oral and written.
2. Knowledge of basic mathematics—the quantitative measuring tool.
3. A basic understanding of the reasoning and analytical methods of science.
4. Knowledge of man's moral, social, cultural and religious development.

Business Foundation Courses

1. Business Organization
2. Economics
3. Accounting

BUSINESS ADMINISTRATION MAJOR

Junior Year

1. Principles of business operation.
   Production
   Marketing
   Finance
   Personnel Relations
2. Measurement and control tools:
   Accounting
   Costs-budgets
   Statistics
   Operating standards

Senior Year

Major of 15 credits—sufficient concentration for the student to appreciate and understand one given area of business.

Electives in Liberal Arts in:

a. Economics, social sciences, literature, etc.
b. Bus. Adm. Courses (major)

Business Policy (3 credits) integrates, evaluates and applies the materials learned.

Core Program

In addition to the General Studies program required of all students at The University of Akron, students enrolled in the College of Business Administration must successfully complete the following Core Program:

325:245-246-247	Principles of Economics—3 credits each quarter
620:221-222	Accounting—4 credits each quarter
620:270	Managerial Accounting—4 credits
	or
620:290	Cost Accounting—4 credits
640:161	Business Organization and Management—4 credits
640:341	Business Law--5 credits
640:371	Business Finance—5 credits
650:346-347	Business Statistics—3 credits each quarter
650:263	Production Organization—3 credits
650:473	Business Policy—3 credits
660:283	Marketing—4 credits
345:101	Finite Mathematics I—3 credits

DEPARTMENTS OF INSTRUCTION

620: ACCOUNTING

The accountant of today is recognized as a professional man. Practice of public accountancy and practice of accountancy in private employment are both included in professional accounting. Standards and ethics are as important in one as in the other; mastery of accounting concepts and procedures is essential to both.

Private and public businesses provide opportunities for employment to persons with accounting backgrounds. Accounting graduates usually begin their careers in junior positions. Those who choose public accounting may become seniors, managers, principals and partners in a public accounting firm. Those

who choose careers in private business may later hold such senior positions as chief accountant, budget director, internal auditor, treasurer and controller. More frequently than ever before, outstanding public accountants are being appointed to fill top positions in government. The presidents of more than eighty nationally-known corporations reached their executive positions by way of the accounting department.

The accounting curriculum is designed to prepare the student for professional service, including the taking of the state-board-administered 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 public and private accounting rest on the same foundation, the following basic accounting courses are required of all accounting majors:

8 credits of Elementary Accounting (620:221 and 222)
4 credits of Cost Accounting (620:290)
10 credits of Intermediate Accounting (620:317 and 318)
5 credits of Introduction to Electronic Data Processing (620:355)
5 credits of Federal Income Tax Procedures (620:430)
5 credits of Auditing (620:440)
5 credits of Controllership Problems (620:460)
4 additional credits of Business Law (640:342)

The Level I achievement test, prepared and graded by the American Institute of Certified Public Accountants, is required of all students before credit will be granted in Accounting 222. Students interested in majoring in Accounting should score well on this test. The Level II accounting test is required of all students desiring credit for Accounting 440.

In addition to the accounting courses required in the above program, students preparing for a career in public accounting are advised to take Advanced Accounting 620:420. Majors preparing for careers in industrial accounting should take courses in Management including Production Control 650:403 and Motion and Time Study 303.

Because of the increasing demand for accountants with a knowledge of computer theory and practice, majors are advised to elect Accounting Systems 620:454. Courses in mathematics beyond Finite Mathematics are also strongly recommended.

The degree of Bachelor of Science in Accounting will be granted to those students who complete the prescribed work.

640: FINANCE

The Department of Finance develops and applies the principles and techniques of economics, administration and operation which are common in all business and industrial organizations.

Programs in the Department are adapted for students preparing for careers in finance.

The Department provides courses for students majoring in Liberal Arts but seeking careers in business, and provides an excellent fundamental background for advanced study, law or governmental careers.

During his General Studies program the student who wishes to major in Finance should take general psychology and either applied or industrial psychology. In addition to completing Managerial Accounting (620:270), he must complete a minimum of 23 credits of work in his major, including two 3-credit courses on the 400 level, plus Business Policy 650:473. With the approval of his adviser a student may select courses for his major from those listed below. Courses designated with an asterisk (*) are required for a major in this field.

		Credits
325:380	Money and Banking*	4
325:481	Monetary and Banking Policy	4
325:405	Public Finance	4
640:358	Principles of Insurance	4
640:374	Credits and Collections	3
640:376	Banking Practice and Management	5
640:450	Business and Society	5
640:472	Investments*	5
640:477	Security Analysis	5
640:479	Problems in Finance*	5

The degree of Bachelor of Science in Business Administration will be granted to those students who complete the prescribed work. including a problems course or seminar in the major area.

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 pro-

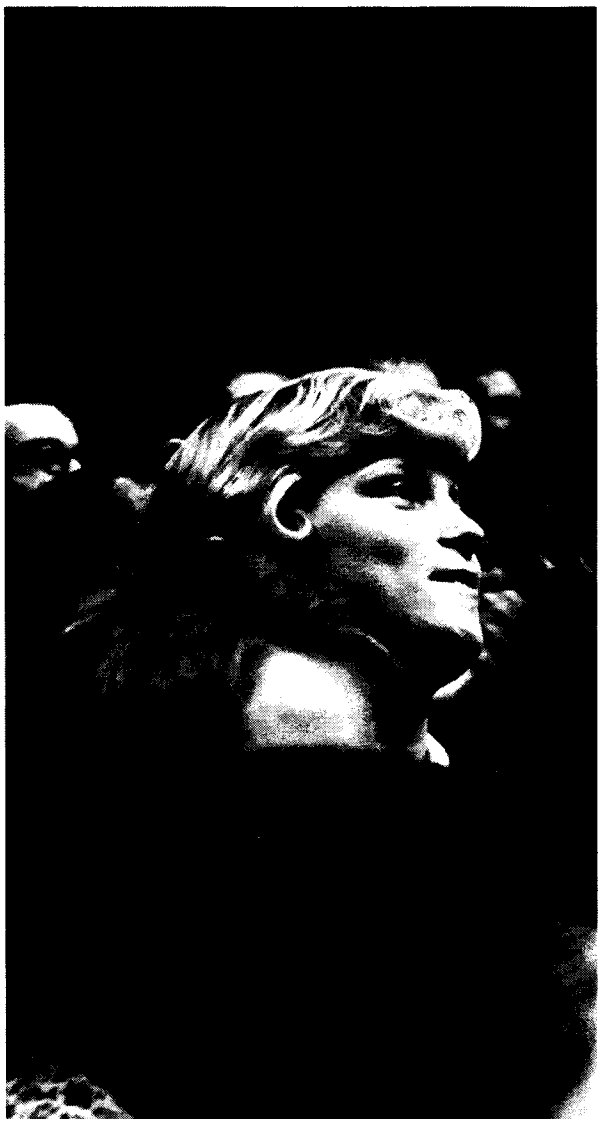
gram were the location of the University in a major industrial area and the recognition of an emerging educational need.

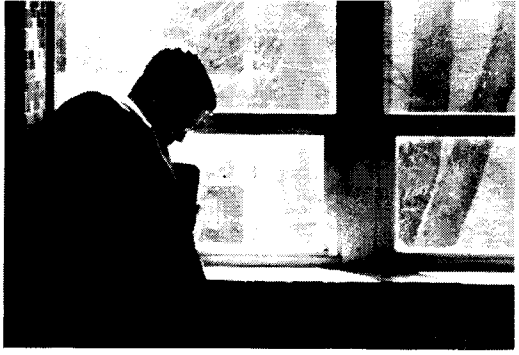
The emphasis on education for management is the result of several factors. First, managers are becoming increasingly aware that a professional approach to management requires understanding of quantitative methods and the behavioral sciences. Second, the management task is becoming much more complex in terms of 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—in the number and complexity of enterprises and in facilities as well as in the number and variety of management positions. The graduate with a 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.

In addition, the graduate has the fundamental preparation to undertake advanced study leading to an M.B.A. degree.

Departmental philosophy decrees that the student entering this field be well grounded in the basic liberal background and that he maintain a liberal approach to his education





within the framework of the Industrial Management curriculum.

In addition to Cost Accounting (620:290) or Managerial Accounting (620:270) the student majoring in Industrial Management must take the following:

		Credits
650:301	Work System Design	3
650:302	Industrial Plants	3
650:303	Motion and Time Study	3
650:350	Personnel Management	3
650:371	Principles of Management	3
650:403	Principles of Control	3
650:404	Production Planning and Control	3
650:405	Quality Control	3
650:456	Management Problems	2-5

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 development of new and improved products and services; effective advertising and other communications programs; efficient physical distribution of the firm's products and services so that they are accessible to present and prospective users; and pricing of the firm's offerings. 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 some 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.

During his General Studies program the student who wishes to major in Marketing should take 9 credits of Behavorial Science. In addition to completing Managerial Accounting (620:270), he must complete a minimum of 22 credits of work in his major, including 9 credits on the 3-400 level, plus Business Policy 650:473. With the approval of his adviser a student may select courses described in the section entitled Courses of Instruction in the Catalog.

Recommended electives for the student majoring in Marketing include:

660:385	Advertising—3 credits
660:388	Sales Promotions and Market Development—4 credits
660:394-395	Principles of Merchandising—3 credits each quarter
660:484	Problems in Retail Management—3 credits
660:386	Advertising Problems—3 credits
660:491	Sales Administration—4 credits
660:493	Marketing Problems—4 credits
660:496	Marketing Analysis—4 credits

The degree of Bachelor of Science in Business Administration will be granted to those students who complete the prescribed work, including a problems course or seminar in the major area.

Industrial Accounting Curriculum

The Industrial Accounting Curriculum, jointly administered by the Accounting Department and the Industrial 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 curriculum must successfully complete the following:

		Credits
620:290	Cost Accounting	4
620:355	Introduction to Electronic Data Processing	5
620:460	Controllership Problems	5
650:302	Industrial Plants	3
650:303	Motion and Time Study	3
650:350	Personnel Management	3
650:403	Principles of Control	3
650:405	Quality Control	3

Recommended electives for the student majoring in Industrial Accounting include:

375:316	Industrial Psychology
620:430	Taxation
620:440	Auditing
620:454	Accounting Systems
640:342	Business Law
640:358	Principles of Insurance
650:447	Advanced Statistics
650:456	Industrial Management Problems
650:469	Personnel Relations
660:389	Purchasing

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 96 credits of work with at least a 2.0 ratio; have completed the required General Studies courses; have completed the departmental or divisional prerequisites and have the approval of the Dean of the College.

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, six of music organizations and nine of courses coded in the 300's are included. (Credit limitations on applied music and music organizations do not apply to the Bachelor of Music degree.)
2. The recommendation of the student's major professor (i.e., Head of his major department).
3. The completion of second year foreign language on the university level (i.e., Russian, French, German, Greek, Spanish or Latin).
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.

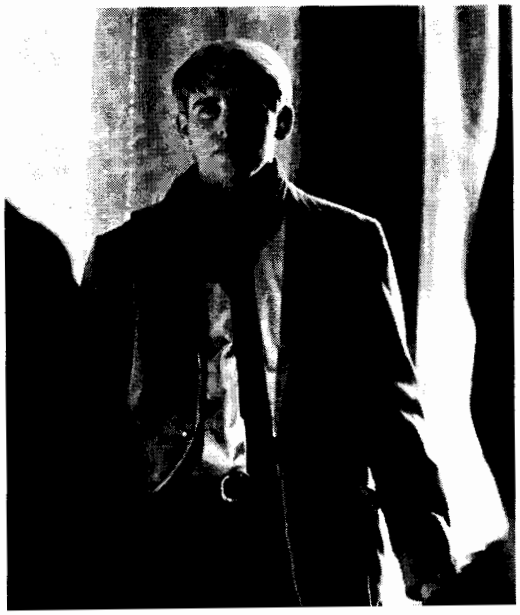
The Major Field

To qualify for graduation, a student must concentrate or 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 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 promotion to the College of Fine and Applied Arts.

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.

Preparation for High School Teaching

Students interested in a teaching career on the high school level 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 facilitates teacher placement, 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.



DEPARTMENTS OF INSTRUCTION

710: ART

Requirements for a major in Art are:

General Studies and second year of language (French recommended).

Art courses: 710:121, 135, 143, 145, 257, 260, 259, 269, 280, 281, 290, 302, 305, 315, 316, 331, 332, either 351-352-353 or 371-372-373, 409, three additional credits of Art History and eight credits of Art electives.

Engineering Graphics, 460:125-126 or Technical Drawing I, 292:121.

740: HOME ECONOMICS

Requirements for all degrees:

The General Studies, the second year of a foreign language, Home Economics courses 740:121, 123, 145, 146, 147, 162, 165, 201, 322, and Economics 325:248. Additional course requirements for each major area:

Foods and Nutrition:

Biology 310:191 and 307.

Chemistry 315:121-122-123, and 201-202-203.

Accounting 620:221 and 222, or 401.

Management 650:350. (The prerequisite of 650:263 is waived.)

Home Economics 740:315, 318, 319, 323, 412, 416.

Textiles and Clothing:

Chemistry 315:121-122-123.

Home Economics 740:158, 305, 306, 307, 317.

General Home Economics:

Home Economics 740:158, 305, 306, 318, 319, 415.

750: MUSIC

A written and aural/oral examination in the fundamentals of music and an audition in a performance area is administered prior to entrance in 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 Student Recital (750:157) for six quarters, and a music organization for six quarters, and a study of piano until passage of jury examination in functional piano. Recommended but not required: 360:452 Aesthetics, 360:250 Philosophy of Art. Further courses in music may be taken as electives. However, no more than six credits in music organizations (751 courses) and no more than twelve credits in 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.

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:

The General Studies and the second year of a foreign language. Forty-eight credits in a primary area of applied music and six credits in electives (secondary area) in applied music (752 courses), twelve credits in music organizations (751 courses), participation for twelve quarters in Student Recital (750:157 & 357), sixty 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, passage of the General Musicianship examination, presentation of a senior recital. A junior recital is recommended but not required.

By extending either the B.A. or B.M. programs to five years, the student may, with careful planning, take the courses in education, psychology, and music education required 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 the B.S. in Music Education (administered through the College of Education) include the following musical requirements: Twenty-four credits in a declared primary area of applied music (752 courses), twelve credits in musical organizations (751 courses), participation in Student Recital for twelve quarters, 63 credits in 750:151, 152, 153, 154, 155, 156, 160, 161, 162, 251, 252, 253, 254, 255, 256, 260, 261, 262, 351, 352, 353, 354, 355, 356, 360, 361, 454, and successful passage of the General Musicianship Examination before assignment to Student Teaching. A senior recital is recommended but not required.

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. Prepared performance: each candidate, with the approval but not the instructional aid of a faculty member is required to select and

to prepare not more than three weeks prior to the examination compositions for two of the following three performance media: (a) voice (b) keyboard (c) other instrument

2. 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
3. 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
4. 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
5. Rhythm
   a. Performing varied rhythms in simple, compound and combined meters
   b. Performing varied rhythms in mixed meters
6. 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.

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.

BACHELOR OF MUSIC
(Performance Major)

Freshman Year

First Quarter	*Credits*	*Second Quarter*	
110:101 *English Composition	3	110:102 *English Composition	3
110:115 *Institutions in U.S.	3	110:116 *Institutions in U.S.	3
110:121 *Physical Education	1	110:122 *Physical Education	1
750:151 *Theory I	3	750:152 *Theory II	3
750:154 *Music Literature I	2	750:155 *Music Literature II	2
750:160 *Sight Singing I	2	750:161 *Sight Singing II	2
752: *Applied Music	†4	752: *Applied Music	†4
751: *Music Organization	1	751: *Music Organization	1
750:157 *Student Recital	0	750:157 *Student Recital	0
ROTC (Men)	1.5	ROTC (Men)	1.5
	20.5		20.5
Third Quarter			
110:103 *English Composition	3	751: *Music Organization	1
110:117 *Institutions in U.S.	3	750:157 *Student Recital	0
750:153 *Theory III	3	ROTC (Men)	1.5
750:156 *Music Literature III	2		
750:162 *Sight Singing III	2		19.5
752: *Applied Music	†4	Total Credits for Freshman Year	60.5

Sophomore Year

First Quarter	*Credits*	*Second Quarter*	
110:213 *Reasoning and Understanding in Science	3	110:214 *Reasoning and Understanding in Science	3
110:205 *Types of Literature	4	110:108 *Effective Speaking	4
750:251 *Theory IV	3	750:252 *Theory V	3
750:260 *Keyboard Harmony I	2	750:261 *Keyboard Harmony II	2
752: *Applied Music	†4	752: *Applied Music	†4
751: *Music Organization	1	751: *Music Organization	1
750:157 *Student Recital	0	750:157 *Student Recital	0
ROTC (Men)	1.5	ROTC (Men)	1.5
	18.5		18.5
Third Quarter			
110:215 *Reasoning and Understanding in Science	3	751: *Music Organization	1
110:211 *Numbers Communication	4	750:157 *Student Recital	0
750:253 *Theory VI	3	ROTC (Men)	1.5
750:262 *Keyboard Harmony III	2		18.5
752: *Applied Music	†4	Total Credits for Sophomore Year	55.5

Junior Year

First Quarter	*Credits*	*Second Quarter*	
110:317 *Western Cultural Traditions	3	110:318 *Western Cultural Traditions	3
750:351 *Music History I	2	750:352 *Music History II	2
752: *Applied Music	†4	752: *Applied Music	†4
750:361 *Conducting	3	752: *Applied Music (minor)	†2
751: *Music Organization	1	751: *Music Organization	1
750:357 *Student Recital	0	750:357 *Student Recital	0
(1st yr. Foreign Language, if needed—4 credits)	13 (17)	(1st yr. Foreign Language, if needed—4 credits)	12 (16)
Third Quarter			
110:319 *Western Cultural Traditions	3	750:357 *Student Recital	0
750:353 *Music History III	2		
752: *Applied Music	†4	(1st yr. Foreign Language, if needed—4 credits)	12 (16)
752: *Applied Music (minor)	†2	Total Credits for Junior Year	49
751: *Music Organization	1		

Senior Year

First Quarter		*Credits*
110:303	*Eastern Civilizations	3
750:451	Introduction to Musicology	3
752:	*Applied Music (minor)	†2
752:	*Applied Music	†4
751:	*Music Organization	1
750:357	*Student Recital	0
	2nd yr. Foreign Language	3
or	Senior Recital	0
		16

Second Quarter		
110:304	*Eastern Civilizations	3
750:454	*Orchestration	3
750:452	Composition	3
752:	*Applied Music	†4
751:	*Music Organization	1
750:357	*Student Recital	0
	2nd yr. Foreign Language	3
or	Senior Recital	0
		17

Third Quarter		
110:401	*Senior Seminar	2
750:453	Music Bibliography and Research	3
750:455	Advanced Conducting	3
752:	*Applied Music	†4
751:	*Music Organization	1
750:357	*Student Recital	0
	2nd yr. Foreign Language	3
or	Senior Recital	0
		16

Total Credits for Senior Year 49
Total 193
With ROTC 202

* Core curriculum for B.Sci.Ed. (Music) and B.M. degrees.
† Applied Music, except where stated as "minor", is to be taken on the student's declared major instrument. Applied music requirements differ each quarter by two credits in the major performance area between the B.M. and B.Sci.Ed. (Music) degrees. See Sequence of Courses for B.Sci.Ed. (Music) to compare.

BACHELOR OF SCIENCE IN EDUCATION

(*Music Education* program)

Freshman Year

First Quarter		*Credits*
110:101	*English Composition	3
110:115	*Institutions in U.S.	3
110:121	*Physical Education	1
750:151	*Theory I	3
750:154	*Music Literature I	2
750:160	*Sight Singing I	2
752:	*Applied Music	†2
751:	*Music Organization	1
750:157	*Student Recital	0
	ROTC (Men)	1.5
		18.5

Second Quarter		
110:102	*English Composition	3
110:116	*Institutions in U.S.	3
110:122	*Physical Education	1
750:152	*Theory II	3
750:155	*Music Literature II	2
750:161	*Sight Singing II	2
752:	*Applied Music	†2
751:	*Music Organization	1
750:157	*Student Recital	0
	ROTC (Men)	1.5
		18.5

Third Quarter		
110:103	*English Composition	3
110:117	*Institutions in U.S.	3
750:153	*Theory III	3
750:156	*Music Literature III	2
750:162	*Sight Singing III	2
752:	*Applied Music	†2
751:	*Music Organization	1
750:157	*Student Recital	0
	ROTC (Men)	1.5
		17.5

Total Credits for Freshman Year 54.5

Sophomore Year

First Quarter		*Credits*
110:213	*Reasoning and Understanding in Science	3
110:205	*Types of Literature	4
750:251	*Theory IV	3
750:254	String Instrument Teaching I	2
750:260	*Keyboard Harmony I	2
752:	*Applied Music	†2
751:	*Music Organization	1
750:157	*Student Recital	0
	ROTC (Men)	1.5
		18.5

Second Quarter		
110:214	*Reasoning and Understanding in Science	3
110:108	*Effective Speaking	4
750:252	*Theory V	3
750:255	String Instrument Teaching II	2
750:261	*Keyboard Harmony II	2
752:	*Applied Music	†2
751:	*Music Organization	1
750:157	*Student Recital	0
	ROTC (Men)	1.5
		18.5

Third Quarter		
110:215	*Reasoning and Understanding in Science	3
110:211	*Numbers Communication	4
750:253	*Theory VI	3
750:256	String Instrument Teaching III	2
750:262	*Keyboard Harmony III	2
752:	*Applied Music	†2
751:	*Music Organization	1
750:157	*Student Recital	0
	ROTC (Men)	1.5
		18.5
	Total Credits for Sophomore Year	55.5

Junior Year

First Quarter		*Credits*
750:351	*Music History I	2
750:354	Woodwind Instrument Teaching	2
750:361	*Conducting	3
520:323	Teaching and Supervising Music in Primary Grades	2
752:	*Applied Music	†2
751:	*Music Organization	1
750:357	*Student Recital	0
375:141	General Psychology	5
		17

Second Quarter		
750:352	*Music History II	2
750:355	Brass Instrument Teaching	2
750:360	Choral Techniques	3
520:324	Teaching and Supervising Music in Elementary Grades	2
752:	*Applied Music	†2
751:	*Music Organization	1
750:357	*Student Recital	0
565:157	Human Development	4
		16

Third Quarter		
750:353	*Music History III	2
750:356	Percussion Instrument Teaching	2
530:326	Teaching and Supervising Music in Senior High	2
530:325	Teaching and Supervising Music in Junior High	2
752:	*Applied Music	†2
751:	*Music Organization	1
750:357	*Student Recital	0
510:156	Education in American Society	3
		14
	Total Credits for Junior Year	47

Senior Year

First Quarter		*Credits*
110:317	*Western Cultural Traditions	3
110:303	*Eastern Civilizations	3
752:	*Applied Music	†2
751:	*Music Organization	1
750:357	*Student Recital	0
510:350	Tests & Measurements	3
510:401	Problems in Education	5
		17

Second Quarter		
110:318	*Western Cultural Traditions	3
110:304	*Eastern Civilizations	3
752:	*Applied Music	†2
751:	*Music Organization	1
750:357	*Student Recital	0
750:454	*Orchestration	3
510:402	Student Teaching	6
		18

Third Quarter

110:319	*Western Cultural Traditions	3
110:401	*Senior Seminar	2
752:	*Applied Music	†2
751:	*Music Organization	1
750:357	*Student Recital	0
510:403	Student Teaching Seminar	3
510:403	Student Teaching	6
		17

Total Credits for Senior Year 52
Total Credits 200
With ROTC 209

* Core curriculum for B.Sci.Ed. (Music) and B.M. degrees.
† Applied Music is to be taken on the student's declared major instrument. Applied music requirements differ each quarter by two credits in the major performance area between the B.M. and B.Sci.Ed. (Music) degrees. See Sequence of Courses for B.M. to compare.

780: SPEECH

Requirements for all speech majors:

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

A minimum of 36 credits in Speech including courses 780:131, 132, 133, 134, 136, 137. In addition, if planning to teach speech with Fine and Applied Arts degree, students should take 330:237, 238, 239, 242, 265, 266.

A sample program containing the required courses for the areas of Communicative Disorders (Speech Pathology and Audiology), Public Address, and Theatre may be obtained from the Speech Department office or from the student's Speech advisor.

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 for nursing and to pursue the following aims:

To assist students 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.

To help students acquire a functional knowledge necessary to plan, to give, and to evaluate professional nursing care in the hospital, in the home, and in the community.

To prepare students to assume the responsibilities of nurse practitioners in beginning positions in nursing, including public health nursing.

To develop in students a command of an integrated field 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 appropriate bachelor's degree in accordance with his level of accomplishment.

Programs leading to a Bachelor's degree in Nursing were initiated in 1945. 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 holds membership in the National League for Nursing, Department of Baccalaureate and Higher Degree Programs.

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 liberal arts 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

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 diploma or associate degree programs may qualify for placement in the nursing concentration by examination in those clinical areas in which they have had theory and practice experience. Examinations may be taken after the completion of the course requirements of the freshman year. Enrollment of transfer students is contingent upon University facilities. The needs of the generic students receive priority.

Prior to enrolling in the clinical nursing courses in the sophomore year, each nursing student must receive approval from the Dean of the College of Nursing. Generally, students with desirable personal qualifications, sound physical and mental health, and a 2.0 quality point ratio or higher will receive approval for entering into and remaining in the nursing major.

All students are required to take a complete physical examination before the fall enrollment in the sophomore year. The physical examination includes prescribed laboratory tests, x-rays and immunization for smallpox, diphtheria, typhoid, tetanus and polio. Annual physical examination is required before the fall enrollment in the junior and senior years.

Requirements for Promotion

Students who complete the courses prescribed by the General College and the College of Nursing and who earned a total of approximately 96 credits with a quality point ratio of 2.0 (C) or above are eligible for promotion 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.

Requirements for Graduation

1. File an application with the Registrar in the final academic year. (Refer to current *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. A 2.5 quality point ratio is required in all work attempted in the major field at The University of Akron and in other accredited institutions.

3. Other institutional requirements including residence requirements are listed elsewhere in this *Bulletin.*

PROGRAM OF STUDIES

Freshman Year

First Quarter	*Credits*
110:101 English Composition	3
110:115 Institutions in U.S.	3
110:121 Physical Education	1
315:129 General Chemistry	4
345:101 Finite Mathematics I	3
	14

Second Quarter	
110:102 English Composition	3
110:116 Institutions in U.S.	3
110:122 Physical Education	1
315:130 General Chemistry	4
375:141 General Psychology	5
	16

Third Quarter	
110:103 English Composition	3
110:108 Effective Speaking	4
110:117 Institutions in U.S.	3
315:131 General Chemistry	4
360:170 Introduction to Logic	4
	18
Total Credits for Freshman Year	48

Sophomore Year

First Quarter	*Credits*
110:205 Types of Literature	4
310:307 Microbiology	4
310:361 Human Anat. & Phys.	3
310:361 Human Anatomy and Physiology	4
	15

Second Quarter	
310:362 Human Anatomy and Physiology	4
820:261 Nursing in a Social Order	4
820:271 General Nursing	8
	16

Third Quarter	
310:448 Human Genetics	4
375:151 Developmental Psychology	5
820:272 General Nursing	8
	17
Total Credits for Sophomore Year	48

Junior Year

First Quarter	*Credits*
110:317 Western Cultural Traditions	3
820:321 Adult Nursing	7
820:331 Maternal-Child Nursing	7
	17
Second Quarter	
110:318 Western Cultural Traditions	3
820:322 Adult Nursing	7
820:332 Maternal-Child Nursing	7
	17
Third Quarter	
110:319 Western Cultural Traditions	3
820:323 Adult Nursing	7
820:333 Maternal-Child Nursing	7
	17
Total Credits for Junior Year	51

Senior Year

First Quarter	*Credits*
110:303 Eastern Civilizations	3
820:341 Psychiatric Nursing	10
Elective	3
	16
Second Quarter	
110:304 Eastern Civilizations	3
820:451 Public Health Nursing	10
Elective	3
	16
Third Quarter	
110:401 Senior Seminar	2
820:461 Issues in Nursing	3
820:471 Seminar in Nursing	8
Elective	3
	16
Total Credits for Senior Year	48

Agencies

The agencies cooperating in providing the laboratory experiences for students in the courses in nursing are:

Akron City Hospital
Akron General Hospital
Saint Thomas Hospital
The Children's Hospital of Akron
The City of Akron, Department of Public Health
Visiting Nurse Service of Summit County

Advanced Study

The Graduate School and The College 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

ROBERT C. CARSON, PH.D.,
Assistant Dean of Graduate Studies and Research

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.

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 1880. The College of Education awarded its first Master's Degree in 1924, and the Colleges of Engineering and Business Administration followed in 1959. The first earned Doctor's Degrees were conferred in 1959. Professor Charles Bulger was appointed first Dean of Graduate Work in 1933, and he continued in that capacity until 1950. Professor Ernest H. Cherrington, Jr., served as Director of Graduate Studies from 1955 to 1960 and as Dean of The Graduate Division from its establishment in 1960 to 1967. Dr. Arthur K. Brintnall was appointed Dean of Graduate Studies and Research in 1967, being succeeded in 1968 by Dr. Edwin L. Lively.

The Graduate School offers programs of advanced study leading to the degrees of Doctor of Philosophy in Chemistry, Polymer Science, Industrial Psychology, and Education (Elementary, Secondary and Guidance and Counseling). The Doctor of Education degree is offered in Educational Administration. The Doctor of Philosophy program in Engineering has been approved for planning purposes by the Ohio Board of Regents.

The staff and facilities of the Institute of Polymer Science, which has conducted basic research on campus since 1943, are available to qualified students. Such studies are facilitated by proximity to the home plants and research centers of leading rubber manufacturers and the location on campus of the Library of the Division of Rubber Chemistry of the American Chemical Society.

The Graduate School also offers programs of study leading to the Master's Degree with majors in the following areas: Accounting, Biology, Business Administration, Chemistry, Economics, Education, Chemical, Civil, Electrical and Mechanical Engineering, English, French, History, Industrial Management, Mathematics, Philosophy, Physics, Political Science, Polymer Science, Psychology, Sociology, Spanish, Speech, Statistics and Urban Studies.

Several other departments offer a limited amount of work which may be undertaken 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 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 College of Liberal Arts and two members from the College of Fine and Applied Arts.

The Council's Chairman is elected by members of the Council, and the Dean of Graduate Studies and Research, an ex-officio member, serves as Secretary. The functions of the Council include examination of proposed graduate programs and course offerings, and recommendation of policy for all phases of graduate education.

The Nature of Graduate Education

The Graduate School is organized for the purpose of providing 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 academically sound and feasible.

Graduate education involves the extension of knowledge. However, it is by no means a mere continuation of undergraduate study. Graduate education is more concerned with the significance of facts than with their accumulation. While the latter usually constitutes a necessary portion of a graduate program, it must not be regarded as an end in itself. The primary purpose is to orient the student toward research in its broadest connotation and to give him experience in the methods by which information is evaluated and knowledge is acquired. 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 all here 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.

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. The School accomplishes its purpose through the individual and collective actions of the members of the Graduate Faculty with the administrative assistance of the Dean.

Requirements for Admission

Any student who wishes to enroll in a graduate course (coded 500, 600, 700 or 800) for credit or audit must:

1. Fill out the Application for Admission to the Graduate School, in triplicate. The student must indicate the specific area of study he wishes to pursue and whether or not he desires to become a candidate for an advanced degree.

2. Submit *official* transcripts to the Dean of Graduate Studies and Research of all college or university work taken (except at The University of Akron). None will be returned. The applicant for admission to graduate study must show that he has received the Bachelor's Degree from a regionally accredited college or university. If official transcripts are currently on file at the University, it is the student's responsibility to see that they reach the Graduate School.

3. Pay a $15.00 non-refundable application fee.

4. Take the Graduate Record Examination (Aptitude and Advanced Tests). Applicant will make his own arrangements with Educational Testing Service, at Princeton, New Jersey, or Berkeley, California.

It is the responsibility of the applicant to make certain that all credentials requested by the Graduate School are received no less than two weeks prior to the official registration period published on the University Calendar. Failure to do so may result in deferment of admission to a later quarter.

International students must furnish *all* credentials by June 1 for September admission.

It is important that every student who may wish to qualify for an advanced degree indicate his intention at the earliest possible date. By so doing he may expect to receive advisement which will facilitate efficient progress toward his goal.

The Dean of Graduate Studies and Research, upon recommendation of the dean of the college in which the student expects to study, will admit the applicant if his transcripts show an overall quality point average of no less than 2.50 (2.00 is "C"; 3.00 is "B"), a quality point average of no less than 2.75 in the intended major field, and the necessary

Credits refers to number of quarter hour credits assigned to various courses.

background courses for the graduate program which he wishes to pursue as well as any specific entrance requirements set by the college in question.

The Graduate Faculty reserves the right to require any applicant to prove that he has acquired a satisfactory background for graduate study by taking and passing such special examinations as may be indicated.

Mature individuals, who may not meet the admission requirements set forth above, but who desire certain selected graduate courses, upon recommendation of the dean of the college in which the course is offered, may be admitted by the Dean of Graduate Studies and Research, as special graduate students. Such an applicant must submit full academic credentials as described above and must demonstrate to the department head concerned that he has completed in course or by experience all prerequisites for such courses. He may then enroll for credit or as an auditor, but such enrollment does not admit the individual to a graduate program or to any work beyond the course or courses specified.

Every person who desires to enroll in or audit any graduate course or who desires to enroll in any course for graduate credit must be admitted to the Graduate School either as a graduate student or a special graduate student.

GRADUATE STUDENT—one who holds a Bachelor's degree from an accredited institution, has been admitted to the Graduate School, and is eligible to enroll in courses on the graduate level.

TRANSIENT STUDENT—one who is a regularly enrolled student at another institution who is eligible to re-enroll at that institution and has written permission from that institution to enroll at The University of Akron for specific courses. A transient student's admission is valid for only one enrollment term. A transient student may not, as a general rule, take more than 16 credits and is subject to the same rules and requirements as a regularly enrolled student of The University of Akron.

SPECIAL GRADUATE STUDENT—an adult who may or may not hold academic degrees but who desires to enroll in or audit certain selected graduate courses.

POSTBACCALAUREATE STUDENT—one who holds a Bachelor's degree from an accredited institution, has not been admitted to the Graduate School, and is eligible to enroll in courses on the undergraduate level. Postbaccalaureate students do not apply for admission to the Graduate School but enroll directly in the College in which they desire to study.

Requirements for the Master's Degree

Candidates for the Master's Degree must:

1. Apply for Advancement to Candidacy after completion of 30 quarter hours.

2. Earn a minimum of 45 credits (quarter hours) with a quality point ratio of at least 3.00 ("B" average) in all graduate hours attempted. No graduate degree credit will be given upon completion of courses numbered 500 if the final grade earned is lower than "B", and no more than six credits of "C" quality in courses numbered 600-899 will be accepted in fulfillment of the minimum quarter hour degree requirements.

Note: Some departments may require a thesis or formal problem. In such cases the title of the thesis or problem should be filed with the Dean of Graduate Studies and Research at approximately the same time the candidate applies for Advancement to Candidacy. The thesis will be prepared in accordance with the rules of the graduate faculty and will be submitted in duplicate to the Dean of Graduate Studies and Research no later than two weeks prior to commencement. These copies will be final and must bear the signatures of the adviser, faculty reader, department head and college dean.

The payment of the binding fee, $5 per copy, is made at the Controller's office prior to delivery of copies to the University Library for binding.

The research project and thesis or report will comprise from three to nine of the quarter hours required for the degree.

3. Complete all requirements for the degree within five years from the date of initial registration in the Graduate School of the University of Akron. Transfer credits must also

follow in the same five-year period. An extension may be granted in unusual cases by the Dean of Graduate Studies and Research.

4. Meet any additional requirements listed under the college and department in which the program is offered; complete such final or cumulative examinations as may be required.

5. File an Application for Graduation with The University of Akron Registrar at the start of his final academic year. Filing deadlines may be obtained from the Office of the Registrar; and

Place an order with the University Bookstore for the cap and gown, within dates approved by the University Marshal; and

Participate in Commencement exercises. Degree candidates who wish to be graduated "In Absentia" must make written request to the Dean of Graduate Studies and Research within established dates.

Transfer Credits

Up to a maximum of 15 credits of graduate work taken at a properly accredited graduate school may be transferred in partial fulfillment of the requirements for the degree upon recommendation of the major Department Head and the Dean of the college with the approval of the Dean of Graduate Studies and Research. All work so transferred must be of "A" or "B" quality and must form an integral part of the student's program of study in The University of Akron. The student should petition the Dean of the college concerned to recommend transfer credit acceptance, after he has successfully completed 18 graduate credits at The University of Akron. Extension courses are not accepted.

Requirements for the Doctor of Philosophy Degree

Besides fulfilling the general requirements listed above, candidates for the Doctor of Philosophy degree must meet the following specific requirements:

1. At least one year in full-time residence. The one-year period may be based on either an academic or calendar year, depending upon the curriculum involved.

2. Knowledge of one or two foreign languages, as approved by the head of the department and/or chairman of the interdepartmental committee. Depending on the department and curriculum involved, the student may elect either

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.

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.

Language examinations are given in Fall and Winter on the dates announced by the department head. Students should prepare for and complete these examinations early in their programs. If a student fails the language examination, he must pay a fee of $5.00 for the second examination and $10.00 each for any additional examinations.

3. Successful completion of any cumulative or preliminary examination required by and administered by the department.

4. The preparation and completion of a dissertation based upon original research which has been approved by the head of the department and/or the chairman of the interdepartmental committee. The dissertation must be a contribution to knowledge worthy of publication and unrestricted in circulation except for limitations that may arise from national security regulations. The dissertation, prepared in accordance with the rules of the Graduate Faculty, must be submitted in duplicate to the Dean of Graduate Studies and Research two weeks prior to commencement. Both copies must bear the signatures of the adviser, faculty reader, department head, and college dean.

Both copies will be bound and placed in the University Library. All dissertations will be microfilmed and copies will be available

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Credits refers to number of quarter hour credits assigned to various courses.

through University Microfilms, Inc., Ann Arbor, Michigan. Payment of binding and microfilm fees (currently $30.00 for the two copies, $5.00 for each additional bound copy) must be made at the Controller's Office before the copies are delivered to the University Library.

5. Any additional requirements listed hereafter under the college and department in which the program contemplated is offered.

NOTE: The student must complete all requirements for the degree within 10 years from the date of his admission unless an extension is granted by the head of the department and/or the chairman of the interdepartmental committee, and the Dean of Graduate Studies and Research.

Major and Minor

The program of study leading to a graduate degree may be composed of work in one or more departments of the University depending upon the purpose and need of the student.

If it is agreed in conference with the major department head that some work will be taken in other departments, the minor or minors should be selected and planned to constitute an integrated program of advanced study. Furthermore, the student must demonstrate that he has had sufficient undergraduate work, or its equivalent, in the proposed major and minor areas to qualify him for study on the graduate level therein.

Fees

A resident of Ohio who enrolls in graduate courses shall pay a fee of $22.00 per credit for all such credit work.

A nonresident of Ohio who enrolls in graduate courses shall pay a fee of $28.00 per credit for all such credit work.

An Auditor shall pay the same fee as a student enrolled for credit.

Graduate students will also pay a general service fee of $5.00 per quarter, if enrolled for less than nine credits or $15.00 per quarter if enrolled for nine or more credits.

Students taking work for graduate credit shall be subject to whatever other special and miscellaneous fees published in the *University Bulletin* may be applicable to their respective cases.

Fellowships and Scholarships

A limited number of research assistantships and fellowships are available and range in amount up to annual stipends of $4,500. In addition, tuition and fees may be remitted by the University to the recipients of some fellowships.

Graduate Assistantships in teaching and research are available in most departments for students with excellent undergraduate records and a desire to prepare for college teaching or assist in departmental research. Appointees receive a salary of $2,400 for teaching six credits of undergraduate courses each quarter are granted remission of fees for enrollment in up to 24 credits of graduate work per year. Application deadline is March 1.

Advancement to Candidacy

A graduate student who wishes to qualify for an advanced degree should make his desire known to the head of his major department during, if not prior to, his first quarter of enrollment in graduate courses. At that time his complete academic record will be reviewed by the dean of the college or the department head, and his program of study will be outlined provided he meets the standards set forth in this bulletin.

A student working toward the Doctor's Degree will file with the Dean of Graduate Studies and Research an Application for Advancement to Candidacy upon successful completion of his cumulative examinations. The application will bear the approval of the major department head and will list all requirements that remain to be completed.

A student working toward the Master's Degree will file with the Dean of Graduate Studies and Research an Advancement to Candidacy Application when he has completed approximately 30 credits of work. This application must be filed no later than the first week of the student's last quarter. It must bear the recommendation of the adviser or department head and dean of the college concerned, as well as the statement of work to be completed. All students must be advanced to candidacy before they are cleared for graduation.

BUCHTEL COLLEGE OF LIBERAL ARTS

The Doctor of Philosophy Degree

The following programs leading to the Doctor of Philosophy Degree are offered in the Buchtel College of Liberal Arts: The Doctor of Philosophy Degree in Chemistry, the Doctor of Philosophy Degree in Industrial Psychology, and the 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. Pass proficiency tests required of all entering students.

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 Chemistry 865, such that course credits plus dissertation credits total at least 126 credits (exclusive of M.S. dissertation credit). The amount of credit for the dissertation in each academic quarter or term shall be determined by the Head of the Chemistry Department (in agreement with the student's advisory committee).

4. Pass preliminary examinations in analytical, inorganic, and physical chemistry.

5. Pass an oral examination upon completion of the research dissertation.

6. Pass cumulative examinations given monthly during the academic year. The candidate is urged to begin to take these examinations early in his graduate program, and must pass eight of them as a degree requirement.

7. Pass the 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, as outlined below, 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 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 Polymer Science 791, such that course credits plus dissertation credits total 126 hours (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. Passing of examinations in two foreign languages (Plan A of the general requirements for the Doctor of Philosophy Degree).

5. The passing of an oral examination upon completion of the research dissertation.

Credits refers to number of quarter hour credits assigned to various courses.

Typical Polymer Science Course Programs

Chemistry Program

Recommended Courses For All Students

315:601-602-603	Polymer Chemistry—6 credits
315:610-611-612	Quantum Chemistry; Chemical Bonding; Spectroscopy—6 credits
315:629-630-631	Theoretical Inorganic Chemistry—6 credits
315:635-636	Thermodynamics—4 credits
315:650	Physical Organic Chemistry I—3 credits
315:731-732-733	Physical Chemistry of Polymers—6 credits
315:734-735-736	Experimental Physical Chemistry of Polymers—6 credits
394:701-702-703	Polymer Technology—9 credits
	Total—46 credits

Organic Chemistry Option

315:604-605-606	Chemistry of Polymers Laboratory—6 credits
315:649	Chemistry of Elastomers—2 credits

Other approved courses in Polymer Science, Chemistry, Physics, Engineering and Mathematics.

Physical Chemistry Option

Students electing this option may be required to take during their first year, if they have not already done so, an approved course in Differential Equations, for which no graduate credit will be given.

365:631-632-633	Physics of Polymers—6 credits
315:739	Advanced Chemical Thermodynamics—3 credits

Other approved courses in Polymer Science, Chemistry, Physics, Engineering and Mathematics.

Physics Program

365:490	Introduction to Quantum Mechanics—4 credits
365:491-492	Methods of Mathematical Physics—6 credits
365:631-632-633	Physics of Polymers—6 credits
365:635-636-637	Physics of Polymers Laboratory—6 credits
365:651	Theoretical Classical Physics—4 credits
365:652	Theoretical Classical Physics—4 credits
365:661-662	Statistical Thermodynamics—6 credits
394:701-702-703	Polymer Technology—9 credits
	Total—45 credits

Other approved courses in Polymer Science, Chemistry, Physics, Engineering and Mathematics.

Engineering Program

365:531-532	Mechanics—6 credits
365:631-632-633	Physics of Polymers—6 credits
365:635-636-637	Physics of Polymers Laboratory—6 credits
365:591-592	Methods of Theoretical Physics—6 credits
420:602	Non-Newtonian Flow—3 credits
430:661	Advanced Engineering Materials I—3 credits
460:680	Polymer Processing—3 credits
460:681	Design of Rubber Components—3 credits
394:701-702-703	Polymer Technology—9 credits
	Total—45 credits

Other approved courses in Polymer Science, Chemistry, Physics, Engineering and Mathematics.

Doctor of Philosophy in Industrial Psychology

A program leading to the Doctor of Philosophy in Industrial Psychology is offered through the Department of Psychology.

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 135 credit minimum total requirement (including a 45 credit Master's program where applicable), including thesis and dissertation. Students considered deficient in any area may be required to take additional courses.

2. The completion of a core program. This is meant to prepare the student first as a psychologist and only later in the industrial specialty.

3. The completion of preliminary examination on the core areas. Even though students may elect certain courses within some core areas, examinations will cover all courses in all core areas. Written and oral examinations will also be required in the major (Industrial) and the minor.

4. The completion of at least 18 credits in a minor field. This minor may be taken in the department in another area, e.g., clinical psychology, or it may be taken in another appropriate department.

5. The completion of a dissertation comprising 20 credits. The oral examining committee must be constituted of at least five full-time staff members, one of whom must be from outside the department.

6. Language Requirements (see general requirements for the Doctor of Philosophy Degree).

Master's Core Program

All Required:	*Credits*
375:601 Thesis-Dissertation Seminar	4
375:602 Advanced Psychological Statistics I	4
375:603 Advanced Psychological Statistics II	4
375:630 Advanced General Psychology	4
375:660 Thesis Research	2-6

Ph.D. Core Program

Master's Core Program Plus:

Group A—Measurement—all required:

375:705 Computer Techniques in Psychological Measurement	3
375:706 Advanced Tests & Measurements	3

Group B—Experimental—
at least 4 credits required:

375:710 Theories of Learning	4
375:713 Perception	3
375:715 Physiological Psychology	3

Group C—Individual Differences—
at least 4 credits required:

375:611 Psychology of Individual Differences	3
375:612 Theories of Personality	5
375:613 Theories of Psychotherapy	4

Group D—General Requirements—
all required:

375:517 History & Systems of Psychology	4
375:790 Dissertation Research	20

Reminder: Although the student has options in the core, he will be examined on material from all courses in the core.

TOTAL REQUIRMENTS—135 credits
In M.A. Core (18-22)
In Ph.D. Core (36 minimum)
Electives (81 maximum)

Note: Final selection of applicants will be made in March of each academic year. At that time, all applications received will be considered by the Psychology Staff and the best qualified ones will be selected.

The Master's Degree

Programs of advanced study leading to the Master's degree are offered by the Departments of Biology, Chemistry, Economics, English, History, Mathematics, Modern Languages, (French and Spanish), Philosophy, Physics, Political Science, Polymer Science, Psychology, Sociology, Statistics 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:

Credits refers to number of quarter hour credits assigned to various courses.

BIOLOGY: Research and thesis, 9 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 semester 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.

CHEMISTRY: Research and Thesis, 9 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:

1. At least 45 credit hours. Of these not more than 12 credits from the following sources may be applied toward the degree: 600 level courses taken outside the department; 500 level courses taken in the department.

2. The following courses are required: 325:601; 325:611; 325:695-696. The thesis must be written in the student's major area of concentration. Students choose one major and one minor concentration from the following:
   a. Economic Theory and Policy
   b. Quantitative Methods
   c. International Economics and Trade
   d. Economic Development and Planning (Underdeveloped Countries)
   e. Labor Economics

3. At least 12 credit hours for the major concentration and 8 credit hours for the minor concentration are required for all areas except in the case in which the student chooses as major concentration Economic Theory and Policy; in this case a minimum of 16 hours in this area will be required.

4. A written examination taken after completion of required courses and concentration area requirements is intended to test the candidate's knowledge in economic theory and in his areas of concentration.

ENGLISH: Unless previously taken, the following credits must be included in the program: 330:501-502, 517-518, and at least one 600 level seminar. Five credits will be earned in 699. At least half of the work taken must be in 600 level courses, and a minor of up to 12 credits in an allied area may be included. Demonstration, prior to last quarter of enrollment, of reading proficiency in a foreign language appropriate to the field of study is required.

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 5 of the 45 credits required.

I. CORE REQUIREMENTS:

32 credits at the 500 level distributed as follows: Literature, 9 hours; Linguistics, 9 hours; Culture and Civilization, 9 hours; Advanced Language Skill, 5 hours.

II. ELECTIVES:

Option I—18; Option II—9. With approval of the departmental graduate committee, up to 9 elective credits may be taken in another department.

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.

HISTORY: Completion of 45 credits, including 14 credits in 600 level courses, plus historiography if not part of undergraduate record plus 690, 696, a comprehensive examination covering three fields to be determined in conjunction with the departmental adviser. Demonstration, prior to the last quarter of enrollment, of reading proficiency in a foreign language appropriate to the field of study.

MATHEMATICS: Completion of 45 credits to include 345:611, 612, 613, 621, 622, 623; 9 graduate credits either in Analytical Function Theory, Mathematical Statistics, or Geometry, plus elective credits in 500-level or 600-level mathematics or statistics courses. All candidates will be required to include 345:698, and the topics discussed therein will be the basis for a paper or thesis. Upon recommendation of the department, enrollment in 345:699 for an additional 3 credits will be permitted. A comprehensive examination, taking the form suggested by the department, will be required of each candidate.

PHILOSOPHY: Complete 360:611, 612, 613, 614, within a total of 48 credits. Pass written comprehensives in areas approved by the department. Show comprehensive knowledge of one foreign language, French, German or Greek. Complete a thesis under the supervision of the department.

PHYSICS: The following courses must be included in the graduate program: 365:601-602-603 and 651-652-653, and either 681 or 490. Courses 365:661-662-663 are strongly recommended, but not required.

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, and thermodynamics.

Graduate research participation is strongly encouraged. Up to 8 credits may be earned in 365:697 upon the satisfactory completion of a graduate research project. One additional credit may, upon approval of 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 9 of the total of 45 graduate credits required. Both the thesis and course 365:697 are, however, entirely optional.

POLITICAL SCIENCE: 45 credits, at least 27 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 the student's thesis committee. Each student will be required to take at least one course or seminar in each of the four subfields of American Govermnent and Politics, Comparative Politics, International Politics, and Political Theory. In certain cases, at the discretion of the Department Head, candidates for the master's degree may be asked to take undergraduate courses to overcome serious deficiencies.

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 will constitute nine of the credits required for the degree. Attendance at and participation in seminar-type discussions scheduled by the Department are required. Demonstration of reading proficiency in a foreign language appropriate to the field of study.

PSYCHOLOGY: Completion of 375:601, 602, 603, 630 and 660; Satisfactory Performance on a Psychology Department Qualifying Examination.

SOCIOLOGY: A minimum of 45 quarter credits, at least 36 of which (including thesis) must be at the 600 level in Sociology. Required courses are 600, 601, 603, 614, 650. The remaining 9 credits may be taken outside the department in fields appropriate to the student's academic goals. All candidates are required to pass written examinations which demonstrate their competence in advanced statistics and an oral examination covering their proficiency in graduate level sociology.

Credits refers to number of quarter hour credits assigned to various courses.

SPANISH:

Option I: 50 credits of graduate work, no thesis required.

Option II: Completion of 41 credits of graduate work, including a thesis equivalent to 9 credits of the 41 credits required.

I. CORE REQUIREMENTS:

32 credits at the 500 level covering essential areas in Literature, Culture, Linguistics, and Language Skills. Thesis candidates are required to enroll in the Seminar in Hispanic Bibliography and in Research Methods (607).

II. ELECTIVES:

With the approval of the departmental graduate committee, up to 9 elective graduate credits may be taken in another department.

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 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.

STATISTICS: Completion of 45 quarter credits to include 347:651, 652, 653, 661, 662, 665, 666; 3 graduate credits each in Matrix Algebra and Complex Variable; plus elective courses in either statistics, mathematics, or specific areas of application. All candidates will be required to include 345:698 and the topics discussed therein will be the basis for a paper or thesis. Upon recommendation of the department, enrollment in 345:699 for an additional 3 credits will be permitted for completion of a thesis. A comprehensive examination, taking the form suggested by the department, will be required of each candidate.

URBAN STUDIES: Completion of 50 credits, which must include the following:

1. Urban Studies Core (21 credits).

a. A minimum of 18 credits must be taken from: 601, 602, 610, 620, 621, 630, 631.

b. 640—3 credits required.

2. Statistics: A minimum of 3 credits required from 335:680, 347:461-462, 375:602, 385:600, or other approved statistics courses. A total of 26 credits are required in Urban Related Courses and Minor Field.

3. Urban Related and Minor Field Courses: Minimum of 12 credits and maximum of 15 credits required in each area.

Courses taken by the student to fulfill the Urban Studies requirement must be approved by the Urban Studies Department.

THE COLLEGE OF ENGINEERING

A program of advanced study leading to the Doctor of Philosophy in Engineering has been approved by the Ohio Board of Regents and is now in the planning stage. Master of Science degrees 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.

In addition to the general requirements for admission to the Graduate Division, an applicant for graduate study in Engineering must hold a Bachelor's Degree in a curriculum accredited by the Engineers' Council for Professional Development at the time of his graduation. Applicants holding other Bachelor's Degrees in Engineering will be considered for provisional graduate status.

Additional College requirements may be specified.

The Master's Degree

1. At least 6 credits outside of the College of Engineering as approved by the department.

2. Course requirements:

Chemical Engineering	*Minimum Credits*
Chemical Engineering Coursework	18
Approved Mathematics	6
Approved Electives	12
Chemical Engineering Thesis	9
Total Credits	45

Civil Engineering	
Civil Engineering Coursework	21
Approved Mathematics or Science	6
Approved Electives (Thesis Optional)	18
Total Credits	45

Electrical Engineering	
Electrical Engineering Coursework	21
Approved Mathematics or Science	9
Approved Electives	15
Total Credits	45

Mechanical Engineering	
Mechanical Engineering Coursework	18
Approved Mathematics	6
Approved Electives	12
Mechanical Engineering Thesis	9
Total Credits	45

Credits refers to number of quarter hour credits assigned to various courses.

THE COLLEGE OF EDUCATION

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 core program designed to prepare the student generally before he begins to specialize.
3. The completion of preliminary examinations on the core 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.

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.

Core Program

The following courses are required of all students in both Ph.D. and Ed.D. Programs:

Social Foundations

	Credits
510:603 Education and Social Trends	3
510:705 Interdisciplinary Seminar	4

Historical and Philosophical Foundations

510:700 Philosophies of Education	5
510:701 History of Education in American Society	4

Psychological Foundations

375:604 Advanced Developmental Psychology	4
565:601 Developmental Procedures in Learning	3

Research

590:603 Techniques of Research	3
590:711 Statistics in Education	4
590:899 Research in Education (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 and Master of Science in 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. The major field quality point average requirement will apply to all work taken in the professional sequence including General Psychology. 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 same before recommendation for an advanced degree.

The general requirements for the degree, listed on preceding pages, must be met. Each department may establish additional requirements relating specifically to that field. In addition, all Master's degree students must complete the courses listed under "CORE COURSES" as well as all requirements in the major field of concentration.

Core Courses

	Credits
510:700 Philosophies of Education	5
565:601 Developmental Procedures in Learning	3
590:603 Techniques of Research	3
590:899 Research in Education	3-6

In addition to the required courses listed above, the following course lists are published as guides to graduate students selecting work in areas of their interest.

Elementary Education

Required:

	Credits
520:630 Elementary School Curriculum and Instruction	3
520:780 Seminar in Elementary Education	6-12

Electives:

Any combination of courses to meet the minimum of 45 credits which may include up to 18 credits in pertinent electives from 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

Required:

	Credits
530:619 Secondary School Curriculum and Instruction	3
560:602 Orientation to Guidance Services	3
Graduate study in subject field (9 credits of 500 level courses will be accepted)	14-21

Electives:

Any combination of courses to meet the minimum of 45 credits. Elective courses should be planned with the graduate adviser. This program is intended for the student who expects to progress as a junior or senior high school teacher. The student who wants also to qualify as a secondary school principal may do so by electing courses in Administration.

Elementary School Principal

Required:

	Credits
520:630 Elementary School Curriculum and Instruction	3
520:631 Elementary School Administration	3
570:601 Principles of Educational Administration	5
570:610 Principles of Educational Supervision	5
At least three (3) additional credits from courses in Administration, Supervision and Curriculum	3

Electives:

Any combination of courses to meet the minimum of 45 credits which may include up to 9 credits in pertinent electives from 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 principal or administrator in the elementary schools.

Credits refers to number of quarter hour credits assigned to various courses.

Secondary School Principal

Required:

	Credits
530:619 Secondary School Curriculum and Instruction	3
530:620 Secondary School Administration	3
560:602 Orientation to Guidance Services	3
570:601 Principles of Educational Adiministration	5
570:610 Principles of Educational Supervision	5

Electives:

Any combination of courses to meet the minimum of 45 credits which may include up to 9 credits in pertinent electives from course offerings outside the College of Education. Elective courses should be planned with the graduate adviser.

This program is intended for the student who expects to progress as a principal or administrator in the secondary schools.

Supervisor

Required:

	Credits
520:630 Elementary School Curriculum and Instruction	3
530:619 Secondary School Curriculum and Instruction	3
570:610 Principles of Educational Supervision	5

Electives:

Any combination of courses to meet the minimum of 45 credits which may include up to 9 credits in pertinent electives from course offerings outside the College of Education. Elective courses should be planned with the graduate adviser.

Supervisory certificates are issued for the elementary and the secondary school levels. Details of the requirements may be obtained in consultation with an adviser. The School Superintendent certificate is valid for supervisory duties at either level.

Executive Head

Required:

	Credits
520:630 Elementary School Curriculum and Instruction	3
530:619 Secondary School Curriculum and Instruction	3
570:601 Principles of Educational Administration	5
570:602 Legal Basis of Education	3
570:603 Principles of School Finance	3
570:610 Principles of Educational Supervision	5

Electives:

Any combination of courses to meet the minimum of 45 credits which may include up to 9 credits in pertinent electives from course offerings outside the College of Education. Elective courses should be planned with the graduate adviser.

Guidance Counselor

Prerequisites:

375:307 Psychology of Childhood and Adolescence	4
375:503 Personality	5

Required:

520:630 Elementary School Curriculum and Instruction	3
or	
520:631 Elementary School Administration	3
530:619 Secondary School Curriculum and Instruction	3
or	
530:620 Secondary School Administration	3
560:602 Orientation to Guidance Services	3
560:606 Guidance in the Elementary School	3
560:608 Techniques of Guidance	3
560:609 Vocational Guidance and Occupational Information	3
560:610 The Counseling Interview	3
560:612 Group and Educational Guidance	3
560:614 Evaluation and Diagnosis of Learning Problems	4
560:615 Practicum in School Counseling	5

Electives:

Choice of graduate education courses in Administration, Curriculum and Instruction or of 500 or above level courses in Sociology, Economics, Labor Relations, or Psychology if the candidate has the proper undergraduate program.

Teacher of Slow-Learning Children

Prerequisites:

	Credits
375:504 Psychopathology of Childhood	3

Required:

580:560 Development Characteristics of Slow-Learning Children	5
580:561 Principles of Teaching Exceptional Children	4
580:562 Methods and Materials for Teaching Slow-Learners	3
580:564 Reading and Language Arts for the Slow-Learner	3
580:565 Social Studies for the Slow-Learner	3
580:566 Number Concepts for the Slow-Learner	3
580:568 Occupational Orientation and Job Training for Exceptional Children	3

The foregoing program meets the state certification requirements for a provisional certificate.

Visiting Teacher

The service of the Visiting Teacher includes working with individual children and their families when a child has difficulty such as maladjustment, failure to learn or non-attendance. This service supplements the contribution of the teacher and other personnel and is carried out in cooperation with them. As a liaison service, it helps to integrate school and community services for the benefit of the child.

For those students seeking certification as a Visiting Teacher, the following requirements must be met:

1. Possession of a provisional or higher certificate valid for teaching in Ohio.
2. Evidence of at least one year of teaching experience.
3. The following courses of study:

	Credits
375:504 Psychopathology of Childhood	4
and/or	
560:614 Evaluation and Diagnosis of Learning Problems	4
385:576 Methods and Concepts of Social Work	3
385:585 Community Organization	3
560:602 Orientation to Guidance Services	3
570:601 Principles of Educational Administration	5

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:

Core courses in Master's Program 14-17 credits
Reading Instruction (Schedule minimum of four courses) 17-18 credits

	Credits
580:680 Trends in Reading Instruction	3
580:681 Diagnosis of Reading Problems	5
580:682 Correction of Reading Problems	5
580:683 Clinical Practice in Reading I	4
580:684 Clinical Practice in Reading II	4

Related Professional Education 6-9 credits
With approval of his advisor, each student will schedule a minimum of two courses from the following:

	Credits
520:630 Elementary School Curriculum	3
520:780 Seminar in Elementary Education—Reading	3
530:610 Principles of Education Supervision	5
530:619 Secondary School Curriculum	3
580:692 Advanced Study and Research in Reading Instruction	3
580:693 Supervision and Curriculum Development in Reading Instruction	3

Psychological Foundations 6-12 credits
With the approval of his Advisor, each student will schedule a minimum of two courses from among the following:

	Credits
375:604 Advanced Development Psychology	4
375:606 Individual Intelligence Testing I	3
375:607 Individual Intelligence Testing II	3
375:611 The Psychology of Individual Differences	3
560:602 Orientation to Guidance Services	3
560:614 Evaluation and Diagnosis of Learning Problems	4

Credits refers to number of quarter hour credits assigned to various courses.

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 youngster's 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

	Credits
580:481/581 Sociological Foundations of Inner-City School Problems ...	5
580:482/582 Characteristics of Inner-City Youth	5
580:656 Seminar: Educating the Disadvantaged ..	4
530:780 Seminar in Secondary Education: Instruction	3
530:780 Seminar in Secondary Education: Curriculum	3
560:614 Evaluation and Diagnosis of Learning Problems	4
510:690 Internship Teaching and Seminar 691-692 4 credits each quarter	12
590:603 Techniques of Research	3
Electives in Teaching Field or in Special Fields in Education ...	9
Total Credits	48

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 Master's 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 advisor.

Suggested Prerequisites:

	Credits
650:350 Personnel Management	3
325:245-246-247 Principles of Economics	9
325:330 Labor Problems	4
375:141 General Psychology	5
375:315 Social Psychology	4
375:316 Industrial Psychology	5
385:101 General Sociology	3
650:371 Principles of Management I	3

I. *Required Counseling Courses*

	Hours
560:607 Patterns of Career Development	3
560:608 Techniques of Guidance	3
560:609 Vocational Guidance and Occupational Information	3
560:610 The Counseling Interview	3
560:614 Evaluation and Diagnosis of Learning Problems (Group Testing)	4
560:615 Practicum in Counseling	5
Total Hours	21

II. 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.

Management:

	Hours
650:663 Industrial Relations	3
650:668 Administrative Behavior and Methods	3
650:669 Leadership in Organization	3

Sociology:

385:606 Sociology of Work	3
385:620 Population Theory	3
385:538 Industrial Sociology	3
385:535 The Sociology of Urbanization	3

III. Research: Each student will be able to choose one of the three areas in which to complete the research requirement. He must complete all courses listed in whichever area he chooses.

Education:

	Hours
590:603 Techniques of Research	3
590:711 Statistics in Education	4
590:899 Research in Education	3

Management:

650:547 Advanced Statistics	3
650:698 Seminar in Management	3

Prerequisites: 650:663, 650:668, 650:669, 650:547.

Sociology:

385:600 Sociological Research Methods	3
385:650 Thesis in Sociology	3

The master's degree requires a minimum of 45 quarter hours selected in consultation with an academic advisor in the College of Education.

Sixth Year Program

In addition to the foregoing Graduate Programs which meet minimum State of Ohio certification requirements 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, Guidance and School Psychology, respectively.

School Superintendent

Required:

	Credits
520:630 Elementary School Curriculum and Instruction	3
530:619 Secondary School Curriculum and Instruction	3
570:601 Principles of Educational Administration	5
570:602 Legal Basis of Education	3
570:603 Principles of School Finance	3
570:604 School and Community Relations	3
570:610 Principles of Education Supervision	5
570:701 School Building and Construction	3
570:703 Administration of Staff Personnel	3

Electives:

Any other courses considered necessary or desirable by student, with advice of counselor, which must include credits in pertinent electives in professionally related disciplines such as Sociology, Economics, Public Administration, and Business Administration. The required and elective courses must total 90 credits and must include the Master's Degree.

Credits refers to number of quarter hour credits assigned to various courses.

Guidance

Required:

	Credits
560:701 Organization and Administration of Guidance Services	3

The remainder of the program will be selected, with proper planning, from among the following:

	Credits
510:603 Education and Social Trends	3
520:780 Seminar in Elementary Education.	3
or	
530:780 Seminar in Secondary Education	3
570:602 Legal Basis of Education	3
570:604 School and Community Relations	3
570:720 Evaluating Educational Institutions	3
Economics or Sociology	9
Labor Management or Industrial Personnel Problems	9

School Psychologist

Prerequisites:

	Credits
375:141 General Psychology	5
375:307 Psychology of Children and Adolescents	4
or	
565:157 Human Development and Learning	4
375:405 Psychopathology of Childhood	4

Recommended Preparation in Psychology:

375:147 Introduction to Experimental Psychology	5
375:612 Theories of Personality	5

Required:

375:602 Advanced Statistics I	4
or	
590:711 Statistics in Education	4
375:503 Personality	3
375:507 Psychology Tests and Measurements	4
375:530 Abnormal Psychology	5
375:604 Advanced Developmental Psychology	4
375:606 Individual Intelligence Testing I	3
375:607 Individual Intelligence Testing II.	3
560:610 Counseling Interview	3
or	
375:509 Introduction to the clinical Method	3
375:512 Psychology of Learning	4
375:619 Survey of Projective Techniques	3
560:615 Practicum in Counseling	3
or	
375:620 Practicum	3
530:619 Secondary School Curriculum and Instruction	3
or	
520:630 Elementary School Curriculum and Instruction	3
520:631 Elementary School Administration.	3
or	
570:610 Principles of Educational Supervision	5
580:759 Role and Function of the School Psychologist	3
580:760-761-762 Internship in School Psychology	9

With minor adjustments in course requirements it is possible to obtain a Master's Degree in School Psychology in the Psychology Department. Course 375:604 will be accepted in lieu of 565:601 in the Education Core.

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 Industrial Management are offered in the College of Business Administration. Before undertaking such programs 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 specialization or that he has completed in a satisfactory manner such background courses as may be prescribed by the faculty of the college to provide adequate basis for graduate study. The necessary background courses may total up to 45 credits of undergraduate level work for those whose academic records show no courses in economics or business administration.

3. The major field quality point average requirement will apply to all economics and business administration courses previously taken.

General requirements for the degree are listed on preceding pages. In addition to these, the student must follow a graduate study program approved by the department in which he desires to pursue advanced study.

Master of Business Administration
International Business Option

Functional Courses:

	Credits
620:610 Accounting Management and Control	5
640:674 Financial Management and Policy.	5
660:690 Marketing Management and Policy	3

Administration Courses:

650:651 Management of International Operations I	3
650:652 Management of International Operations II	3
650:668 Administrative Behavior and Methods	3

Specialized Courses: consisting of a minimum of 18 quarter credits selected from:

325:601 Macro-Economics	4
325:669 International Economics	4
640:650 Administrating Costs and Prices	5
640:665 Comparative Industrial Rationale	5
640:680 Financial Problems of the Multinational Firm	5

Seminars: Two options are open to the student:

One of the following:

640:698 Seminar in General Business	5
650:698 Seminar in Management	5

or

Both of the following:

660:696 International Marketing Policies	3
660:699 Marketing Seminar	2
Total Credits Required	45

M.B.A.—Financial Concentration

Business Administration Core Courses:

Functional courses consisting of three of the following:

	Credits
620:610 Accounting Management and Control	5
640:674 Financial Management and Policy.	5
650:663 Industrial Relations	3
660:690 Marketing Management and Policy	3

Administration Courses:

650:668 Administrative Behavior and Methods	3
650:669 Leadership Role in Organization	3
650:670 Organizational Theory	3

Economics Courses:

325:601 Macro-Economic Theory	4
640:650 Administrating Costs and Prices	5

Master's Seminar:

640:698 Master's Report	5
Finance Electives	9
Total Credits Required	45

Credits refers to number of quarter hour credits assigned to various courses.

M.B.A.—Marketing Concentration

BUSINESS ADMINISTRATION CORE COURSES:

Functional Courses consisting of three of the following:

	Credits
620:610 Accounting Management and Control	5
640:674 Financial Management and Policy.	5
650:663 Industrial Relations	3
660:690 Marketing Management and Policy	3

Administration Courses:

650:668 Administrative Behavior and Methods	3
650:669 Leadership Role in Organization	3

GENERAL COURSES:

325:601 Macro-Economics	4
640:650 Administering Costs and Prices	5

CONCENTRATION COURSES IN MARKETING (Master's level):

12 credits if 660:690 was waived; including 3 credits in 660:699, Marketing Seminar.

9 credits if 660:690 was selected; including 3 credits in 660:699, Marketing Seminar.

ELECTIVES:

5 credits in Master's level non-Marketing business courses if 660:690 was waived.

7-10 credits if 660:690 was included.

Master of Science in Accounting

BUSINESS ADMINISTRATION CORE COURSES:

Functional Courses consisting of *two* of the following:

	Credits
620:510 Accounting Management and Control	5
640:674 Financial Management and Policy.	5
660:690 Marketing Management and Policy	3

Administration Courses—*both* required:

650:668 Administrative Behavior and Methods	3
650:669 Leadership Role in Organization	3

Economics—one of the following:

	Credits
325:611 Micro-Economic Theory	4
325:601 Macro-Economic Theory	4
640:650 Administering Costs and Prices	5

ACCOUNTING CONCENTRATION

Required of all majors

620:637 Advanced Accounting Theory	5
620:698 Accounting Seminar	5

Accounting electives—15 credits required from the following courses:

620:520 Advanced Accounting	5
620:531 Advanced Taxation	5
620:554 Accounting Systems	5
620:570 Governmental and Institutional Accounting	5
620:580 Accounting Problems	4
620:588 CPA Problems—Auditing	3
620:589 CPA Problems—Theory	3
620:680 International Accounting	5
640:678 Capital Budgeting	5

A minimum of 45 credits is required for the degree.

M.B.A.—Accounting Concentration

BUSINESS ADMINISTRATION CORE COURSES:

Functional courses consisting of *three* of the following:

620:610 Accounting Management and Control	5
620:674 Financial Management and Policy.	5
650:663 Industrial Relations	3
660:690 Marketing Management and Policy	3

Administration Courses:

650:668 Administrative Behavior and Methods	3
650:669 Leadership Role in Organization	3

ECONOMICS:

325:601 Macro-Economic Theory (or 325: 611 Micro-Economic Theory)	4
640:650 Administering Costs and Prices	5

CONCENTRATION COURSES IN ACCOUNTING:

Required:

620:637 Advanced Accounting Theory	5
620:698 Accounting Seminar	5

Additional accounting courses at the graduate level to meet the minimum of 45 credits required for the degree.

MASTER OF SCIENCE IN MANAGEMENT

COURSE SEQUENCE
QUARTER SYSTEM

First Year

Two in First Quarter	*Credits*
620:510 Accounting Management and Control	5
640:674 Financial Management and Policy.	5
660:690 Marketing Management and Policy	3
Second Quarter	
325:611 Micro-Economic Theory	4
650:647 Advanced Statistics	3
Third Quarter	
650:663 Industrial Relations	3
650:675 Applied Industrial Statistics I	3

Second Year

Summer	*Credits*
650:676 Applied Industrial Statistics II	3
First Quarter	
650:665 Executive Decisions	3
650:668 Administrative Behavior and Methods	3
650:698 Graduate Seminar	1
Second Quarter	
650:666 Operations Research	3
650:669 Leadership Role in Organizations	3
650:698 Graduate Seminar	2
Third Quarter	
650:667 Manufacturing Analysis	3
650:670 Organizational Theory and Policy Formulation	3
650:698 Graduate Seminar	1-3

THE COLLEGE OF FINE AND APPLIED ARTS

The Master's Degree

A program of study leading to the Master's Degree is offered by the Department of Speech. Before undertaking such a program the student must show that he has:

1. Met the general requirements for admission to the Graduate Division.

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 approved as equivalent to an undergraduate major.

3. In addition to the general requirements for the degree listed in preceding pages, the student must complete a course of study with a minimum of 45 credits including Thesis.

4. Prepare a written Thesis (creative, research, or experimental) approved by the candidate's committee.

Public Address programs will include 780:-690, 691, 692, 693, 694, 3 credits in advanced theatre, 3 credits in advanced Communicative Disorders, and after consulting major adviser, selected courses in History and English.

Theatre programs will include 780:465, 467, 660, 662, 663, 664, 665, 667, 668, 669.

Programs in the Area of Communicative Disorders (Speech Pathology and Audiology) will be established at the time of the student's admission to the program. See the director of the Speech and Hearing Clinic.

Credits refers to number of quarter hour credits assigned to various courses.

The College of Law

STANLEY A. SAMAD, LL.M., *Dean*

OBJECTIVES

The purpose of the College 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 College recommends each student for the Juris Doctor degree upon satisfactory completion of the requirements.

The College 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 College of Law.

The College 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 Colleges of Law and 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 College 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 College 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 the future 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 College 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 institutions 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 jurisprudents 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.

Requirements for Admission

An applicant for admission to the College 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 College 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.

The procedures for securing admission are as follows:

1. Obtain an application form from the College of Law.
2. File with the College of Law an official copy of the transcript of the record from the institution which awarded the degree, at least one week prior to the official registration period published in the University Calendar.
3. Arrange to take the Law School Admission Test which is given by the University, or submit evidence of the score if the test was taken elsewhere.
4. When practical, arrange for a personal interview with the Dean of the College of Law.
5. Submit an application fee of $15.00.

The College accepts beginning students only in the fall quarter.

All inquiries and correspondence pertaining to admission should be sent to:

The College of Law
The University of Akron
Akron, Ohio 44304

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 Admission 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 College 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 College of Law.

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 College 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.

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*		*Grade*	*Quality Points Per Credit*
A	Excellent	4	D	Poor	1
B	Good	3	F	Failed	0
C	Satisfactory	2	I	Incomplete	0

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.

Credits refers to number of quarter hour credits assigned to various courses.

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 College 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 the 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.

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 College of Law and who have:

1. Completed satisfactorily all required courses, seminars and electives to earn at least 126 credits and a noncredit course of a clinical nature in legal aid. The legal aid requirement may be waived by the Dean.
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.

Fees and Expenses

Fees are as follows:

Application fee, nonrefundable:	$15
Fees for residents of Ohio, per credit:	$22
Fees for nonresidents of Ohio, per credit:	$28

Students taking less than nine credits in any quarter pay a General Service Fee of $5 for that quarter. Students taking nine or more credits pay $20.

For those students living in University housing, the cost is $930 for three quarters. This fee includes room (two students per room), bed linen, and twenty meals per week for two quarters.

Books (new) will cost approximately $110 per year for full-time students and about $75 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 Office of the Controller. 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 for Legal Education (for students in good standing, after the first year).

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 College of Law and is most important in providing the law student with materials for research and study. The law library contains approximately 36,000 volumes. University libraries comprising more than 225,000 volumes are available to law students.

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 College 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 prelegal educational requirements established by

the Rule, a legible set of fingerprints on a prescribed form and a 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 College 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, 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 College 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 unprotected. Entering students are urged to familiarize themselves with the Honor Code.

Clubs

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, to promote professional responsibilty 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 BRACTON'S INN is offered to all students. BRACTON'S INN has as its purpose the development of skills in legal research, brief writing and oral advocacy before a moot appellate tribunal. BRACTON'S INN is student-managed.

The wives of law students have established an organization called Law Wives. This association holds social events and provides serv-

ices for the wives of entering students, for the Student Bar Association, and for the College.

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 achivement 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 Dean of the College of Law. These applications should be submitted not later than May 1. No awards will be made until the student is accepted by the College of Law. Grants up to one thousand dollars may be made for an academic year, and may be considered for renewal, provided the student's performance is superior.

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 College 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 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

Credits refers to number of quarter hour credits assigned to various courses.

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 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.

Mr. and Mrs. Evan B. Brewster have established an annual award in the sum of $125.00, 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 judgment of the faculty, has made satisfactory progress in his senior year.

The Fellows of the Ohio State Bar Association Foundation award annually two $100 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 Judge W. E. Pardee Memorial Award of $150 (established 1963-64) is presented annually to a participant or team of participants in Bracton's Inn (the Case Club of the College of Law) who best displays advocatory 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 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 has displayed leadership and scholarship.

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.

Clinical Training

The College 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.

Unless excused by the Dean, each student is required as a condition of graduation to serve in one or more of the offices listed above during the course of one quarter. Additional services may be undertaken on a voluntary basis. Students enrolled in the full-time division are eligible to serve in the program upon completion of the first year's work, students in the part-time division upon the completion of the second year's work.

Curriculum

FULL-TIME PROGRAM

(These courses are to be offered during the day.)

First Year, Required

First Quarter	*Credits*
920:602 Development of Law and Legal Institutions	4
920:605 Contracts I	4
920:614 Property I	3
920:617 Torts I	4
Second Quarter	
920:606 Contracts II	4
920:615 Legal Research and Writing	1
920:618 Torts II	4
920:625 Property II	4
Third Quarter	
920:619 Agency	3
920:626 Property III	3
920:638 Criminal Law	4
920:639 Jurisdiction and Judgments	4

Second and Third Year, Required

First Quarter	*Credits*
920:628 Legal Profession	1
920:635 Pleading and Joinder	5
920:636 Constitutional Law	5
920:671 Business Associations I	3
Second Quarter	
920:622 Administrative Process	4
920:633 Evidence I	3
920:672 Business Associations II	3
Third Quarter	
920:634 Evidence II	3
920:637 Remedies	5

PART-TIME PROGRAM

(These courses are to be offered during the evening.)

First Year, Required

First Quarter	*Credits*
920:603 Legal Method and Legislation	4
920:605 Contracts I	4
920:615 Legal Research and Writing	1
Second Quarter	
920:606 Contracts II	4
920:617 Torts I	4
920:628 Legal Profession	1
Third Quarter	
920:614 Property I	3
920:618 Torts II	4

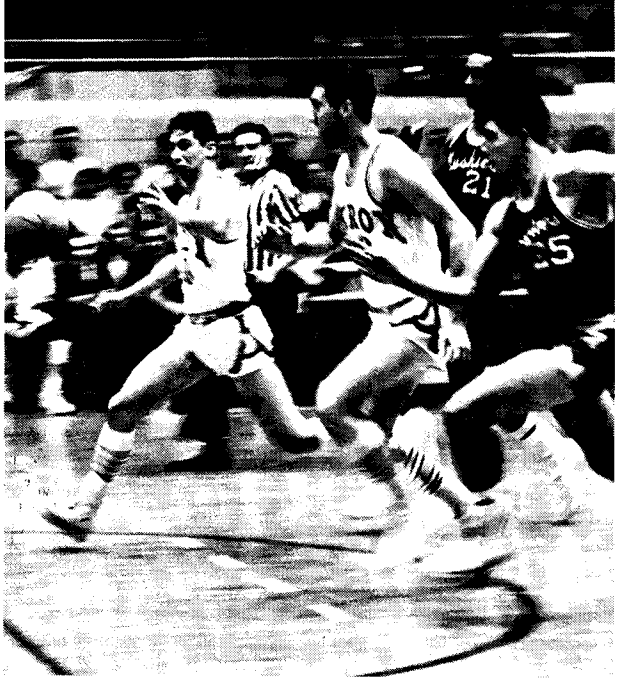
Second Year, Required

First Quarter	*Credits*
920:625 Property II	4
920:639 Jurisdiction and Judgments	4
Second Quarter	
920:626 Property III	3
920:636 Constitutional Law	5
Third Quarter	
920:622 Administrative Process	4
920:637 Remedies	5

Third and Fourth Year, Required

First Quarter	*Credits*
920:635 Pleading and Joinder	5
920:671 Business Associations I	3
Second Quarter	
920:633 Evidence I	3
920:672 Business Associations II	3
Third Quarter	
920:634 Evidence II	3
920:638 Criminal Law	4

Credits refers to number of quarter hour credits assigned to various courses.



Electives

		Credits
920:602	*Development of Law and Legal Institutions	4
920:603	*Legal Method and Legislation	4
920:631	Commercial Transactions I	4
920:632	Commercial Transactions II	3
920:640	Administration of Criminal Justice	3
920:644	Federal Jurisdiction and Procedure	4
920:645	Problems in Trial Advocacy	2
920:646	Ohio Trial and Appellate Practice	3
920:651	Social Legislation	4
920:652	Creditors' Rights	4
920:653	Municipal Corporations	3
920:654	Domestic Relations	3
920:655	Individual Studies and Research	1-5
920:658	Security Transactions	3
920:659	Problems in Conflict of Laws	4
920:660	Seminar in Selected Legal Problems	1-4
920:661	Seminar in Political and Civil Rights	3
920:662	Seminar in Estate Planning	5
920:663	Patent, Trademark and Copyright Law	3
920:664	Federal Income Taxation	5
920:665	Seminar in Land Use Planning	3
920:666	Seminar in Jurisprudence	4
920:667	Seminar in Comparative Legal Systems	3
920:668	Labor Law	3
920:669	World Law	4
920:670	Seminar in Legal Problems of the Poor	3
920:673	Trusts and Estates I	3
920:674	Trusts and Estates II	5
920:675	Trade Regulations I	3
920:676	Trade Regulations II	3
920:677	Legal Problems in Business Planning	5
920:678	Seminar in International Transactions and Relations	4

* Either 920:602 or 920:603 is required.

THE EVENING COLLEGE

The University of Akron has a rich, historical tradition of devoting special attention to the development of courses for the education and interest of busy part-time students through evening classes for more than 50 years. 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 offerings 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. Public affairs programming is conducted by the College's Institute for Civic Education.

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 5 p.m. Class patterns are generally arranged on a Monday-Wednesday or Tuesday-Thursday cycle. There are a few Evening Classes on Friday evenings and Saturday mornings.

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, and Institute for Civic Education information may be obtained from the Evening College offices on the ground floor of Buchtel Hall. These offices are opened from 8 a.m.-9 p.m. Monday through Thursday and from 8 a.m.-6 p.m. on Fridays 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 approximates 6,000 students. This compares to approximately 8,000 students enrolled in the day session. These figures do not include approximately 1,850 students registered in the Department of Special Programs and between 15-20,000 annual attendees at Institute for Civic Education programs.

The Summer Sessions

For more than 47 years, the University has offered courses in the summer. Classes are now available in both daytime and evening, offering credits to be earned in the summer months. There will be two five-week day and evening programs each summer beginning in 1969. Also, there are noncredit courses offered during the summer season in the Department of Special Programs.

Summer courses for credit have been designed for the following groups:

TEACHERS—so that they may study during their summer vacations and earn credits leading to either a Bachelor's or a Master's degree. Courses are available that lead to the Ph.D. in Chemistry, Education, Polymer Science, Industrial Psychology, and the Ed.D. in School Administration, and programs are offered for teachers who wish to obtain emergency certificates or renew their teaching certificates.

REGULAR ENGINEERING STUDENTS—so that they may continue on schedule while studying on the cooperative program.

TRANSIENT STUDENTS FROM OTHER COLLEGES AND UNIVERSITIES—so that they may take advantage of their summer vacations to work towards their chosen degrees. These students are classified as "transients" and they must present a letter from their institution indicating they are in good standing. Permission to enter is granted for the Summer Session.

HIGH SCHOOL GRADUATES—so that they may enter the University immediately after their graduation in June. They may take either credit or noncredit courses.

Credit courses are taken in accordance with the General College standards of admission. They are available to those who wish to accelerate their college training, enrolling in the regular courses of study.

REGULAR STUDENTS AT THE UNIVERSITY OF AKRON—so that they keep on studying at the University around-the-calendar and accelerate their academic progress.

INFORMATION for those wishing to gain admission to the University's Summer Sessions: Applicants for credit courses in Summer Sessions must meet the same entrance requirements as for the regular academic year.

Administration of Summer Sessions courses for credit or noncredit, taken in daytime or evening, is under the jurisdiction of the Director of the Summer Sessions.

RESIDENCE FACILITIES: Housing for men and women is available on the University campus during the summer. Availability and rates can be obtained from the Director of Housing. Rates are subject to change without notice. Estimated rates are as follows:

Single Occupancy: (Room only)
$3.50 per day—unless contract exceeds 28 days
$3.00 per day—for occupancy over 28 days
Double Occupancy: (Room only)
$2.50 per day—unless contract exceeds 28 days
$1.95 per day—for entire occupancy over 28 days

(meals not included)

The Department of Special Programs

Oriented toward the basic educational needs of mature individuals, "informal" or "noncredit" courses have been established upon the foundation of continuing education in American society.

The Evening College, long a forerunner in introducing dynamic new thoughts to higher education, initiated such a program in 1937.

Recognized and respected throughout the United States today, continuing education is represented at The University of Akron by its Department of Special Programs.

Although more than 75 different courses are offered each quarter, all are based upon the underlying concept of educational need. The courses are designed for adults with a variety of educational backgrounds—adults who may never have attended college, who may have attended without receiving a degree, or who may have received one or more degrees.

The noncredit approach to learning makes it possible for adults to learn in an informal and noncompetitive environment where interest in learning is the only consideration.

This bulletin does not present a complete listing of the Department's informal courses. However, the following subjects indicate some of the scope and variety of the program:

COLLEGE SKILLS SEMINARS—Algebra, English, Trigonometry, and Orientation to College Study.

COMMUNICATION SKILLS—VERBAL AND WRITTEN—Public Speaking, Business and Professional Interviewing, English Grammar, and Writing Improvement.

HUMANITIES AND FINE ARTS—Reading of Drama, The Great American Novel, Shakespeare, Comparative Religions, and the Motion Picture as a Contemporary Art-Form.

SCIENCE—Oceanology, Geology, Aerospace Science, and Rubber Chemistry.

SOCIAL SCIENCE—Civil War History, The American Revolution, Archaeology, and Criminology.

SELF-UNDERSTANDING—Creative Thinking, Vocational Guidance, and Art of Positive Living.

MUSIC—American Folk Music, Jazz Appreciation, and Great Pianists of the Past and Present.

BUSINESS AND INDUSTRY—Advertising, Bookkeeping, Business Data Processing and Computer Programming, Information Retrieval, Investing For Tomorrow, Cost Control, Critical Path Method, Principles of Supervision, Production and Inventory Control, and Technical Drawing.

MODERN LANGUAGES—French, German, Italian, Russian and Spanish, at the beginning, intermediate, and advanced level.

ELECTRONICS—Circuitry, Transistors, and Preparation for Amateur Radio Operator License Examination.

METALLURGY—Heat Treatment of Steel, Metals in Design Engineering, and Metal Casting Principals.

PHYSICAL EDUCATION—Physical Fitness for Men and Women, S.C.U.B.A. and Skin Diving, Skiing: Pre-Season Conditioning and Techniques, and a Guide to Coaching.

SECRETARIAL SKILLS—Typing and Shorthand at the beginning, intermediate, and advanced levels.

Courses offered by the Department of Special Programs become part of a student's permanent record. However, they do not carry academic credit. Admission to these courses does not require a transcript of grades or a college entrance examination.

Most of the courses meet for one and one-half hours each week for 11 weeks. Tuition fees are $18 per course, with certain exceptions.

The Institute for Civic Education

The Institute for Civic Education, public affairs programming arm of the Evening College, represents an idealistic and optimistic concept. Its program assumes that men in a democratic society can and will develop, through patterns of continuing education, a greater sense of public responsibility and will exercise that responsibility to make Reason more effective in our social order.

Universities cannot completely rely on the traditional academic classroom approach to fulfill the requirements of education for public responsibility. A variety of structures and programs have been developed with various names for these tasks. Some are centers for continuing education, others focus on the study of liberal education by adults. At The University of Akron this work is carried out by the Institute for Civic Education, which began as an experimental project in 1956 with financial assistance from the Fund for Adult Education, after being fostered in its earlier years as part of the University's Evening and Adult Education Division.

The Institute serves as a special civic programming center for the University and as such fulfills a managerial and coordinating function for many non-credit, informal programs of continuing education for adults. These programs vary in length, frequency and cost and many are free of any charge. Most of the activities of the Institute are conducted on the University's campus in an informal atmosphere, and most involve one or more faculty members as lecturers or resource persons. Specific offerings and program details are described in separate brochures and announcements which are available to anyone on request from the Institute. In addition, the Institute publishes and circulates a monthly *Civic Educalendar* of educational events.

Among the continuing educational services provided by the Institute are conference coordination and consultation, cultural and civic field trips, serving as the foreign visitor center in Akron, labor education programs, a twenty-eight week liberal education experience for the over-specialized person in business, guest lectures, study-discussion programs, Thursday Breakfast Roundtable for men interested in regional planning and development, Town and Gown series of platform lectures by outstanding commentators and authorities on national and international affairs, urban studies programs and ten annual World At Our Door travel-film lectures.

In cooperation with the Akron Area Adult Education Council the Institute produces bimonthly public Council meetings, weekly Community and National Issues luncheons and weekly World Affairs luncheons. The Institute serves as headquarters for the Adult Education Council and the Institute's Director is the Council's Executive Secretary.

The University of Akron, through the work of the Institute, is a charter member of the University Council on Education for Public Responsibility. Sister institutional members, all equally dedicated to informal public affairs education, include the University of British Columbia, University of California, New York University, University of Oklahoma, Pennsylvania State University, Southwestern at Memphis, Syracuse University, and the University of Washington.

V.
Public Service Programs Research, Center for Urban Studies, Center for Information Services, Referral Service Network Office

Public Service Programs

"Institutions of higher learning are being called upon ever more frequently for public service—for defense research, foreign development, and countless other programs. They have performed magnificently. We must now call upon them to meet new needs.

"Today, 70 percent of our people live in urban communities. They are confronted with problems of poverty, residential blight, polluted air and water, inadequate mass transportation and health services, strained human relations, and overburdened municipal services.

"Our great universities have the skills and knowledge to match these mountainous problems. They can offer expert guidance in community planning; research and development in pressing educational problems; economic and job market studies; continuing education of the community's professional and business leadership; and programs for the disadvantaged."

PRESIDENT LYNDON B. JOHNSON
JANUARY 12, 1965

The above statement by President Johnson sums up many of the responsibilities universities are being called upon increasingly to meet. The University of Akron is already involved in many of the programs cited and members of the faculty and staff are studying some of the others.

Research:
Looking at the World of Tomorrow

ROBERT C. CARSON, Ph.D., *Coordinator of Funded Research*

Colleges and universities have traditionally been thought of as ivy-covered storehouses of knowledge where neat parcels of information are regularly dispensed to the eager young students of the day. But this is only partly true for, while the dissemination of knowledge is still a major responsibility of any university, today's institutions of higher learning have other important obligations as well:

1. To advance the frontiers of knowledge, and
2. To perform appropriate educational public services.

This challenge cannot be met passively. The University of Akron cannot serve solely as a repository of the knowledge of the past, but must actively contribute to knowledge of the future. And this contribution, if it is to have any value to society, must be related to the problems of the world we live in.

Recognizing its obligation to the people it serves, the University is seeking to ensure that the research being performed here is not only an integral part of the total university life but is also relevant to the needs of today and tomorrow.

A revolution in research has been evident at The University of Akron where research has been a prime concern of the institution since its founding in 1870.

No longer is research solely the product of an individual scholar, today research is usually a team effort often involving several disciplines. Research groups composed of chemists and physicists or biologists and statisticians probe the unknown. The fast-developing space age has accelerated the trend toward larger interdisciplinary groups whose membership is determined by the problem . . . not the tradition.

Research teams at The University of Akron are formed to deal with specific problems posed by private business or government agencies. The research is conducted by those in the University who can best contribute to the solution of the problem no matter what their specialty may be.

The University Research Council coordinates all research activities performed on campus and is the administrative arm for contract research conducted for agencies not connected with the University.

It is the aim of the Council to encourage such activities as will further the educational goals of the University.

The Council is composed of:

Dr. Edwin L. Lively, Dean of Graduate Studies and Research, Chairman;
Dr. H. Kenneth Barker, Director, Institute of Civic and Educational Research;
Dr. Wilbur Earle Benson, Director, Institute of Business and Economic Research;
Dr. Maurice Morton, Director, Institute of Polymer Science;
Dr. Michael J. Rzasa, Director, Institute of Science and Engineering Research; and
Dr. Robert C. Carson, Coordinator of Funded Research, Secretary

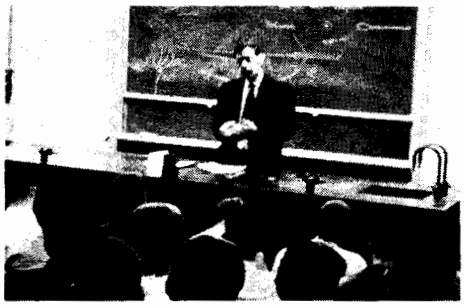
While the planning and organization of a research project is usually carried out by or with the assistance of a faculty member, both graduate and undergraduate students have the opportunity to participate, depending on the nature of the project and the skills and knowledge required.

Thus, the University's research activities benefit students in several ways. Through research the University serves not just as a storehouse of knowledge of what *has* taken place, but offers the dynamic atmosphere of an institution participating in the development of the world of tomorrow.

This, in turn, assures the student 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.

Institute of Polymer Science

Originally called the Institute of Rubber Research, this Institute is engaged in basic research in the chemistry and physics of polymers. The Institute has a staff of eleven faculty members who direct the work of the predoctoral and post-doctoral students. The Insti-



tute has a wide range of equipment and instrumentation appropriate to its activities.

Some of the projects currently being carried on by this Institute are:

Multicomponent Membranes for Reverse Osmosis

Mechanism of Reinforcement of Elastomers

Mechanics of Rubber Spring Systems

Sequence Distribution in Copolymers

High Temperature Elastomer Networks from Difunctional Block Copolymers

Dynamic Response and Damping Behavior of Hetrogenous Polymers.

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.

Some of the current projects being carried on in this Institute include:

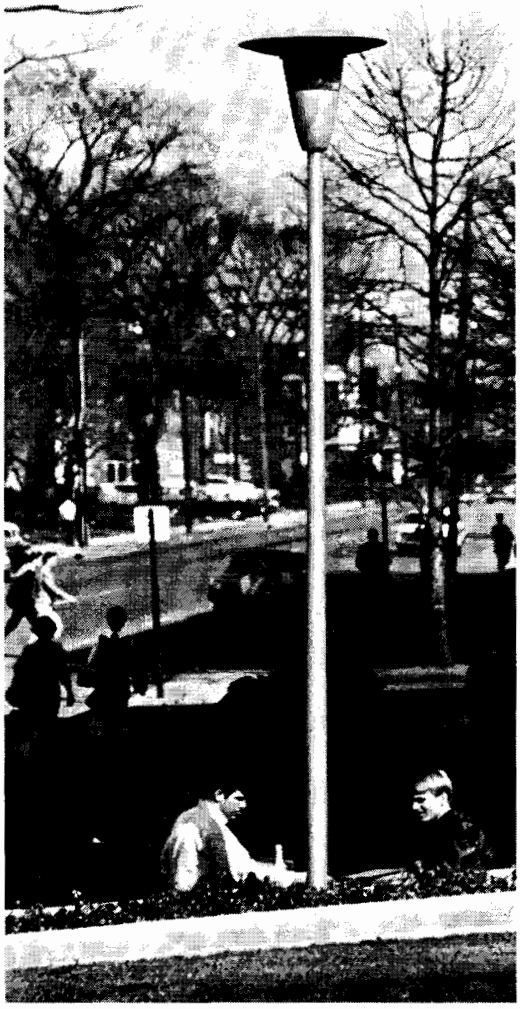
Student Commitment as an Admissions Criterion

Teacher and Pupil Attitude and Performance in Relation to Number of Books Used in First Grade Reading

Development of Resource Material in Space Oriented Mathematics

Student Reactions to the Use of Programmed Learning

Conference on Current Social Welfare Programs and Trends for Career Workers without Professional Degrees



Institute for Teachers of Disadvantaged Youth

Multi-phase Research and Evaluation of the "War on Poverty" Programs

Research on human decision making in task oriented groups.

Institute of Science and 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.

Typical projects underway at present are:

A Study of Thermal Decomposition of Materials

Comprehensive Evaluation of Highway Sign and Billboard Regulations

Boranes as Carbonium Ion Analogs

Study of the Variation of the Wind Gust Factor

Systematic Studies of Terrestrial Orchid Seedlings

Chelate Systems containing a Metal-Carbon Sigma Bond

Lipids of Frog Oocyte Fractions.

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.

Some of the project areas in which work is currently being carried on include:

Regional Economic Growth and Development

Job Evaluation

Marketing and Market Research

Executive and Sales Training

Tax Problems

Information Retrieval in Industrial Development Planning

Financial Management.

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 and 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. While the Center's major emphasis has been devoted to Akron and its environs, the research activities, findings, and in many cases, the extension programs, 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 disciplines represented in the Colleges of Liberal Arts, 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 a number of areas in order to provide information and basic data which 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 in the urban region.

Center for Information Services

PANOS KOKOROPOULOS, M.S., *Director*

The Center for Information Services (CIS) of The University of Akron has developed and is operating the Information Retrieval Project of the Division of Rubber Chemistry, American Chemical Society. Services offered include current awareness bulletins and question-and-answer services.

Mr. Panos Kokoropoulos, Director of The Center for Information Services, is in charge of the overall direction of the Project.

Services Available

Two current awareness bulletins are published weekly by CIS. *Polymer Literature Abstracts* contains citations and abstracts of all full-length articles pertinent to research and development which were analyzed during the week. *Polymer Industry News* reports news items reflecting changes in the industry, including economics, product innovations and tradenames, and technology and patents. Subscribers receive two copies of each bulletin; additional copies are provided at cost. Cumulative indexes of each publication are furnished to subscribers, also.

Question-and-answer services can be provided on an overnight basis, the answers being mailed the next morning. Retrospective searches provide pertinent reference to articles published from 1959 to present and to news items.

Selective Dissemination of Information (SDI), a current awareness question-and-answer service, furnishes references pertinent to standing questions at designated time intervals.

Search Files

All references are simultaneously published in current awareness bulletins and stored in search files. *Polymer Literature Abstracts* references are placed in the computer retrieval system. *Polymer Industry News* items are stored separately on keysort cards and searched on a keydex system. Full-length reproductions of articles cited in the current awareness bulletins or the search results are available.

Future Development

The Center for Information Services of The University of Akron will continue to develop improvements and to incorporate new concepts into the present system as information and the information needs of its users change.

The CIS is also investigating new projects and designing new systems in cooperation with other departments of the University.

The Bibliography of Rubber Literature, published by CIS starting with the 1961-62 volume, will include CIS references in all volumes from 1965 to present. The Bibliography will be programmed for computer retrieval.

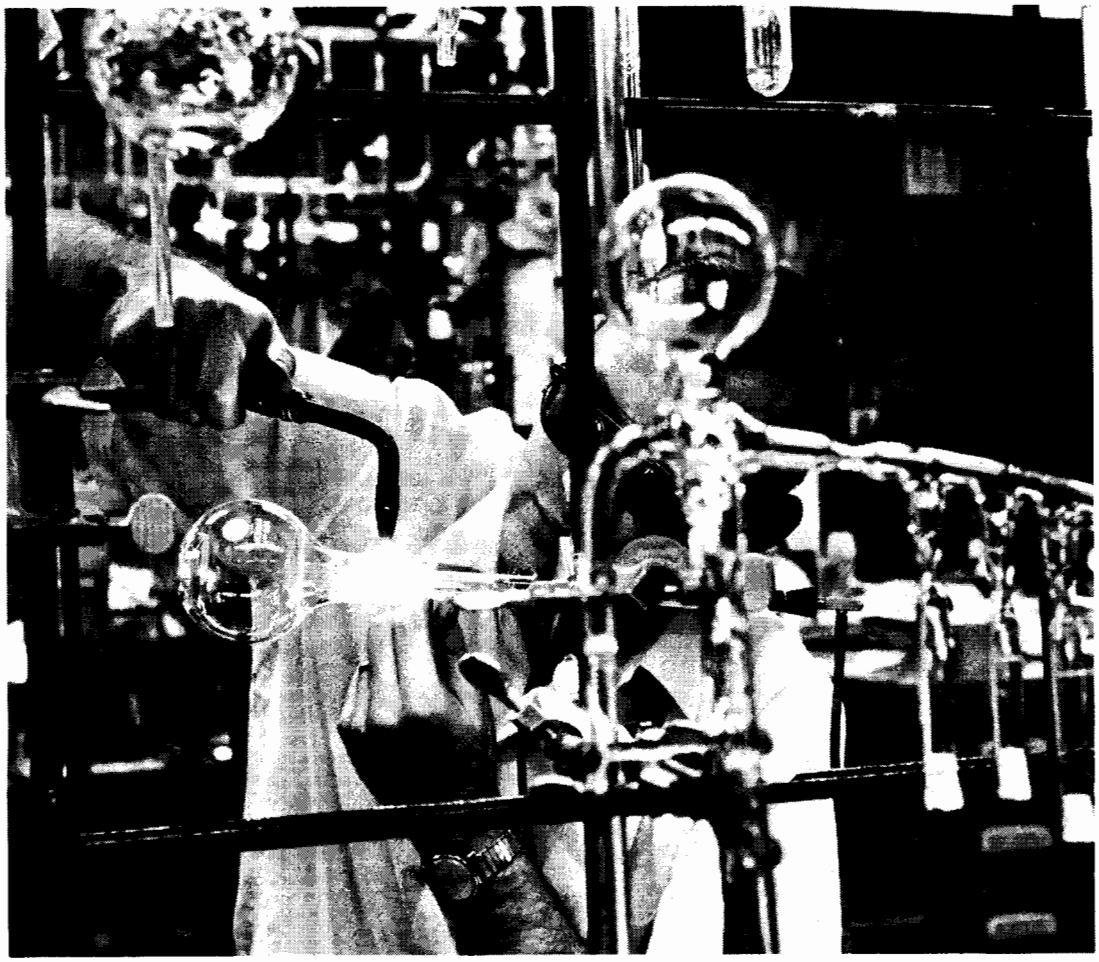
Referral Service Network Office

J. I. SMITH, B.S., *Supervisor*

The University of Akron has established a Referral Service Network Office for the State of Ohio. This program is part of the Ohio Five-Year Technical and Business Services Plan, as provided by the State Technical Services Act of 1965, and administered through the U.S. Department of Commerce.

The Referral Service Network Office of The University of Akron is part of a state-wide network that will develop within the framework of state institutions an effective system for placing the findings of science in the hands of Ohio commerce, industry and business as defined under the State Technical Services Act of 1965 and amended thereof.

The Referral Service Network Office will develop profiles of industry and commerce in the geographic area surrounding Akron. Such profiles will be designed to show any special problems and/or interests of this area's industry. Economic problems and considerations peculiar to the area will also be identified so that other appropriate sources of public or private assistance can be alerted to these special considerations in addition to their being fed back into the overall Ohio Technical and Business Services System.



The objectives of the Referral Service Network Office are:

To provide a reference service to identify sources of engineering and other scientific expertise for Ohio enterprise.

To aid in reducing the time lag required in commercially exploiting the advantages of a rapidly expanding technological knowledge.

To work toward the establishment of a closer and continuing communications relationship between sources and users of technical services.

To transfer the new technology to managers and engineers in all segments of private industry in a more effective manner so as to insure better utilization of scientific and technological information by governmental sources.

To bring the technical information services provided under other federal programs to a wider clientele for both large and small businesses.

To develop profiles of industry and commerce in this area in order to show any special problems and/or interest of the area's industry.

To maintain close contact with industry and commerce in this area.

In operation, the Referral Service Network Office acts as a reference service receiving requests for information or service from industry within this area by mail, telephone or personal visitation. The Network Office replies by identifying from the Technical Information Sources Catalog the source(s) of such information or service and referring the inquiror to that source(s).

The Referral Service Network Office is not an information repository or actual source of hard documents or technical assistance per se, but serves as a focal point for referrals to such sources. Whatever occurs after the referral is made is between the requestor and the source, and the requestor will then deal directly with that source of information once the referral is made from the Network Office.

VI.
Courses of Instruction

THE GENERAL COLLEGE (100)
110 General Studies
150 Air Force ROTC
160 Army ROTC

THE COMMUNITY AND TECHNICAL COLLEGE (200)
202 Associate Studies
224 Commercial Art
228 Food Service Management
242 Commerce
244 Data Processing
252 Sales and Merchandising
254 Secretarial Science
256 Transportation
270 Preclinical Nursing
284 Chemical Technology
286 Electronic Technology
288 Industrial Technology
290 Instrumentation Technology
292 Mechanical Technology
298 Surveying and Construction Technology

THE BUCHTEL COLLEGE OF LIBERAL ARTS (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
390 Interdisciplinary Programs
394 Polymer Science
398 Urban Studies

THE COLLEGE OF ENGINEERING (400)
410 General Engineering
420 Chemical Engineering
430 Civil Engineering
440 Electrical Engineering
460 Mechanical Engineering

THE COLLEGE OF EDUCATION (500)
510 General and Foundations
520 Elementary
530 Secondary
555 Physical Education
557 Men's Physical Education
559 Women's Physical Education
560 Guidance and Counseling
565 Educational Psychology
570 School Administration
580 Special Programs
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 Organizations
752 Applied Music
780 Speech

THE COLLEGE OF NURSING (800)
820 Nursing

THE COLLEGE OF LAW (900)
920 Law

Course numbers, in turn, indicate by their first number the level at which the course is taught, as follows:

:000 - 099 General Studies Courses
:100 - 199 Freshmen, first year level courses.
:200 - 299 Sophomore, second year level courses.
:300 - 399 Junior, third level (and pre-junior level) courses.
:400 - 499 Senior, fourth year level courses.
:500*- 699 Master's level courses.
:600 - 799 J. D. courses.
:700 - 899 Doctor's level courses.

* 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 parentheses (1-3) indicate hours of recitation or lecture and hours of laboratory work. In the example (1-3) there would be one recitation/lecture hour per week and three laboratory hours.

The General College

110: GENERAL STUDIES

110:101-102-103. English Composition. 3 credits *each quarter.*

Must be taken in sequence.

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.

110:115-116-117. Institutions in the United States. 3 *credits each quarter.*

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.

110:121-122. Physical Education. 1 *credit each quarter.*

Participation in individual and group sports, in which each individual can aquire knowledge and skill in activities which may be of value and satisfaction to him throughout his life. Two periods each week.

110:205. Types of Literature. 4 *credits.*

Prerequisite: 103. These courses 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 103, 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.

110:211. 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.

110:213-214-215. Reasoning and Understanding in Science. 3 *credits each quarter.*

Sequential. The primary objectives of this course are to assist the student in understanding the procedures and aims of science and to enable the student to utilize the basic principles of science.

110:303-304. Eastern Civilizations. 3 *credits each quarter.*

Prerequisite, 96 credits. The primary objective of this course is to give the student a knowledge of past human experience and an understanding of present attitudes in some of the major cultural areas of the non-Western world, such as the Far East, the Indian Subcontinent, the Near East, Africa and South-East Asia. 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.

110:317-318-319. Western Cultural Traditions. 3 *credits each quarter.*

Sequential. Primary objectives of this course are to enable the student to understand human experience 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 one 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.

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, since this course is NOT offered in the summer.

U.S. Air Force R.O.T.C.

150: AEROSPACE STUDIES

150:113-114-115. First Year Aerospace Studies (AS-100). 1½ *credits each quarter.*

Three 1-hour classes each week. Required of Freshmen not enrolled in 160:100-102-103.

150:253-254-255. Second Year Aerospace Studies (AS-200). 1½ *credits each quarter.*

Prerequisite, 115 or 160:103. Three 1-hour classes each week. Required of Sohpomores not enrolled in 160:200-201-202.

150:303-304-305. Third Year Aerospace Studies (AS-300). 3 *credits each quarter.*

Prerequisite, individual selection by Professor of Aerospace Studies. Four 1-hour classes each week. This is the first half of the two-year Professional Officer Course.

150:453-454-455. Fourth Year Aerospace Studies (AS-400). 3 *credits each quarter.*

Prerequisite, 305. Four 1-hour classes each week. Second half of the two-year Professional Officer Course.

U.S. Army R.O.T.C.

160: MILITARY SCIENCE

160:100-101-102. First Year Basic Military Science (MS I). 1½ *credits each quarter.*

Three 1-hour classes each week. Required of freshmen not enrolled in 150:113-114-115.

160:200-201-202. Second Year Basic Military Science (MS II). 1½ *credits each quarter.*

Prerequisite, 160:100-101-102 or 150:113-114-115. Three 1-hour classes each week. Required of Sophomores not enrolled in 150:253-254-255.

160:300-301-302. First Year Advanced Military Science (MS III).
3 *credits each quarter.*

Prerequisite: 160:200-201-202. Individual selection by Professor of Military Science. Five 1-hour classes each week.

160:400-401-402. Second Year Advanced Military Science (MS IV).
3 *credits each quarter.*

Prerequisite, 160:300-301-302. Five 1-hour classes each week.

The Community and Technical College

202: ASSOCIATE STUDIES

202:119-120. ENGLISH. 3 *credits each quarter.*
119 is prerequisite for 120. The two courses are intended to increase the reading and writing proficiency of students. The first quarter deals mainly with vocabulary, basic writing mechanics (punctuation, spelling, grammatical usage, etc.,) and sentence structure. In the first quarter, the students will write short paragraphs and work exercises to develop basic writing skills. The second quarter is designed to stress the development and organization of the essay. The students will increase writing skills and improve reading comprehension by expository writing based on their analysis of short readings.

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. 4 *credits.*
Prerequisite, 1 unit of algebra, 1 unit of plane geometry. The theory of sets, algebraic properties and operations, linear equations in one unknown, functions and graphs, analytical geometry of the straight line, systems of linear equations, exponents and radicals, tables and interpolation, quadratic equations in one unknown.

202:132. MATHEMATICAL ANALYSIS II. 4 *credits.*
Prerequisite, 131. The right triangle, vectors and analytical trigonometry, logarithms, exponential functions, trigonometric formulas, identities, and equations, oblique triangles, binomial theorem, progressions, equations of quadratic form and nonpolynomial equations, and applications of the above.

202:133. MATHEMATICAL ANALYSIS III. 3 *credits.*
Prerequisite, 132. The graphs of trigonometric functions, simultaneous quadratic equations, conics, curve sketching, theory of equations, inequalities, graphical methods of calculus, differentiation, intergration, and applications.

202:151. BASIC PHYSICS I. 4 *credits.* (3-1)
Principles of mechanics and heat. Topics include force and motion, work and energy, properties of fluids and gases, thermal behavior of matter, and introduction to atomic physics.

202:152. BASIC PHYSICS II. 3 *credits.* (2-1)
Principles of electricity and magnetism. Topics include electrostatics, basic direct-current circuits, magnetism and electro-magnetism, alternating currents, and basic a-c circuits.

202:153. BASIC PHYSICS III. 3 *credits.* (2-1)
Principles of sound and light. Topics include wave motion, sound waves, light and illumination, reflection and refraction, mirrors and lenses, and interference and diffraction.

202:234. MATHEMATICAL ANALYSIS IV. 3 *credits.*
Prerequisite, 133. The theory of locus, applications of the derivative, definite integral, applications of the definite integral, polar coordinates, functions of several variables, multiple integrals, infinite series, differential equations and applications.

202:235: MATHEMATICAL ANALYSIS V. 3 *credits.*
Prerequisite, 132. The structure and logic of mathematics, Boolean algebra, probability and statistics, permutations and combinations, algorithmic procedures in problem analysis, determinants, and matrices, linear algebra, inequalities, and illustrative problems of a business nature.

202:240. HUMAN RELATIONS. 4 *credits.*
A study of principles and methods which will aid in understanding the interpersonal relations of people on the job, in the community, and in the home.

202:242. AMERICAN SOCIETY. 4 *credits.*
A coverage of the impact of traditions behind American values and the impact and influence of values on American society and thought. Emphasis is placed on role of individual in American life.

202:247. SURVEY OF BASIC ECONOMICS. 5 *credits.*
A survey of basic economic principles and issues. An introduction 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.

224: COMMERCIAL ART

224:119-120. VISUAL FUNDAMENTALS I AND II. 3 *credits each quarter.*
119 is prerequisite to 120. A foundation course for the visual arts. Experimentation in control of materials for production of visual statements. Color theory and systems of notation. Development of visual sensibility. Introduction to the process of visual designing.

224:124. COMMERCIAL ART STUDIO MECHANICS. 3 *credits.*
Prerequisites, 292:121, 710:125. Craftsmanship is stressed in exercises using the specialized tools, materials and techniques of the commercial art studio.

224:140. TYPOGRAPHY AND LETTERING. 3 *credits.*
Prerequisites, 124, 710:126, 710:145. Letter symbols studied in terms of communication and

esthetic considerations. History of letter forms, hand lettering, alphabet design, contemporary type faces.

224:221-222. PHOTOGRAPHY I AND II.
3 *credits each quarter.*
Prerequisites, 710:147; 221 is prerequisite to 222. An introductory course in the fundamentals of photography. Camera techniques, development, printing, lighting, optical theory and design analysis in photography.

224:223. PHOTOGRAPHY III. 3 *credits.*
Prerequisites, 221-222. 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 quarter.*
Prerequisites, 140, 252:103, 292:122, 710:147; 242-243-244 must be completed in prerequisite order. 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, 222, 243. 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, 140, 710:147, 146. Visual design and development of protective devices for packaging, shipment and display of consumer produtcs.

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.

228: FOOD SERVICE MANAGEMENT

228:121-122-123. FUNDAMENTALS OF FOOD PREPARATION I, II, III. 3 *credits each quarter.*
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.* (1-8)
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; and merchandizing techniques. Special emphasis on catering and vending services. Food cost control.

228:237-238. FOOD SERVICE INTERNSHIP I AND II.
4 *credits each quarter.*
Prerequisite 233. A continuation of 233. Food Service experience under commercial operating conditions. 237 precedes 238.

228:243. FOOD EQUIPMENT AND PLANT OPERATIONS. 3 *credits.* (2-2)
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.

244: DATA PROCESSING

244:120-121. INTRODUCTION TO INFORMATION PROCESSING I AND II.
4 *credits,* 120; 3 *credits,* 121.
An introduction to both manual and automated information processing. 120 must precede 121.

244:130-131. COMPUTER PROGRAMMING I AND II.
3 *credits each quarter.*
Prerequisite, 120. An introduction to computer programming. 131 is a continuation of 130 stressing intermediate and advanced programming concepts.

244:232-233-234. COMPUTER PROGRAMMING III, IV, AND V. 3 *credits each quarter.*
Sequential; prerequisite, 131. 232 is a continuation of 131. 233 stresses advanced programming concepts including recursive programming and the construction and use of higher level programming languages.

244:240-241. BUSINESS AND MANUFACTURING SYSTEMS I AND II. 3 *credits for* 240, 2 *credits for* 241.
Sequential; prerequisites, 131 and 640:161. Methods and techniques of business systems design, development, and implementation. 240 must precede 241.

244:251-252. DATA PROCESSING PROJECT I AND II. 4 *credits for* 251, 2 *credits for* 252.

Sequential; prerequisites, 232 and 240. Individual problem assignment including systems design, programming, and testing. 251 must precede 252.

252: SALES AND MERCHANDISING

252:101. 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.

252:102. 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.

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. DISPLAY TECHNIQUES. 3 *credits.*

A basic studio course in Retail Display Techniques. Includes window, interior, and point of purchase display categories.

252:111. 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.

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.*

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.

252:210. WHOLESALING AND SERVICE FUNDAMENTALS. 3 *credits.*

A survey course in the fundamentals of wholesaling and service type business institutions. This encompasses a brief history of these enterprises with emphasis on the current types, status and functions of each. Also pertinent legislation and its effects are discussed. Job opportunities and progressions are explained and examined.

252:211. MATHEMATICS OF RETAIL DISTRIBUTION. 3 *credits.*

Sequential; prerequisite; 254.170. 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.

254: SECRETARIAL SCIENCE

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.

254:153. TYPING PRINCIPLES. 3 *credits.*

Fundamentals of typewriting followed by drill to acquire skillful coordination of machine parts. The ability to type 35 words per minute with five errors for three minutes is the minimum requirement.

254:154. TYPING PRACTICES. 3 *credits.*

Prerequisite, 153. Application of the typewriting skill to various typewriting problems. The ability to type 45 words per minute with five errors for three minutes.

254:155. TYPING PROJECTS. 3 *credits.*

Prerequisite, 154. Application of typewriting skill to letter production, business reports, technical papers, manuscripts, and statistical typing. A minimum standard of 55 words per minute with five or fewer errors for five minutes.

254:159. SHORTHAND REFRESHER. 4 *credits.*
For a student who has completed Gregg Shorthand theory. Theory review and typewriter transcription. Minimum speed attainment: 80 words per minute. Credit not allowed for this course and 161, 162.

254:161. SHORTHAND PRINCIPLES I. 4 *credits.*
For the beginning shorthand student. Introduction to the Gregg Diamond Jubilee Shorthand Theory and brief forms. Development in reading and writing from familiar material.

254:162. SHORTHAND PRINCIPLES II. 4 *credits.*
Prerequisite, 161. Additional study of Gregg Diamond Jubilee Shorthand theory with emphasis on vocabulary. Minimum required speed is 60 words per minute.

254:163. SHORTHAND TRANSCRIPTIONS. 4 *credits.*
Prerequisite, 162. Typewriting Projects 155 must be completed or should be taken concurrently. Increasing emphasis on skill in reading and writing Gregg shorthand. A minimum dictation skill of 70 words per minute on new material for five minutes is required to complete the course.

254:170. 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.

254:180. ESSENTIALS OF LAW. 4 *credits.*
A brief history of the law, study of contracts, agency, criminal law, sales, bailments, domestic relations, probate law, and torts as they relate to business.

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, Hemetology, Bacteriology, Roentgen Rays, EKG, Basic Metabolism, and nature of dental materials.

254:211. 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.

254:212. 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 areas of internal control, negotiable instruments, asset valuation, departmental accounting, sales and property taxes, and other methods of determining adjustments.

254:257. SECRETARIAL MACHINES I. 3 *credits.*
Prerequisite, 155. Office-style typewriting, business forms, duplication processes, dictation and transcribing machines. Minimum speed of 55 words per minute with five or fewer errors for five minutes.

254:258. SECRETARIAL MACHINES II. 3 *credits.*
Prerequisite, 257. Key punch; automated tape machine; electric filing systems: Color Scan, Varidex, Subject Terminal Digit, and Geographics.

254:263. ADVANCED DICTATION AND TRANSCRIPTION. 4 *credits.*
Prerequisite, 163 or equivalent. Vocabulary building, general dictation on letters, articles, and standard speed material. Minimum speed requirement of 80 words per minute on new material for five minutes.

254:264. EXECUTIVE DICTATION AND TRANSCRIPTION I. 4 *credits.*
Prerequisite, 263. Specialized vocabularies, dictation on letters, articles, and standard speed material. Minimum speed requirement is 90 words per minute on new material for five minutes.

254:265. EXECUTIVE DICTATION AND TRANSCRIPTION II. 4 *credits.*
Prerequisite, 264. Additional study of Section I with emphasis on vocabulary and speed building. Minimum speed requirement on new material for five minutes is 100 words per minute.

254:267. LEGAL DICTATION AND TRANSCRIPTION I. 4 *credits.*
Prerequisite, 263. 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 90 words per minute on new material for five minutes is required to pass the course.

254:268. LEGAL DICTATION AND TRANSCRIPTION II. 4 *credits.*
Prerequisite, 267. Additional study of legal forms including briefs, subpoenas, depositions, summons, basic pleadings, direct testimonies, patents, trademarks and copyrights. Speed requirement is a minimum of 100 words per minute for five minutes.

254:269. TECHNICAL DICTATION AND TRANSCRIPTION I. 4 *credits.*

Prerequisite, 263. A course designed to develop skill in the writing and transcribing of specialized shorthand dictation for the technical, science, and engineering secretary in the field of rubber and plastics. A minimum speed requirement of 90 words per minute is required.

254:270. TECHNICAL DICTATION AND TRANSCRIPTION II. 4 *credits.*

Prerequisite, 269. A course specializing in speed development and vocabulary training for such fields as Synthetics, Petroleum, Aerospace, Electronics, and Chemistry.

254.282. MEDICAL AND DENTAL TRANSCRIPTION. 3 *credits.*

Prerequisite, 258. Introduction to medical or dental terminology. Emphasis on meaning, pronunciation, spelling, and application of common medical or dental terms, abbreviations, stems, and suffixes as related to the human body—including teeth.

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 quarter.*

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 nations economic development. 110 must precede 111.

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.*

Sequential; 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 AND PROCEDURES I, II, III. 3 *credits each quarter.*

Sequential; 225-226-227 must be completed in prerequisite order. 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 precedures. 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.

284: CHEMICAL TECHNOLOGY

284:101-102. PHYSICAL PRINCIPLES OF CHEMISTRY I AND II. 4 *credits for* 101, 3 *credits for* 102.
Basic facts and principles of chemistry. Nomenclature and introductoin to the reactions of various elements. Important industrial applications. 101 must precede 102.

284:121. ORGANIC PRINCIPLES. 3 *credits.*
Sequential; prerequisite, 102. Nomenclature, classification, chemical properties, and preparation of organic compounds.

284:122. ORGANIC METHODS. 4 *credits.*
Sequential; prerequisite, 121. Continuation of organic principles.

284:201. PRINCIPLES OF ANALYSIS. 4 *credits.*
Sequential; prerequisite, 102. Elementary theory and calculations in analytical chemistry, with emphasis on laboratory methods for identifying various chemical systems both inorganic and organic in nature.

284:202-203. INSTRUMENTAL METHODS I AND II. 4 *credits each quarter.*
Sequential; prerequisite, 201. Instrumentation employed by the chemist, particularly in analysis of chemical systems. Emphasis on equipment, its use, and the interpretation of results. 202 must precede 203.

284:204. CHEMICAL STOICHIOMETRY. 2 *credits.*
Sequential; prerequisite, 202:133. A study of Mathematical problems and relationships found in the chemical industry.

284:208. CHEMICAL QUALITY CONTROL. 2 *credits.*
Sequential; prerequisite, 101 and 202:133. A study of sampling techniques used in the chemical industry. Emphasis will be placed on methods of sampling chemicals and calculators used to set and monitor standards of quality.

284:210-211. SCIENTIFIC GLASS BLOWING I AND II. 1 *credit each quarter.*
Sequential; prerequisite, permission. Laboratory instruction to demonstrate the art of glass blowing. Fabrication and blowing of scientific glassware and chemical apparatus will be stressed. 210 must precede 211.

284:250. ELEMENTS OF PHYSICAL CHEMISTRY. 4 *credits.*
Sequential; prerequisite, 102, 201, 202:234. Fundamental principles governing chemical behavior. Introductory thermodynamics, solution chemistry, chemical equilibrium, phase rule, electro chemistry, chemical kinetics and structure.

284:255. LITERATURE OF CHEMISTRY. 1 *credit.*
Sequential; prerequisite, permission. A study of the literature of chemistry and how it can be used to gather information. Techniques of abstracting and computer application will be introduced. A bibliography suitable for a term paper or research project will be required.

284:270. POLYMER CHEMISTRY METHODS. 4 *credits.*
Sequential; prerequisite, 102, 122, 202:133. A survey of basic polymer preparation and testing methods. Commercially important polymers will be used as lecture and laboratory examples.

286: ELECTRONIC TECHNOLOGY

286:122. CIRCUIT THEORY. 4 *credits.* (3-1)
Sequential; prerequisite, 153. Corequisite: 202:132 and 286:127. Sinusoidal voltages and currents, reactance and impedance, resonance, non-sinusoidal waveforms, methods of circuit analysis.

286:123. ELECTRONICS I. 3 *credits.* (2-1)
Corequisites, 122, 127. Fundamentals of electron devices. Theory and operating characteristics of vacuum and gas tubes, transistors, and other semiconductors.

286:124. ELECTRONICS II. 3 *credits.* (2-1)
Sequential; prerequisite, 123. Basic electronic circuits including power supplies, filters, and voltage and power amplifiers using tubes and transistors.

286:127. MEASUREMENTS. 4 *credits.* (3-1)
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. 3 *credits.* (1-2-3)
Sequential; prerequisite, 123. Fundamentals of electronic drafting. Preparation of various types of electronic drawings. Survey of sources of electronic data and standards.

286:153. ELECTRICITY AND MAGNETISM. 4 *credits.* (4-0-4)
Corequisite, 202:131. Nature of electricity, d-c currents and voltages, Ohm's Law, resistance networks, magnetic and electric field theory, magnetic circuits, inductance and capacitance.

286:225. ELECTRONICS III. 4 *credits.* (3-1)
Sequential; prerequisite, 124. Detailed study of semiconductor electronics. Equivalent circuits and parameters of transistors and other devices. Circuit analysis using frequency response methods.

286:226. INTEGRATED CIRCUITS. 2 *credits.* (1-1)
Sequential; prerequisites, 237, and 245. Characteristics, fabrication, and application of integrated electronic circuits of both analog and digital types.

286:237. DIGITAL COMPUTERS. 4 *credits.* (3-1)
Sequential; prerequisite, 224. Fundamentals of digital computation, Boolean algebra, switching circuits, computer units, analog-digital conversion.

286:242. MACHINERY. 4 *credits.* (3-1)
Sequential; prerequisite, 122. Principles, characteristics, and application of d-c and a-c generators and motors. Basic control circuits for rotating machinery. Power transformers and synchros.

286:245. ANALOG COMPUTERS. 4 *credits.* (3-1)
Sequential; prerequisites, 225, and 202:234. Principles and design of electronic analog computers and associated circuits. Solution of differential equations by analog computer.

286:249. INDUSTRIAL ELECTRONICS. 4 *credits.* (3-1)
Sequential; prerequisites, 225 and 242. Industrial electronic circuits and equipment including welding control, light and heat controls, magnetic amplifiers, speed and voltage regulators.

286:250. ELECTRONIC PROJECTS. 2 *credits.* (1-1)
Sequential; prerequisite, final quarter or permission of instructor. Design, construction, and testing of selected electronic circuit.

286:251. COMMUNICATIONS SYSTEMS. 4 *credits.* (3-1)
Sequential; prerequisite, 225. Principles of radio-wave propagation, modulation and demodulation. Fundamentals and circuits of communications systems including radio, radar, and television.

286:253. CONTROL SYSTEMS. 3 *credits.* (2-1)
Sequential; prerequisites, 245 and 249. Principles of closed loop control systems. Methods of analysis to predict performance. Design of simple servomechanisms.

286:255. SHOP PRACTICES. 1 *credit.* (0-1)
Sequential; prerequisite, 128. Use of hand tools in construction and assembly of electronic equipment including printed circuit fabrication. Techniques of performance testing and trouble shooting.

286:256. CIRCUIT ANALYSIS. 4 *credits.*
Sequential; prerequisites, 122, 202:234, and permission. 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.

288: INDUSTRIAL TECHNOLOGY

288:120. WORK MEASUREMENT PROCEDURES. 5 *credits.*
A study of procedures for determining work methods. The appraisal of the value of work involving human activity in terms of time.

288:141. SAFETY PROCEDURES. 3 *credits.*
Sequential; prerequisite, 640:161. 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.*
The selection and arrangement of the physical facilities that constitute the factory. The selection of the materials handling system that will accomplish the required handling.

288:232. LABOR MANAGEMENT RELATIONS. 4 *credits.*
A study of the labor viewpoint, the management viewpoint, and the effects of governmental regulations on the successful solution of current labor-management disputes.

288:242. PRODUCTION AND QUALITY CONTROL PROCEDURES. 6 *credits.*
Sequential; prerequisite, 202:132. 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.

288:243. SURVEY IN FINANCE. 4 *credits.*
Sequential; prerequisites, 3 credits of Economics and 3 credits of Accounting. A survey of the field including instruments, procedures, practices and institutions. Emphasis on basic principles.

288:245. PLANTS AND EQUIPMENT MAINTENANCE. 3 *credits.*
Sequential; prerequisite, 640:161. The application of scientific management principles to the maintenance functions. Meaning and scope of maintenance control. The organization of maintenance. Preventative Maintenance. Estimating and controlling maintenance costs.

290: INSTRUMENTATION TECHNOLOGY

290:120. INSTRUMENTATION DRAFTING. 3 *credits.* (1-2)
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.* (4-1)
Sequential; prerequisite, 202:153. 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. 4 *credits.* (3-1)
Sequential; prerequisite, 121. General control principles with emphasis on the characteristics of the process being controlled. Includes typical hydraulic, pneumatic and electrical controllers.

290:231. CONTROL SYSTEM ANALYSIS. 4 *credits.* (3-1)
Sequential; prerequisites, 230, 232. Analysis and design of feedback control systems by means of frequency response methods. Includes an introduction to digital control fundamentals.

290:232. COMPUTER PRINCIPLES. 5 *credits.* (4-1)
Sequential; prerequisite, 286:225 and 202:234 Fundamentals of analog and digital computers. Application of computers in process control.

290:240. CALIBRATION AND STANDARDIZATION. 2 *credits.* (0-2)
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.* (1-2)
Sequential; 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 instruments. Freehand sketching. Emphasis on accuracy and drawing techniques.

292:122. TECHNICAL DRAWING II. 3 *credits.*
Sequential; prerequisite, 121. Auxiliary views. Sections and conventions. Theory and technique of dimensioning. Methods of drawing screw threads and a study of the standard form of threads.

292:123. TECHNICAL DRAWING III. 3 *credits.*
Sequential; prerequisite, 122. Intersection and developments. Detail and assembly drawings. Engineering graphs. Force diagrams. Basic descriptive geometry.

292:125. STATICS AND DYNAMICS. 5 *credits.*
Sequential; prerequisite, 202:151 and 131; corequisite, 132. Forces, resultants and couples. Equilibrium of force systems. Trusses, Friction, First Moment of areas. Motions of particles and rigid bodies.

292:241. STRENGTH OF MATERIALS. 5 *credits.*
Sequential; prerequisite, 125. Stress, strain, and stress-strain relationship. Tension. Compression. Torsion. Beams. Columns.

292:242. DESIGN MATERIALS. 4 *credits.*
Sequential; prerequisite, 125; corequisite, 241. Fundamental properties of materials. Testing of material properties. Applications of methods to control properties of materials.

292:243. KINEMATICS. 3 *credits.*
Corequisites, 241, 242. Motions in mechanisms. Graphical solution of vectors. Displacement and velocity problems. Graphical cam layout. Gear trains. Special mechanisms.

292:244. MECHANICAL DESIGN I. 4 *credits.*
Sequential; prerequisites, 241, 242. Design of simple machine elements: springs, shafting, couplings, brakes and clutches, threaded fasteners, belt and gear drives. Selection of components from handbook and catalog information.

292:245. MECHANICAL DESIGN II. 5 *credits.*
Sequential; prerequisite, 244. Machine layouts. Dimension determination from graphical constructions. Limit dimensioning for mass production manufacture. Complete overall design of a simple machine including detail and assembly drawings for each part or sub-assembly.

292:247. SHOP METHODS AND PRACTICES. 4 *credits.*
A study of various machine tools and operations that can be performed on them. Use of hand tools, lathes, shapers, milling machine, grinders and drill press. Manufacturing processes of casting, forging, and welding. Heat treatment.

292:249. APPLIED THERMAL ENERGY. 4 *credits.*
Sequential; prerequisites, 202:153 and 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.*
Sequential; prerequisite, 125; corequisite, 133. Statics and dynamics of fluids. Viscosity, energy and momentum relationships. Applications to fluid machinery and measurement.

298: SURVEYING AND CONSTRUCTION TECHNOLOGY

298:122. BASIC SURVEYING. 4 *credits.*
Corequisite, 202:133. Basic tools and computations of surveying measurement of distances and angles, traverse surveying.

298:223. APPLIED SURVEYING. 4 *credits.*
Sequential; prerequisite, 122. Triangulation, traverses, leveling, map projections.

298:232. CONSTRUCTION...3 *credits.*

Planning of construction operations. Construction equipment and their selection for typical jobs. Safety regulations.

298:233. CONSTRUCTION ADMINISTRATION. 3 *credits.*

Construction specifications. Office organization, preparation of construction documents. Bidding, bonds. Construction management and supervision. Agreements and contracts.

298:235. MATERIALS TESTING LABORATORY. 2 *credits.*

Corequisite, 292:241. Types, selection, properties, and specifications of materials used in construction. General features of mechanical testing. Measurement of load, length and deformation. Study of various testing equipment and their use. Analysis and presentation of data. Reports.

298:242. SOIL MECHANICS. 3 *credits.*

Physical properties of soils. Seepage and frost action. Stability and settlement of shallow foundations. Piles and other deep foundations. Retaining walls. Slope stability. Compaction and stabilization. Soil investigations.

298:243. SOILS LABORATORY. 2 *credits.*

Corequisite, 242. Soil identification and description. Sampling, handling and storing soil samples. Limit tests and grain size analysis. Tests of compaction, consolidation, direct shear. Unconfined compression and triaxial tests on cohesive soils. Use of seismic and soil resistivity devices.

298:245. COST ANALYSIS AND ESTIMATING. 3 *credits.* (3-0)

Elements of cost in construction, determination of unit costs, analysis of cost records, quantity surveys.

Buchtel College of Liberal Arts

310: BIOLOGY

310:121-122-123. PRINCIPLES OF BIOLOGY. 4 *credits each quarter.*
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.

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 quarter.*
Anatomy of human body, chiefly gross study of all organ systems, and their functions. 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.

310:182. CONSERVATION OF NATURAL RESOURCES. 4 *credits.*
Prerequisite, 123. 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 premedical majors. Laboratory.

310:227. TECHNIQUES IN BIOLOGY. 4 *credits.*
Prerequisite, 123. Paraffin, freezing, and squash techniques for preparing tissues. Instruction in instrumentation used in laboratories of biology. Required for all medical technology students.

310:228. TECHNIQUES IN BIOLOGY. 4 *credits.*
Prerequisite, 123. Designed to familiarize the student with common laboratory procedures used in biology.

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.

310:271. GENERAL ECOLOGY. 5 *credits.*
Prerequisite, 123. A study of the interrelationships between organisms and environment. Laboratory.

310:272. ORGANIC EVOLUTION. 4 *credits.*
Prerequisite, 310:123. Early concepts of Evolution. Darwinian Theory and supporting evidence, the mechanism of evolution; molecular evolution; evolutionary trends in plants and animals.

310:301. CELL BIOLOGY. 4 *credits.*
Prerequisites, 310:123; 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; 123. 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. Organic chemistry recommended. 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. 3 *credits.*
Prerequisite, 123. Classification and recognition of autumn-flowering plants of the region. Laboratory.

310:314. PLANT TAXONOMY. 3 *credits.*
Prerequisite, 123. History of plant classification. Current theory and practice of taxonomy. Laboratory.

310:315. SPRING FLORA. 3 *credits.*
Prerequisite, 123. Classification and recognition of spring-flowering plants of region. Laboratory.

310:328. HISTOLOGY. 4 *credits.*
Prerequisite, 123. Study of animal tissues. Laboratory.

310:341. INVERTEBRATE ZOOLOGY. 5 *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. 6 *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.

310:361-362. HUMAN ANATOMY AND PHYSIOLOGY. 4 *credits each quarter.*
Prerequisite, 123, College Chemistry. A study of structure and function of the human body. Laboratory.

310:411-412-413/511-512-513. PLANT PHYSIOLOGY. 4 *credits each quarter.*
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, club-mosses, 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.

310:431/531. PHYSIOLOGY OF THE FUNGI. 4 *credits.*
Prerequisite, Mycology 416. The cultivation, growth, nutrition, metabolism, respiration, composition, and reproduction of fungi. Laboratory.

310:435/535. GENERAL PHYSIOLOGY. 4 *credits.*
Prerequisite, 123, and Organic Chemistry. Fundamental life processes as exhibited in organisms, especially in organ systems of higher vertebrates. Laboratory.

310:437-438. CELLULAR MICROBIOLOGY. 4 *credits each quarter.*
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 quarter.*
Prerequisites, 307, 308, 309, also Organic Chemistry, General Biochemistry recommended. 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 formation, hypersensitivity, immunologic tolerance, and the immune diseases will also be considered. Laboratory.

310:448/548. HUMAN GENETICS. 3 *credits.*
Prerequisite, 123. Principles of genetics in the human, immuno-genetics, mutation, genetics of populations, selection and eugenics.

310:451/551. ANATOMY AND PHYSIOLOGY OF SPEECH AND HEARING. 4 *credits.*
Prerequisite, 121 or 191 and 780:135. 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.

310:453-454-455/553-554-555. DEVELOPMENTAL ANATOMY. 4 *credits each quarter.*
Prerequisite, 123. A sequence designed to introduce the process of vertebrate development. Lecture and laboratory work including descriptive and experimental embryology, phylogenetic development of the major vertebrate orders, and individual student research in developmental anatomy.

310:457/557. EXPERIMENTAL EMBRYOLOGY. 3 *credits.*
Prerequisite or corequisite, 455. 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.

310:458/558. VERTEBRATE ZOOLOGY. 5 *credits.*
Prerequisite, 310:123. Biology of vertebrates, primitive fishes through mammals. Laboratory.

310:467-468-469/567-568-569. BIOLOGICAL PROBLEMS. 1-3 *credits each quarter.*
Prerequisite, permission. Honors work, usually of laboratory investigations. Open to Seniors.

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.*
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.

GRADUATE COURSES

310:601-602. SEMINAR IN BIOLOGY. 1 *credit each quarter.*
Discussion of students' research and papers from the current literature in biology.

310:610-611. PLANT DEVELOPMENT. 4 *credits each quarter.*
Prerequisites, 418-419; 315:263-266; 345:101. Embryology and morphogenesis of plants in relation to physical, chemical, genetic and geometric factors. Laboratory.

310:647-648. CYTOLOGY. 3 *credits each quarter.*
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.

310:667-668-669. MASTERS RESEARCH. 3 *or more credits each quarter.*

315: CHEMISTRY

315:121-122-123. INORGANIC CHEMISTRY. 3 *credits each quarter.*
Designed primarily for students in Home Economics and for laboratory technicians. Fundamental laws and theories of chemistry; the more important elements and their componuds. 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 quarter.*
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 quarter.*
Introduction to basic facts and principles of chemistry. Laboratory.

315:132-133. PRINCIPLES OF CHEMISTRY. 4 *credits each quarter.*
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 AND BIOLOGICAL CHEMISTRY. 3 *credits each quarter.*
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 quarter.*
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 quarter.*
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 quarter.*
Prerequisite, 265 and 345:224 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 quarter.*
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 quarter.*
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. 5 *credits.*
Prerequisite, 268. Constituents of cells and tissues, their organic and fundamental physical chemical properties. Proteins, enzymes, vitamins, carbohydrates, fats, energy relationships, intermediary metabolism.

315:411/511. PHYSICAL CHEMISTRY FOR BIOLOGY MAJORS. 5 *credits.*
Prerequisites, 268 and 345:111 and permission. Gases, thermodynamics, electrochemistry, chemical kinetics, macro-molecules and colloids, special topics in biochemistry, biophysics and molecular biology.

315:421-422/521-522. QUALITATIVE ORGANIC ANALYSIS. 3 *credits each quarter.*
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 quarter.*
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.*
Prerequisites, 315, 318. 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 quarter.*
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 quarter.*
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 quarter.*
Prerequisites, 265, 268. Preparation and identification of polymers to illustrate the methods of polymerization discussed in 601, 602, 603, and 649.

315:609. MICRO-QUANTITATIVE ORGANIC ANALYSIS. 3 *credits.*
Prerequisites, 268, 428 and permission. Microquantitative 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.

315:615. CHEMICAL INSTRUMENTATION I. 3 *credits.*
Prerequisites, 425, 428, or permission. Principles and applications of electrical and electronic devices for chemical analysis. Laboratory.

315:616. CHEMICAL INSTRUMENTATION II. 3 *credits.*
Prerequisite, 615. Principles and applications of various transducers for chemical analysis. Laboratory.

315:617. INSTRUMENTAL METHODS OF ANALYSIS. 3 *credits.*
Prerequisite, 616. Principles and applications of analytical chemical techniques based on physical measurements. Laboratory.

315:621-622-623. ADVANCED PREPARATIONS. 1 *or* 2 *credits each quarter.*
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 quarter.*
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 systemically developed and applied to calculation of thermodynamics properties of various states 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 quarter.*
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 recation and properties of natural and synthetic rubbers, as well as the polymerization processes involved in the formation of the synthetic elastomers.

315:650. PHYSICAL ORGANIC CHEMISTRY I. 3 *credits.*
Corequisite, 610. A study of the criteria for mechanisms of organic reactions: linear free energy relationships, acidity functions, isotope effects, etc.

315:651-652-653. QUANTUM CHEMISTRY. 3 *credits each quarter.*
Prerequisite: 345:225, or permission. Wave mechanics from a postulational 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 MICROCHEMICAL 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 methods 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, 2 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, separations, 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, organometallic 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 macro-molecules, 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 quarter.*

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.

315:689. PHYSICAL ORGANIC CHEMISTRY II. 3 *credits.*

Prerequisite, 650. A study of mechanisms of organic reactions developed from a consideration of the reactive intermediates of organic chemistry: carbonium ions, carbanions, free radicals and carbenes.

315:690. THEORETICAL ORGANIC CHEMISTRY. 3 *credits.*

Prerequisite, 689. The application of modern quantum chemistry and thermodynamics to problems in organic chemistry.

315:691. ADVANCED INSTRUMENTAL ANALYSIS. 2 *credits.*

Prerequisite, 617. Vapor phase chromatographic detector and packing methods and materials. X-Ray and optical spectrometry.

315:692. ADVANCED INSTRUMENTATION. 3 *credits.*

Prerequisites, 318, 428. Theory and application of instrumental measurements. Interpretation of data.

315:805. DOCTORAL RESEARCH. 1 *to* 24 *credits each quarter.*

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 quarter.*

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 quarter.*
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 quarter.*
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 quarter.*
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 quarter.*
Palestine, Syria, 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 quarter.*
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 quarter.*
Prerequisites, 121-122-123 or equivalent. Second-year Greek or 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 quarter.*
Some attention to the development of the Romance languages, especially Italian.

322:143-144-145. SECOND YEAR LATIN. 3 *credits each quarter.*
Selections from Virgil or Pliny; other material may be offered.

(Note: Students who have completed two years of high school Latin will enrol in Latin 143-144-145. Those who have had one year or less will enroll in 121-122-123.)

(Note: Some of the following courses will be given each year. Latin 322:143-144-145 or equivalent is prerequisite.)

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 quarter.*
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

325:243. SURVEY OF ECONOMIC ANALYSIS. 4 *credits.* (For M.B.A. Candidates.)
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 245, 246, 247.)

325:244. INTRODUCTION TO ECONOMIC ANALYSIS. 4 *credits.*
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 245, 246, 247.)

325:245-246-247. PRINCIPLES OF ECONOMICS. 3 *credits each quarter.*
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 Economics 243.

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, 247. Labor economics, principles, and public policy. Development of structure, objectives and policies of unions in the United States. Labor-management relation negotiations of trade agreements, administration of grievance procedures, economic effects of union activities, problems of public control.

325:333. LABOR ECONOMICS. 4 *credits.*
Prerequisite, 325:330. 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.

325:371. DEVELOPMENT OF ECONOMIC INSTITUTIONS. 4 *credits.*
Prerequisite, 247. 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, 247. Institutions of money, banking, and credit, monetary expansion and contraction, public policies affecting this process, development of our money and banking system.

325:400/500. MACRO-ECONOMICS. 4 *credits.*
Prerequisite, 247; recommended 650:346, 347. Changes in the national income, production, employment, price levels, long-range economic growth, short-term fluctuations of economic activity.

325:405/505. PUBLIC FINANCE. 4 *credits.*
Prerequisite, 247. 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 247. Advanced analysis of consumer demand, production costs, market structures, determinants of factor income.

325:420. MATHEMATICAL ECONOMICS I.
4 *quarter hours.*
Prerequisites, 345:103, Economics 325:247. 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, 325:420/520 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. Rudiments of game theory. Dynamic economic analysis; solution techniques; some significant dynamic models from the literature.

325:425/525. QUANTITATIVE ECONOMICS.
4 *credits.*
Prerequisites, 247, 650:346, 347 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. ECONOMIC FORECASTING. 4 *credits.*
Prerequisites, 247, 650:346, 347. 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, 247, 346. 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.

325:432/532. THE ECONOMICS AND PRACTICE OF COLLECTIVE BARGAINING. 4 *credits.*
Prerequisites, 247, 346. 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.

325:450/550. COMPARATIVE ECONOMIC SYSTEMS.
4 *credits.*
Prerequisite 247. 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 in contemporary United States with the state socialism of the Soviet Union.

325:460/560. ECONOMIC DEVELOPMENT AND PLANNING FOR UNDERDEVELOPED COUNTRIES.
4 *credits.*
Prerequisites, 247 and 650:346, 347. 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.

325:461/561. PRINCIPLES OF INTERNATIONAL ECONOMICS. 4 *credits.*
Prerequisite, 247. 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, permission of instructor. 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, 247. Evolution of theory and method, relation of ideas of economists to contemporary conditions.

325:481/581. MONETARY AND BANKING POLICY. 4 *credits.*
Prerequisites, 247, 348. Control over currency and credit, policies of control by central banks and governments, U. S. Treasury and Federal Reserve System.

325:482. MONETARY THEORY. 4 *credits.*
Prerequisite, 325:380. This course aims to provide the student with a background in monetary theory. Questions to be studied include the demand and supply of money, interest rate theory and gold standard and gold flows mechanism.

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.

325:606. FISCAL THEORY AND POLICY. 4 *credits.*
Prerequisite, Graduate standing. 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 conflcts 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. Statics 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.*
Prerequisite, Graduate standing. 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.

325:627. ECONOMETRICS. 4 *credits.*
Prerequisite, Graduate standing. 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.*
Prerequisite, Graduate standing. 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.

325:634. LABOR ECONOMICS. 4 *credits.*
Prerequisite, Graduate standing. 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.*
Prerequisite, Graduate standing. 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.

325:655-656. READING IN ADVANCED ECONOMICS. 4 *credits each quarter.*
Intensive investigation of selected problem-areas in advanced Economics under the supervision of the instructor. Since the subject matter is decided upon in each case, the course may be taken repeatedly for credit.

325:663. SEMINAR ON REGIONAL ECONOMIC DEVELOPMENT. 4 *credits.*
Prerequisite, Graduate standing. 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.

325:665. Economic Planning and Planometrics. 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.

325:667. Seminar on Economic Growth and Development. 4 *credits.*

Prerequisite, Graduate standing. 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.

325:668. Seminar in the Theory of International Trade. 4 *credits.*

Prerequisite, Graduate standing. 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.

325:669. International Economics. 4 *credits.*

Prerequisite, Graduate standing. Historical development of international trade theory is surveyed and brought up to date. Equilibrium in the balance 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.

325:683. 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. 3 *credits each quarter.*

330: ENGLISH

330:237. Representative American Writers. 3 *credits.*

Writers to 1840.

330:238. Representative American Writers. 3 *credits.*

1840-1880.

330:239. Representative American Writers. 3 *credits.*

1880 to present.

330:240-241. Shakespeare. 3 *credits each quarter.*

Sequential. Reading of 15 or more plays, with explanatory lectures and discussions.

330:242-243. Making of Modern English. 3 *credits each quarter.*

Sequential. Review of parts-of-speech grammar, strengths and weaknesses. Introduction to modern linquistic theory, descriptive and generative techniques.

330:244. Appreciation of Drama. 3 *credits.*

330:245. Appreciation of Fiction. 3 *credits.*

330:246. Appreciation of Poetry. 3 *credits.*

Courses 244, 245, and 246 constitute an approach to critical reading.

330:265-266-267. English Literature. 3 *credits each quarter.*

Sequential. 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.

330:275-276-277. The English Bible As Literature. 3 *credits each quarter.*

Sequential. Extensive readings in the Bible with reference to literary values; from Old Testament through Wisdom Books, the Apocrypha, and the New Testament.

330:321-322-323. English Fiction. 3 *credits each quarter.*

Sequential; prerequisite, 267. English fiction from Defoe to Conrad.

330:343. Problems in Expository Writing. 3 *credits.*

Prerequisite, 243 or permission. Writing advanced papers based on individual researchings; careful correction of varied papers to show both errors and means for improvement.

330:350. Advanced Composition. 3 *credits.*

Training in various forms of writing; frequent consultation with instructor.

330:355-356. Continental Drama. 3 *credits each quarter.*

Sequential. Masterpieces of the drama from the Greeks to the present.

330:362. History of the English Language. 3 *credits.*

From Proto-Old English to the present.

330:363-364-365. ENGLISH DRAMA. 3 *credits each quarter.*
Sequential; prerequisite, 267. The Development of English Drama from the Middle Ages to the present.

330:401/501. CHAUCER'S Canterbury Tales. 3 *credits.*
Prerequisite, 267. The *Tales* and other literary works in Middle English.

330:402/502. CHAUCER'S Troilus and Criseyde. 3 *credits.*
Prerequisite, 401. The *Troilus* and other works in Middle English.

330:403/503. MIDDLE ENGLISH LITERATURE. 3 *credits.*
Prerequisite, 401. Middle English literary works from the 12th to the 15th century.

330:404-405/504-505. SIXTEENTH CENTURY LITERATURE. 3 *credits.*
Sequential; prerequisite, 267. Prose and poetry from early Tudor period to later Elizabethan period, excluding drama.

330:406-407/506-507. ANGLO SAXON. 3 *credits each quarter.*
Sequential; prerequisite, 267. From studies in Old English language and Old English prose to selections from old English poetry, including *Bēowulf.*

330:412-413-414/512-513-514. SEVENTEENTH CENTURY LITERATURE: MILTON. 3 *credits each quarter.*
Sequential; prerequisite, 267. Non-dramatic literature from Bacon to Dryden; concentrated study of selected prose and major poems of Milton.

330:415-416/515-516. EIGHTEENTH CENTURY LITERATURE. 3 *credits each quarter.*
Sequential; prerequisite, 267. Works of Pope, Johnson, and other writers of the period.

330:417-418/517-518. SHAKESPEARE. 3 *credits each quarter.*
Sequential; prerequisites, 267, 241. Concentrated study of major plays and poems.

330:419/519. LITERATURE OF THE ROMANTIC PERIOD. 3 *credits.*
Prerequisite, 267. Poetry and prose of the early nineteenth century.

330:420/520. LITERATURE OF THE VICTORIAN PERIOD. 3 *credits.*
Prerequisite, 267. Poetry and prose of the later nineteenth century.

330:421/521. AMERICAN LITERATURE I. 3 *credits.*
Prerequisites, 237, 238, 239. The Colonial Period.

330:422-423/522-523. AMERICAN LITERATURE II, III. 3 *credits each quarter.*
Sequential; prerequisites, 237, 238, 239. Irving to Crane.

330:424-425/524-525. AMERICAN LITERATURE IV, V. 3 *credits each quarter.*
Sequential; prerequisites, 237, 238, 239. The twentieth century, excluding drama.

330:440-441/540-541. TWENTIETH CENTURY ENGLISH LITERATURE. 3 *credits each quarter.*
Sequential; prerequisite, 267. A study of representative works of major British and Irish writers from 1900 to the present.

330:450-451-452. HONORS IN ENGLISH. 3 *credits each quarter.*
Sequential; 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.

330:490/590. SEMINAR: ENGLISH. 3 *credits.*

330:491/591. SEMINAR: ENGLISH. 3 *credits.*

330:492/592. SEMINAR: ENGLISH. 3 *credits.*
Prerequisites for 490, 491, 492 either 267 or 237, 238, 239 depending upon the nature of the Seminar. Special studies, methods of literary research, special concentration in English and American literature.

GRADUATE COURSES

330:603. MODERN LINGUISTICS. 4 *credits.*
Modern synchronic linguistics; studies in applied linguistics.

330:611. INDIVIDUAL READING IN ENGLISH. 3 *credits.*
Study under the direction of a professor guiding the student's individual reading and research.

330:622. SHAKESPEARE'S CONTEMPORARIES IN ENGLISH DRAMA. 5 *credits.*
Readings in such playwrights as Lyly, Marlowe, Johnson, Beaumont, Fletcher, Middleton, and Ford and in contemporary writings pertinent to the theatrical scene.

330:628. VICTORIAN POETS. 5 *credits.*
Major verse of Tennyson, Browning, and Arnold, related poetry and critical studies.

330:632. AMERICAN ROMANTIC FICTION. 5 *credits.*
The meaning of American Romanticism applied to the study of Poe, Hawthorne, and Melville.

330:638. REALISM AND NATURALISM IN AMERICAN FICTION. 3 *credits.*
The meanings of American Realism and Naturalism applied to the study of such writers as

Twain, Howells, James, Crane, Dreiser, London, and Norris.

330:640. LITERARY CRITICISM. 5 *credits.*
The development of European literary criticism from classical times to the present.

330:690. SEMINAR IN ENGLISH. 3 *credits.*

330:691. SEMINAR IN ENGLISH. 3 *credits.*

330:692. SEMINAR IN ENGLISH. 3 *credits.*
Special studies offered in the specialties of the members of the Graduate Faculty as needed.

330:699. RESEARCH ENGLISH: THESIS. 5 *credits.*

331: JOURNALISM

Courses considered to be part of the English department's program are:

331:201. NEWS WRITING. 3 *credits.*
Prerequisite, 110:103. Writing of news stories; applying theory through discussions, illustrative material; actual writing for publication.

331:203. RADIO AND TELEVISION NEWS WRITING. 3 *credits.*
Prerquisite, 110:103. 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.

331:204. EDITING. 3 *credits.*
Prerequisite, 201. Copyreading, headline writing, proofreading, makeup, type and typography, printing machines and processes, newspaper methods and systems.

331:206. FEATURE WRITING. 3 *credits.*
Prerequisite, 110:103. Short newspaper and magazine articles; preparation of articles for publication; human interest situations; extensive writing with class discussions.

331:209. PUBLICATIONS PRODUCTION. 3 *credits.*
Prerequisite, 110:103. 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.

331:335. PUBLICATIONS SUPERVISION. 3 *credits.*
Prerequisites, 201, 204. 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 will be covered.

335: GEOGRAPHY

335:100. WORLD CULTURAL GEOGRAPHY. 3 *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.

335: 220. ECONOMIC GEOGRAPHY. 3 *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.

335:312. GEOGRAPHIC ASPECTS OF LANDFORMS. 3 *credits.*
Distribution patterns of the various types of landforms and their significance for man.

335:314. CLIMATOLOGY. 3 *credits.*
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.

335:324. GEOGRAPHY OF WORLD MANUFACTURING. 3 *credits.*
Manufacturing activities as they evolve under different resource and cultural conditions. Particular emphasis on factors which lead to concentration of manufacturing in specific areas and methods used to measure intensity of concentration.

335:326. GEOGRAPHY OF MINERAL AND POWER RESOURCES. 3 *credits.*
An analysis of the influence of minerals on human activities.

335:336. URBAN LAND USE ANALYSIS. 3 *credits.*
A study of the internal structure of the city with particular emphasis on the methods of defining and mapping the various parts.

335:342. GRAPHIC AND CARTOGRAPHIC REPRESENTATION. 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)

335:346. GEOGRAPHIC ASPECTS OF AIR PHOTO INTERPRETATION. 3 *credits.*
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. 3 *credits.*
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.*
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.*
Regional and topical analysis of geographic relationships in Latin America, south of the equator.

335:356. EUROPE. 3 *credits.*
Regional and systematic analysis of cultural, economic and physical patterns of the continent, excluding the USSR.

335:358. USSR. 3 *credits.*
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. CENTRAL AND EAST ASIA. 3 *credits.*
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.*
Analysis of the relationship of cultural and economic patterns to physical environment in the Indian sub-continent and southeast Asia.

335:362. NORTH AFRICA AND SOUTHWEST ASIA. 3 *credits.*
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.*
Topical and regional analysis of the relationship between cultural, economic and physical environment patterns.

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. GEOGRAPHY OF WATER RESOURCES. 3 *credits.*
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.*
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. GEOGRAPHIC ASPECTS OF TRANSPORTATION. 3 *credits.*
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.*
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. GEOGRAPHIC ASPECTS OF PLANNING. 3 *credits.*
The role of geographic investigation in city, regional and resource planning.

335:435. GEOGRAPHY OF RECREATION RESOURCES. 3 *credits.*
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. GEOGRAPHY OF THE METROPOLITAN AREA. 3 *credits.*
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. MAP COMPILATION AND REPRODUCTION. 3 *credits.*
The non-drafting techniques involved in producing modern maps.

335:448/548. STATISTICAL MAPPING. 3 *credits.*
Problems of cartographic statistical representation. Methods of data manipulation and problems of symbolization are stressed as well as techniques of presentation.

335:481/581. INTRODUCTION TO GEOGRAPHIC RESEARCH. 3. *credits.*
(Prerequisite, 18 hours of geography.) Introduction to the techniques and source materials of geographic research. Statistical measurements and library resources will be stressed. Research papers will be required.

335:484/584. FIELD RESEARCH METHODS. 3 *credits.*
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.*
Investigation and analysis of selected topics in physical geography.

335:620. SEMINAR IN ECONOMIC GEOGRAPHY. 4 *credits.*
Investigation and analysis of selected topics in economic geography.

335:630. SEMINAR IN URBAN GEOGRAPHY. 4 *credits.*
An intensive study of the development of theories and techniques in urban geography and their application to selected problems.

335:640. ADVANCED CARTOGRAPHY. 4 *credits.*
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.*
Investigation and analysis of selected topics in cultural and political geography.

335:680. QUANTITATIVE GEOGRAPHIC RESEARCH. 4 *credits.*
Prerequisite, 335:481. 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.*
A critical study of the methodology applied in the investigation of geographic regions.

335:687. HISTORY OF GEOGRAPHIC THOUGHT. 4 *credits.*
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 department 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 heads. Supervised original research.

337: GEOLOGY

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.*
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.

337:310. 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.

337:311. OCEANOGRAPHY. 4 *credits.*
Prerequisites, 101 and 102. An introduction to the physical processes, geologic history and development of marine areas. Laboratory.

337:313. FIELD METHODS IN GEOLOGY. 3 *credits.*
Prerequisites, 101 and 102 or permission. Introduction to the use of geologic field equipment including Brunton compasses, alidades and plane table surveying, and stereoscopes and aerial photography interpretation.

337:315. STRUCTURAL GEOLOGY. 4 *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.

337:316. CRYSTALLOGRAPHY AND MINERALOGY. 4 *credits.*
Prerequisite, 101 or permission. Study of morphological crystallography and general mineralogy. Laboratory emphasis on mineral recognition based on simple physical tests, thin section and polished section analysis. Laboratory.

337:317. OPTICAL MINERALOGY. 4 *credits.*
Prerequisite, 316. An introduction to the petrographic microscope and its use in the identification of minerals in thin section. The optical properties of common igneous, metamorphic and sedimentary minerals will be studied in detail. Laboratory.

337:318. PETROGRAPHY. 4 *credits.*
Prerequisite, 317 or permission. A basic course in which igneous, sedimentary and metamorphic rocks are described and classified. Laboratory.

337:360. 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.

337:363. MICROPALEONTOLOGY. 5 *credits.*
An introduction to the techniques, systematics and application of micropaleontology. Laboratory.

337:411. PLEISTOCENE GEOLOGY. 4 *credits.*
Prerequisite, 310 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 GEOLOGIC STRUCTURES AND PROCESSES. 2 *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.

337:415. ECONOMIC GEOLOGY. 4 *credits.*
Prerequisites, 315 and 318. A study of metallic mineral assemblages and non-metallic mineral deposits, emphasizing factors controlling deposition and exploration techniques.

337:421. IGNEOUS PETROLOGY. 4 *credits.*
Prerequisite, 318. A study of the origin and paragenesis of igneous rocks; the study of selected rock sites. Laboratory.

337:422. METAMORPHIC PETROLOGY. 4 *credits.*
Prerequisite, 318. Problems in metamorphism and advanced studies of selected rock sites: A study of metamorphic crystallization with changes in environment. Laboratory.

337:423. SEDIMENTARY PETROLOGY. 4 *credits.*
Detailed hand sample and thin section examination of selected sedimentary suites particularly with respect to mineralogy and texture. Laboratory.

337:425. STRATIGRAPHY. 4 *credits.*
Emphasis on the principles of sedimentation and their application in the interpretation of depositional environment and tectonics. Classical stratigraphic sequences will be studied. Laboratory.

337:460. ADVANCED PALEONTOLOGY. 3 *credits.*
Prerequisites, 360 or 363. A study of the major features of evolution including rates of evolution and extinction using as examples selected fossil groups.

337:482. RESEARCH PROBLEMS. 3 *credits.*
Prerequisite, departmental approval. Directed reading and research in special field of interest chosen by student in consultation with the instructor.

340: HISTORY

340:201. UNITED STATES HISTORY TO 1815. 3 *credits.*
From the period of exploration and discovery through the War of 1812.

340:202. UNITED STATES HISTORY, 1815-1898. 3 *credits.*
The emergence of nationalism and sectionalism, the Civil War, Reconstruction, and the new industrial society.

340:203. UNITED STATES HISTORY, 1898-PRESENT. 3 *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. 3 *credits.*
The Renaissance and Reformation, development of the nation states, religious wars, and the Age of Louis XIV.

340:208. MODERN EUROPE, 1715-1870. 3 *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. 3 *credits.*
The modern world: World Wars I and II, Nazism, Communism, Fascism, and postwar Europe.

340:331. AMERICAN ECONOMIC HISTORY, 1607-1837. 3 *credits.*
A survey of economic developments from European 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.

340:332. 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, com-

merce, politics, economic thought, and industrial changes. Special emphasis on the economy and its relationship to public policy.

340:333. AMERICAN ECONOMIC HISTORY, 1917-PRESENT. 3 *credits.*
A survey of economic developments since 1917, treating topically and historically the factors that led to the American free enterprise system. Special emphasis on the rise of modern industry and its relationship to public policy.

340:334. A SPECIAL 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.

340:409/509. DIPLOMATIC HISTORY OF THE UNITED STATES, 1776-1871. 3 *credits.*
Diplomacy of the Revolution, the establishment of basic policies, and the diplomatic problems of wars and expansion.

340:410/510. DIPLOMATIC HISTORY OF THE UNITED STATES, 1871-1920, 3 *credits.*
Diplomacy of the developing nation, of the Spanish-American War and World War I, and the peacemaking, 1919-1920.

340:411/511. DIPLOMATIC HISTORY OF THE UNITED STATES, 1920-PRESENT. 3 *credits.*
The peace structure of the 1920's, its collapse in the 1930's, wartime and postwar diplomacy.

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 NATIONS. 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 to 1863.

340:427/527. RECONSTRUCTION. 3 *credits.*
Politics and conduct of war to 1865; Reconstruction; roots of Jim Crow mentality.

340:429/529. THE UNITED STATES IN THE TWENTIETH CENTURY, 1890-1920. 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.

340:435/535. 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, 1625-1860. 3 *credits.*
The emergence of the American city.

340:437/537. HISTORY OF THE AMERICAN CITY, 1860-1910. 3 *credits.*
The American city during a half century of rapid urban and industrial growth.

340:438/538. HISTORY OF THE AMERICAN CITY, 1910-PRESENT. 3 *credits.*
The creation and growth of great metropolitan centers.

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. RENAISSANCE. 3 *credits.*
Europe in the fifteenth and sixteenth centuries, its political, social, economic, and cultural history with special emphasis upon Italy.

340:449/549. THE REFORMATION AND ABSOLUTISM. 3 *credits.*
Europe from the Protestant Reformation to 1715, its religious, political, and cultural development with special emphasis upon French absolutism.

340:450/550. ENLIGHTENMENT AND REVOLUTION. 3 *credits.*
Europe from 1715 to 1815, its political, social and intellectual development during the Enlightenment and the periods of the French Revolution and Napoleon.

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.

340:463/563. ENGLAND TO 1530. 3 *credits.*
Anglo-Saxon and medieval England.

340:464/564. ENGLAND, 1530-1750. 3 *credits.*
Early modern England, an age of transition.

340:465/565. ENGLAND, 1750 TO THE PRESENT. 3 *credits.*
Modern Britain and the Empire-Commonwealth.

340:467/567. ENGLAND, 1471-1588. 3 *credits.*
The transition from medieval to modern times. Emphasis on economic, social, religious and cultural history, especially music and architecture.

340:468/568. ENGLAND, 1588-1660. 3 *credits.*
From the Armada to the Restoration.

340:469/569. ENGLAND, 1660-1763. 3 *credits.*
The Restoration, the Glorious Revolution, and the early Hanoverians.

340:477. HISTORY OF WESTERN SCIENCE AND TECHNOLOGY TO 1500. 3 *credits.*
Science and technology in ancient and medieval times, to 1500.

340:478. HISTORY OF WESTERN SCIENCE AND TECHNOLOGY, 1500-1800. 3 *credits.*
A study of developments leading to the scientific revolution.

340:479. HISTORY OF WESTERN SCIENCE AND TECHNOLOGY, 1800-PRESENT. 3 *credits.*
The specialization and professionalization of Science in the Nineteenth and Twentieth centuries.

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.

340:490/590. 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. 3 *credits.*
Political history, social revolution, and contemporary problems.

340:493/593. U.S.-LATIN AMERICAN RELATIONS. 3 *credits.*
Latin American problems and policies; Monroe Doctrine, the O.A.S., intervention.

340:494/594. U.S.-LATIN AMERICAN RELATIONS. 3 *credits.*
Latin American problems and policy; militarism, social revolution, recent trends.

340:496/596. HISTORY OF MEXICO. 4 *credits.*
Indian civilizations to the present with emphasis upon relations with the United States.

340:498/598. HISTORIOGRAPHY. 4 *credits.*
Historians and historical writing in Europe and America; experience in research.

GRADUATE COURSES

340:611-612-613. INDIVIDUAL READING. 3 *credits each quarter.*
Permission required.

340:620-621. SEMINAR ON GREECE.
2 *credits each quarter.*
This seminar in Greek history will be generally but not necessarily restricted to topics dealing with the archaic and formative periods.

340:622-623. SEMINAR ON ROME.
2 *credits each quarter.*
This seminar in Roman history will be generally but not necessarily restricted to topics dealing with the archaic and formative periods.

340:627-628. SEMINAR IN THE HISTORY OF THE AMERICAN REVOLUTION. 2 *credits each quarter.*
Selected topics in the development of the British colonies, the Revolutionary movement, the War for Independence, and the early Confederation, and the creation of the new government. These topics include the historiography of the era and its various schools of interpretation as to the nature and causes of the Revolution and its diverse character.

340:629-630. SEMINAR IN EARLY NINETEENTH CENTURY UNITED STATES HISTORY.
2 *credits each quarter.*
Selected topics on the period including historiography. Special emphasis on Jeffersonian Democracy, reformism, and the coming of the Civil War.

340:631-632. SEMINAR IN AMERICAN ECONOMIC HISTORY. 2 *credits each quarter.*
Selected topics in the development and operation of the American economy.

340:633-634. SEMINAR IN AMERICAN SOCIAL AND INTELLECTUAL HISTORY. 2 *credits each quarter.*
Selected topics will be investigated in depth.

340:635-636. SEMINAR IN THE ECONOMIC AND SOCIAL HISTORY OF EUROPE, 1750 TO THE PRESENT. 2 *credits each quarter.*
Selected topics in European economic and social history.

340:643-644. SEMINAR IN EUROPEAN INTELLECTUAL HISTORY. 2 *credits each quarter.*
Selected topics will be investigated in depth.

340:671-672. SEMINAR IN THE HISTORY OF FRANCE. 2 *credits each quarter.*
Selected topics will be investigated in depth, with emphasis upon the French Revolutionary era.

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.

345: MATHEMATICS

345:100. MATHEMATICS LABORATORY. 0 *credits.*
Opportunity for individual work under staff guidance. For students enrolled in Elementary Functions and Analytical Geometry-Calculus.

345:101-102-103. FINITE MATHEMATICS I, II, III. 3 *credits each quarter.*
Sequential; prerequisite, one year of high school algebra. Sets, logic, factoring, functions, graphing, linear and quadratic equations, inequalities, progressions, permutations and combinations, binomial expansion, mathematical induction, matrices and determinants, linear programming, game theory, probability and introduction to the calculus.

345:111. ELEMENTARY FUNCTIONS. 5 *credits.*
Sequential; prerequisite, high school algebra and trigonometry. An introduction to elementary function theory. Sets, number systems; polynomial, circular, inverse trigonometric functions; binomial theorem, mathematical induction, progressions.

345:160. COMPUTER SCIENCE I. 3 *credits.*. (2-1)
Introduction to stored program digital computers—their application and use. Concepts, computer components, problem analysis, programming, and coding using a compiler language.

345:204. ASTRONOMY. 3 *credits.*
The earth as a body in space, other planets; the moon and other satellites; comets, meteorites; solar system and its motions; analysis of light; the sun and other stars, star clusters, nebulae, Milky Way, external galaxies; structure of universe.

345:205. HISTORY OF MATHEMATICS. 3 *credits.*
Prerequisite, 111 (or equivalent). Origin and development of mathematical ideas and processes.

345:206. ACTUARIAL MATHEMATICS. 3 *credits.*
Prerequisite 111 (or equivalent). Interest procedures, annuities, amortization, sinking funds, bonds, stocks, depreciation, formulas for life insurance, premiums, valuation procedures, construction of mortality tables.

345:207. EMPIRICAL EQUATIONS AND NOMOGRAPHY. 3 *credits.*
Prerequisite, 222. Correlation of data involving two or three variables by empirical methods; nomographic methods for evaluation of empirical formulas.

345:221-222-223-224. ANALYTIC GEOMETRY-CALCULUS I, II, III, IV. 5 *credits each quarter.*
Sequential; prerequisite, 111 (or equivalent). Equations 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.

345:225. DIFFERENTIAL EQUATIONS. 5 *credits.*
Prerequisite, 224. Infinite series; methods of forming and solving important types of ordinary and some partial differential equations; applications of differential equations to science.

345:260. COMPUTER SCIENCE II. 3 *credits.* (2-1)
Prerequisite, 160. A continuation of 160 with stress on the use of the computer as a problem-solving tool at the machine language or assembler language level.

345:311. ABSTRACT ALGEBRA. 3 *credits.*
Prerequisite, 222. Introduction to groups, rings, integral domains, axiomatic foundation of the natural numbers, integer number system, fields, rational numbers, real and complex number systems.

345:312. LINEAR ALGEBRA. 3 *credits.*
Sequential; prerequisite, 311. Extension of concepts relating to groups, vector spaces, matrices and determinants, linear transformations, polynomial algebra.

345:360. COMPUTER SCIENCE III. 3 *credits.* (2-1)
Prerequisites, 260 and 224. A continuation of 260 with particular emphasis on algorithmic processes, special computer techniques, problem solving, timing, and evaluation. An overview of current applications, research, and development in computer science and related fields.

345:401/501. THEORY OF NUMBERS. 3 *credits.*
Prerequisite, 224. Development of an integral domain, prime numbers, Euler's algorithm, congruence, Euler's Phi function, quadratic residues, Pell equation, Waring's problem.

345:413/513. INTRODUCTION TO TOPOLOGY. 3 *credits.*
Prerequisite, 312. Introduction to topological spaces and topologies, functions, mappings, homeomorphisms, connected spaces, compact spaces, metric spaces.

345:414/514. HIGHER ALGEBRA. 3 *credits.*
Prerequisite, 223. Mathematical induction, partial fractions, complex number system, binomial theorem, multinomial theorem, summation of series, limits, infinitesimals, convergency and divergency of series, power series, inequalities, continued fractions and applications to indeterminate equations, theory of numbers, probability, method of least squares.

345:421-422/521-522. ADVANCED CALCULUS I, II. 3 *credits each quarter.*
Sequential; prerequisite, 224. An introduction to the real number system, sequences and series, limits, continuity, differentiation, partial differentiation, integration, multiple integration, uniform convergence.

345:423/523. ADVANCED MATHEMATICAL ANALYSIS. 3 *credits.*
Prerequisite, 422. Topics to include maxima and minima of several variables, transformations, improper integrals, line and surface integrals, approximate integration, complex variable.

345:425/525. THEORY OF FUNCTIONS OF A COMPLEX VARIABLE. 3 *credits.*
Prerequisite, 224. Complex numbers, analytic functions, elementary functions of a complex variable, mapping and geometry of elementary functions, theory of integrals, power series, residues and poles, conformal mapping.

345:427-428/527-528. NUMERICAL ANALYSIS I, II. 3 *credits each quarter.*
Sequential; prerequisite, 225. 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, 225. 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, 431. Partial differentiation and integration, Lagrange equations, linear partial differential equations, boundary value problems.

345:433/533. LAPLACE TRANSFORMS. 3 *credits.*
Prerequisite, 225. Applied properties, differentiation and integration of transforms, convolution

theorem; transforms of unit, impulse, and periodic functions; applications to differential equations.

345:434/534. VECTOR ANALYSIS. 3 *credits.*
Prerequisite, 224. 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.

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, differentation of tensors, applications.

345:441/541. NON-EUCLIDEAN GEOMETRY. 3 *credits.*
Prerequisite, 223. 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, 312 (or equivalent). 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.

345:460. SPECIAL TOPICS IN COMPUTER SCIENCE. 3 *credits.* (2-1)
Prerequisite, 360. Special topics in computer science primarily oriented toward applications, research, and problem solving. With the instructor's permission, a student may elect to take this course on an individual project basis.

GRADUATE COURSES

345:610. MATRIX ALGEBRA. 3 *credits.*
Prerequisite, 225. Study of techniques used in matrices-symmetric-Hermetian, 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 quarter.*
Sequential; prerequisite, 312. Study of abstract mathematical systems, axiomatic set theory, properties of groups and rings, fields, vector spaces, ideals, lattices, and sentential calculus.

345:614. TOPOLOGY. 3 *credits.*
Prerequisite, 413. Sets, topological spaces, product and quotient spaces, embedding and metrization, compact spaces, uniform spaces.

345:621-622-623. FUNCTIONS OF A REAL VARIABLE I, II, III. 3 *credits each quarter.*
Sequential; prerequisite, 423. 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 quarter.*
Sequential; prerequisite, 423. 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.

345:641. ALGEBRAIC GEOMETRY. 3 *credits.*
Prerequisite, 312. 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, 422. An introduction to the theory of curves and surfaces in three dimensions, intrinsic geometry of a surface, the geometry of surfaces in the large.

345:698-699. MATHEMATICS AND STATISTICS SEMINAR I, II. 3 *credits each quarter.*
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.

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 quarter.*
Sequential; prerequisite, 345:101 (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.

347:450/550. PROBABILITY. 3 *credits.*
Prerequisite, 345:223. 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 quarter.*
Sequential; prerequisite, 345:225. 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.

347:461-462/561-562. STATISTICAL METHODS I, II. 3 *credits each quarter.*
Sequential; prerequisite, 345:101 (or equivalent). Scientific inference using frequency distributions, tests of significance, point and interval estimation, regression and correlation, analysis of variance, covariance, linear programming, quality control, game theory, sequential analysis, sampling, non-parametric statistics, Markov Chains.

347:463/563. EXPERIMENTAL DESIGNS. 3 *credits.*
Prerequisite, 252 (or equivalent). Fundamental principles of designs, randomized blocks, latin squares, factorial design, individual comparisons, confounding, applications to problems in applied fields.

347:464/564. SAMPLING TECHNIQUES. 3 *credits.*
Prerequisite, 252. Statistical aspects of sampling, general discussion of methods of drawing samples, evaluation of sample surveys.

GRADUATE COURSES

347:651-652-653. MATHEMATICAL STATISTICS I, II, III. 3 *credits each quarter.*
Sequential; prerequisite, 345:422. 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 to nonparametric statistics.

347:661. REGRESSION AND CORRELATION. 3 *credits.*
Prerequisite, 653. 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. ANALYSIS OF VARIANCE. 3 *credits.*
Prerequisite, 653. The general linear model in matrix notation, experimental design models, analysis of variance and covariance, variance components, response surfaces.

347:663-664. APPLIED STATISTICS I, II. 3 *credits each quarter.*
Sequential; prerequisite, 453 or 653. 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.

347:665-666. ADVANCED TOPICS IN STATISTICS I, II. 3 *credits each quarter.*
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, 345:225 and one course in statistics. Translation of statistical operations into machine language. Iterative procedures, recursion formulas.

352: FRENCH

352:101-102-103. BEGINNING FRENCH. 4 *credits each quarter. Sequential.*
Reading, speaking, writing and listening comprehension; intensive drill in pronunciation, short stories, outside reading and/or supplementary work in the Language Laboratory.

352:201-202-203. INTERMEDIATE FRENCH. 3 *credits each quarter. 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.

352:205. FRENCH READINGS FOR NON-MAJORS. 0 *credits.*
3 hours per week. 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.

352:301-302-303. FRENCH COMPOSITION AND CONVERSATION. 3 *credits each quarter. Sequential.*
Prerequisite, 203 (or equivalent). Advanced composition using French models, special attention to words and idioms, development of oral expression and conversational ability.

352:305-306-307. INTRODUCTION TO FRENCH LITERATURE. 3 *credits each quarter. Sequential.*
Prerequisite, 203 (or equivalent). Introduction to the study of French literature; the fundamentals of *explication de texte;* with reading and class discussion in French of representative works.

352:401. FRENCH PHONETICS. 1 *credit.*
Prerequisite, 203 (or equivalent). Intensive drill in pronunciation with correction and improvement

of student's accent, emphasis on articulation and intonation by use of phonograph records and individual tape recordings made by the student.

352:403-404-405. ADVANCED FRENCH COMPOSITION AND CONVERSATION.
3 *credits each quarter. Sequential.*
Prerequisite, 303 (or equivalent). A continuation of the material covered in 301, 302, and 303 at a more advanced level.

352:407-408-409/507-508-509. FRENCH LITERATURE OF THE MIDDLE AGES AND THE RENAISSANCE. 3 *credits each quarter. Sequential.*
Prerequisite, 303 or 307 or permission. Aristocratic and non-aristocratic literature including epics, chansons de geste, romans, fabliaux, and poetry from the beginning to the fifteenth century. Discussion based on modern French translations; representative works of the Renaissance period, including Rabelais, Marguerite de Navarre, Marot, the School of Lyons, the Pleiade, religious writers, and Montaigne.

352:411-412-413/511-512-513. SEVENTEENTH CENTURY FRENCH LITERATURE.
3 *credits each quarter. Sequential.*
Prerequisite, 303 or 307 or permission. Representative works of the seventeenth century writers Malherbe, Théophile, Boileau, La Fontaine, Corneille, Racine, Molière, Descartes, Pascal, Bossuet, La Rochefoucauld, La Bruyère, Mme. de Sévigné and Mme. de la Fayette.

352:415-416-417/515-516-517. THE AGE OF ENLIGHTENMENT. 3 *credits each quarter. Sequential.*
Prerequisite, 303 or 307 or permission. French literature of the eighteenth century.

352:419-420-421/519-520-521. THE NINETEENTH CENTURY FRENCH NOVEL. 3 *credits each quarter. Sequential.*
Prerequisite, 303 or 307 or permission. Study of the novel of the nineteenth century with reading and class discussion in French of representative works.

352:423-424-425/523-524-525. NINETEENTH CENTURY FRENCH POETRY AND DRAMA.
3 *credits each quarter. Sequential.*
Prerequisite, 303 or 307 or permission. Poetry and drama of the nineteenth century with emphasis on the works of Lamartine, Hugo, Vigny, Musset, Dumas père, Scribe, Dumas fils, Baudelaire, Verlaine, Rimbaud, Mallarmé, Becque, Le Théâtre libre, Rostand and Maeterlinck.

352:427-428-429/527-528-529. TWENTIETH CENTURY FRENCH LITERATURE.
3 *credits each quarter. Sequential.*
Prerequisite, 303 or 307 or permission. Representative plays, novels and poems by Gide, Proust, Valéry, Claudel, Bernanos, Péguy, Giraudoux, Cocteau, Anouilh, Malraux, Sartre, Camus and others.

352:491-492-493. INDIVIDUAL READING IN FRENCH.
1 *to* 3 *credits each quarter.*
Prerequisite, permission.

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 FRENCH LINGUISTICS. 3 *credits each quarter.*
Studies in Romance Linguistics with particular emphasis on linguistic developments and methodology in French; application of essential linguistic principles in learning and teaching French.

352:607-608-609. SELECTED TOPICS IN THE MOVEMENT OF FRENCH IDEAS.
3 *credits each quarter.*
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 in this course.

352:611-612-613. CONTEMPORARY FRENCH CULTURE AS EXPRESSED IN LITERATURE.
3 *credits each quarter.*
An anthropological approach to 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 consciously and unconsciously expressed in nineteenth and twentieth century literature.

352:615-616-617. INDIVIDUAL READING AND RESEARCH SEMINAR. 3 *credits each quarter.*
Special studies and methods of research.

352:690. THESIS WRITING. 5 *credits.*

353: GERMAN

353:101-102-103. BEGINNING GERMAN.
4 *credits each quarter. 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.
3 *credits each quarter. 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. 0 *credits.*
3 hours per week. 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.

353:301-302-303. GERMAN COMPOSITION AND CONVERSATION. 3 *credits each quarter. Sequential.*
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 quarter. Sequential.*
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 quarter. Sequential.*
Prerequisite, 303 (or equivalent). A continuation of the material covered in 301, 302 and 303 at a more advanced level.

353:419-420-421/519-520-521. THE AGE OF GOETHE. 3 *credits each quarter. Sequential.*
Prerequisite, 203 (or equivalent). Representative poems, dramas, essays, and novels of Klopstock, Wieland, Lessing, Goethe and Schiller with emphasis on the achievements of Goethe and Schiller.

353:431-432-433/531-532-533. MODERN GERMAN DRAMA. 3 *credits each quarter. Sequential.*
Prerequisite, 203 (or equivalent). Representative works of the major German dramatists since Goethe, including Kleist, Grillparzer, Hebbel, Hauptmann, Kaiser, Zuckmayer, Brecht, Dürrenmatt, and others.

353:435-436-437/535-536-537. THE GERMAN SHORT STORY. 3 *credits each quarter. Sequential.*
Prerequisite, 203 (or equivalent). The short story as an art form in its historical development. Reading and discussion of short stories by Tieck, Hoffman, Kleist, Raabe, Ebner-Eschenbach, Keller, Storm, Hauptmann, Mann, Rilke, Schnitzler and Kafka.

353:439-440-441/539-540-541. TWENTIETH CENTURY GERMAN LITERATURE. 3 *credits each quarter. Sequential.*
Prerequisite, 203 (or equivalent). Representative novels, essays and poetry of Hauptman, Hofmannsthal, George, Rilke, Benn, Kaiser, Werfel, Zuckmayer, Mann, Döblin, Kafka and others with emphasis on ideas and interpretations of life.

353:491-492-493. INDIVIDUAL READING IN GERMAN. 1-3 *credits each quarter.*
Prerequisite, permission.

355: ITALIAN

355:101-102-103. BEGINNING ITALIAN. 4 *credits each quarter. 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. 3 *credits each quarter. 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: RUSSIAN

357:101-102-103. BEGINNING RUSSIAN. 4 *credits each quarter. 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. 3 *credits each quarter. 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.

357:301-302-303. RUSSIAN COMPOSITION AND CONVERSATION. 3 *credits each quarter. Sequential.*
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 quarter. Sequential.*
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 quarter. Sequential.*
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 quarter. Sequential.*
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 quarter. Sequential.*
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 quarter.*
Prerequisite: permission.

358: SPANISH

358:101-102-103. Beginning Spanish. 4 *credits each quarter. 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.
3 *credits each quarter. 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.

358:301-302-303. Spanish Composition and Conversation. 3 *credits each quarter. Sequential.*
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 quarter. Sequential.*
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 linquistics, 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. Commercal 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 quarter. Sequential.*
Prerequisite, 303 (or equivalent). A continuation of the material covered in 301, 302, and 303 at a more advanced level.

358:411-412-413/511-512-513. Spanish Literature of the Golden Age.
3 *credits each quarter. Sequential.*
Prerequisite, 203 (or equivalent). It is recommended that 301-302-303, and 305-306-307 be completed before enrolling in this course. 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 quarter. Sequential.*
Prerequisite, 203 (or equivalent). It is recommended that 301-302-303, and 305-306-307 be completed before enrolling in this course. Reading, discussion and lectures. Study of Neoclasicismo, 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 quarter. Sequential.*
Prerequisite, 203 (or equivalent). It is recommended that 301-302-303, and 305-306-307 be completed before enrolling in this course. 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 quarter. Sequential.*
Prerequisite, 203 (or equivalent). It is recommended that 301-302-303, and 305-306-307 be completed before enrolling in this course. 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 quarter.*

Prerequisite, 203 (or equivalent). It is recommended that 301-302-303, and 305-306-307 be completed before enrolling in this course. 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 quarter.*

Prerequisite, permission.

GRADUATE COURSES

358:601-602-603. MEDIEVAL AND RENAISSANCE SPANISH LITERATURE. 3 *credits each quarter.*

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. SEMINAR IN HISPANIC LINGUISTICS. 5 *credits.*

Present-day methods of comparative, historical, and structural linguistics. Research work in Castilian and Spanish American linguistics. Offered in accordance with student needs. Conducted in Spanish.

358:607. SEMINAR IN HISPANIC BIBLIOGRAPHY AND IN RESEARCH METHODS. 5 *credits.*

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 quarter.*

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 ON SPANISH AMERICAN LITERATURE. 3 *credits each quarter.*

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.

358:690. THESIS WRITING. 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".

360:130. COMPARATIVE RELIGION. 4 *credits.*

Prerequisite, 101. The insights and teachings of the major living religions compared and analyzed by a study of their basic texts; Buddhism, Hinduism, Confusianism, Taoism, Judaism, Christianity, Islam.

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 PHILOSOPHY I. 4 *credits.*

Prerequisite, one philosophy course or permission of instructor. The history of Western thought, including its scientific, religious, social and political circumstances from Pre-Socratics through Plotinus.

360:212. HISTORY OF PHILOSOPHY II. 4 *credits.*

Prerequisite, 211 or permission of instructor. A continuation of 211 from St. Augustine through the Renaissance and Reformation.

360:213. HISTORY OF PHILOSOPHY III. 4 *credits.*

Prerequisite, 212 or permission of instructor. A continuation of 212 from Descartes through Hegel, Mill and Schopenhauer.

360:216. CLASSICAL AMERICAN PHILOSOPHY. 4 *credits.*

Prerequisite, one course in philosophy. The movement of ideas in America is examined from Puritanism to pragmatism, not only as it reflects the stream of Western ideas, but especially as it may be said to contain a particularly American philosophy in development.

360:222. ETHICAL ANALYSIS. 4 *credits.*

Prerequisite, 120 or two courses in philosophy. The examination and analysis of ethical problems such as the "is-ought" dichotomy, the relation of language to ethics as well as types of ethical theories.

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.

360:334. CONTEMPORARY PROBLEMS IN PHILOSOPHY OF RELIGION. 4 *credits.*
Prerequisite, 232 or permission of instructor. An examination of contemporary religious ideas through acquaintance with the thought of Buber, Tillich, Bonhoffer, Barth, Bultmann, Altizer, *et al.*

360:372. INDUCTIVE LOGIC AND SCIENTIFIC METHOD. 4 *credits.*
Prerequisites, 170 and one other course in philosophy. Problems of inductive inference, probability theory, sampling, verification, hypothetico-deductive method.

360:417. CONTEMPORARY CONTINENTAL PHILOSOPHY. 4 *credits.*
Prerequisites, 211, 212 and 213; or permission of instructor. Analysis and discussion of the major trends in Continental philosophy; Neo-Kantianism, Existentialism and Phenomenology, Neo-Hegelianism, and Marxist revisionism.

360:418. CONTEMPORARY BRITISH AND AMERICAN PHILOSOPHY. 4 *credits.*
Prerequisites, 211, 212 and 213; or permission of instructor. An analysis and discussion of the major trends in recent British and American philosophy; pragmatism, logical empiricism, linguistic analysis, logical analysis, and naturalism.

360:452/552. AESTHETICS. 4 *credits.*
Prerequisite, 250 or permission of instructor. An analysis of the elements of aesthetic experience, aesthetic judgment and the aesthetic object.

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.

360:466/566. SEMINAR: SPECIAL PROBLEMS IN PHILOSOPHY OF SCIENCE. 4 *credits.*
Prerequisite, permission of department member.

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.

360:488-489. COORDINATING SEMINARS I, II.
2 *credits each quarter.*
Sequential. Individual work course for majors, in which the materials and insights of the area of concentration are combined into a thesis in the light of the general principles of philosophic criticism. Open to philosophy majors by permission of department head.

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.

360:612. MEDIEVAL PHILOSOPHY. 4 *credits.*
Prerequisite, 611. Continuation of 611, from the Patristics through the breakup of Scholasticism.

360:613. RENAISSANCE AND EARLY MODERN PHILOSOPHY. 4 *credits.*
Prerequisite, 612. Continuation of 612, from Renaissance Humanism and Cosmology to Kant.

360:614. MODERN PHILOSOPHY. 4 *credits.*
Prerequisite, 613. Continuation of 613, from Kant through Nietzsche.

360:616. EXISTENTIAL PHENOMENOLOGY. 4 *credits.*
This course presents the classical phenomenological tools: intentionality, eidetic reduction and noetic-noematic distinctions. The phenomenon of the "lived-world" is explored via the phenomenological method, centering on the experience of freedom, death and anxiety in their ontological significance. Emphasis will be placed upon specific readings in the problem areas derived from the existential and phenomenological literature.

360:617. LOGICAL EMPIRICISM. 4 *credits.*
An analysis and discussion of the positivistic approach to the problems of truth and confirmation, meaning and verification, and sensation and

observation; considerable emphasis upon the "interdisciplinary problems" raised by this approach, such as the problems of law and explanation in history. Reading covering the works of Ayer, Russell, (the early) Wittgenstein, Carnap, Hempel, Scriven, Dray, Gardiner, *et al.*

360:618. ANALYTIC PHILOSOPHY. 4 *credits.*
Analysis and 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.*

360:681. SEMINAR. 4 *credits.*

360:682. SEMINAR. 4 *credits.*

360:685. SEMINAR: PROBLEMS IN PHENOMENOLOGY. 4 *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 quarter.*
Prerequisites, high-school algebra and trigonometry, or 345: 111 as a corequisite. General physics, intended primarily for liberal arts students who are not science majors; 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.

365:201-202-203. ELEMENTARY CLASSICAL PHYSICS I, II AND III. 4 *credits each quarter.*
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 non-coherent sources. Vectors and a limited amount of calculus are introduced as needed.

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 quarter.*

365:397-398-399. UNDERGRADUATE RESEARCH I, II AND III. 1 to 6 *credits each quarter.*
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 AND III. 3 *credits each quarter.*
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, 345:224. 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 AND III. 2 *credits each quarter.*
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, semiconductors and other materials. Photoelectric effect. Charge on the electron.

365:420/520. Optics. 4 *credits.*
Prerequisites, 203 and 345:224. 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.*
Prerequisites, 203 and 345:224. 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 and III. 3 *credits each quarter.*
Prerequisite, 203; corequisite, 345:225. 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, spatial 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 and III. 3 *credits each quarter.*
Prerequisite, 203; corequisite, 345:225. 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 and III.
2 *credits each quarter.*
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, 403. 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 and III.
1 *credit each quarter.*
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; 345:225 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 and III.
2 *credits each quarter.*
Prerequisites, 203, 345:225 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, 433, 345:225 or permission of instructor. A brief introduction to the concepts of quantum mechanics; correspondence principle, uncertainty principle, state functions, Schroedinger'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 and III.
3 *credits each quarter.*
Prerequisites, 203, 345:225, 345:421 and senior or 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 trans-

form, 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 AND III. 3 *credits each quarter.*

Prerequisites, 301 or 407 and 345:225, 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.

365:611-612-613. PHYSICAL PROPERTIES OF MATTER I, II AND III. 3 *credits each quarter.*

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 AND III. 3 *credits each quarter.*

Prerequisites, 301, 345:225 or permission of instructor. Elements of atomic theory; line spectra; electron spin and multiplet structure; the building-up principle and the periodic system of the elements; spectral 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 AND III. 2 *credits each quarter.*

Prerequisite, 345-225 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 AND III. 2 *credits each quarter.*

Prerequisite, 201; corequisites, 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 AND III. 4 *credits each quarter.*

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 change 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 AND III. 3 *credits each quarter.*

Prerequisites, 430 and 345:225. 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 AND III. 3 *credits each quarter.*

Prerequisites, 433, 443, 345:225 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, Harmitian 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, 403, 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 AND III. 3 *credits each quarter.*
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 waves 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.*
Not open to upperclassmen. 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.*
Cannot be used for credit toward 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.

370:200. 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. 3 *credits.*
Prerequisite, 100. An examination of institutions, processes and intergovernmental relations at the state and local level.

370:220. AMERICAN FOREIGN POLICY: PROCESS AND PROBLEMS. 5 *credits.*
An examination of American foreign policy with emphasis on the policy-making process; public opinion and other limitations on policy; specific contemporary policy problems in selected areas.

370:300. CLASSICAL POLITICAL THOUGHT. 5 *credits.*
Prerequisite, 100 or 330, or permission. A study of the ideas and concepts of political theory from the Greeks to Machiavelli.

370:301. MODERN POLITICAL THOUGHT. 5 *credits.*
Prerequisite, 100 or 330, or permission. A study of the major thinkers and writers of political thought from Machiavelli to Marx.

370:302. AMERICAN POLITICAL IDEAS. 3 *credits.*
Prerequisite, 100 or 330, or permission. A study of the major thinkers and writers of American political thought.

370:310. INTERNATIONAL POLITICS. 3 *credits.*
Prerequisite, 100 or 200. Relations among nations examined in the political context.

370:320. BRITAIN AND THE COMMONWEALTH. 3 *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. 3 *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 POLITICS. 3 *credits.*
Prerequisite, 200. Theory and practice of government and politics in the Soviet Union, with minor references to the Communist nations of Eastern Europe.

370:323. EAST ASIAN POLITICS. 3 *credits.*
Prerequisite, 200. Government and Politics in China and Japan, with minor emphasis on other governments in the East Asian area.

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. 3 *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. 3 *credits.*
Prerequisite, 200 or permission. An examination of the governmental structures and political processes of the emerging nations. The political patterns of Southeast Asia and Africa will be emphasized.

370:330. American National Government. 4 *credits.*
Prerequisite, Junior standing. An intensive analysis of the American political system. Blends constitutional, legal and institutional analyses with relevant findings from modern behavioral research.

370:340. American Political Parties and Interest Groups. 3 *credits.*
Prerequisites, 100 or 330. 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 Legislative Process. 3 *credits.*
Prerequisites, 100 or 330. Examination of the American legislative process on all governmental levels with emphasis on the U.S. Congress. The structure and role of the legislature and of parties and other agencies that affect legislative processes.

370:350. The American Presidency. 3 *credits.*
Prerquisites, 100 or 330. The Presidency as the focal point of politics, policy, and leadership in the American political system.

370:360. The Supreme Court and Constitutional Law. 3 *credits.*
Prerequisites, 100 or 330. The development of the U.S. Constitution as reflected chiefly in Supreme Court decisions; judicial review in the democratic political process.

370:361. The Supreme Court and Civil Liberties. 3 *credits.*
Prerequisite, 360 or permission. An extensive analysis of the work of the modern Supreme Court, with particular emphasis on the impact of its decisions on the political system and on the individual in a democratic society.

370:370. Public Administration. 4 *credits.*
Prerequisites, 100 or 330. An examination of the implementation of public policy. Administrative organization and principles will be stressed.

370:380. Urban and Regional Politics. 3 *credits.*
Prerequisites, 100 or 210 or 330. 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.

370:400/500. Systematic Political Theory. 3 *credits.*
Prerequisites, 300 or 301 or 302. An examination of central concepts of political theory. The nature and limits of political power, liberty and equality will be emphasized.

370:410/510. International Law and Organization. 3 *credits.*
Prerequisite, 310 or permission. Established rules, practices and conventions governing the relations of the several nations and their citizens with one another; political organizations; United Nations; regional patterns.

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. 3 *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.*
Prerequisites, 360 or 361. 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.

370:470/570. 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.

370:490. Independent Study. 3-5 *credits.*
Prerequisite, 15 credits in Political Science and Adviser's permission.

370:495. 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.

GRADUATE COURSES

370:600. SEMINAR IN POLITICAL THEORY. 5 *credits.*

Prerequisite, 9 credits of Political Science, including Political Science 400, 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.

370:641. 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 govenment in the U.S.; legal, social and political implications; comparisons with other federal systems.

370:660. SEMINAR IN LAW AND THE JUDICIAL PROCESS. 5 *credits.*

Prerequisite, 9 credits of Political Science, including 460, or permission. Law 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. 3-5 *credits.*

Prerequisite, permission.

370:695. SCOPE AND METHODS IN POLITICAL SCIENCE. 3 *credits.*

Prerequisite, 9 credits of Political Science, or permission. Nature and scope of research problems in political science.

370:699. THESIS. 3-9 *credits each quarter.*

375: PSYCHOLOGY

375:141. GENERAL PSYCHOLOGY. 5 *credits.*

Basic facts and principles in the scientific study of behavior.

375:143. APPLIED PSYCHOLOGY. 4 *credits.*

Prerequisite, 141. Applications of psychology to business and industry, education, clinical problems and law.

375:145. QUANTITATIVE METHODS IN PSYCHOLOGY. 4 *credits.*

Prerequisites, 141 and 110:111. Presentation of data, descriptive statistics, correlation, hypothesis testing and introduction to quantitative methodologies in psychology.

375:147. INTRODUCTION TO EXPERIMENTAL PSYCHOLOGY. 5 *credits.*

Prerequisite, 141. Laboratory procedures and quantitative methods in psychology. Lectures, reference reading and experiments.

375:151. DEVELOPMENTAL PSYCHOLOGY. 5 *credits.*

Prerequisite, 141. A study of developmental changes from infancy through senescence and the typical adjustment problems of individuals of different ages in our culture.

375:307. PSYCHOLOGY OF CHILDHOOD AND ADOLESCENCE. 4 *credits.*

Prerequisite, 141. Development of the individual from birth through the adolescent period; emphasis on needs and problems of typical children and adolescents; preparation of case histories.

375:310. EXPERIMENTAL PSYCHOLOGY. 4 *credits.*

Prerequisites, 147 and a course in Statistics or permission. Scientific methods and tools of modern experimental psychology; group and individual laboratory experiments 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.

375:316. Industrial Psychology. 5 *credits.*
Prerequisite, 141. Survey of psychology as used in industrial, business and governmental agencies, particularly techniques for evaluation of men, jobs, and personnel programs.

375:320. Physiological Psychology. 5 *credits.*
Prerequisite, 147. 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.

375:403/503. Personality. 3 *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.*
Prerequisite, 307. Study of the diagnosis and treatment of deviant children and adolescents.

375:407/507. Psychological Tests and Measurements. 4 *credits.*
Prerequisites, 141 and a statistics course or permission. 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. 3 *credits.*
Prerequisite, 407. The use of tests, interviews and personal history data in vocational and academic counseling and guidance.

375:411. Psychological Factors in Marital and Home Adjustment. 3 *credits.*
Prerequisite, Senior or adult status. Psychology of sex adjustment in adolescence, adulthood and marriage; factors which are important to successful marriage and parenthood.

375:412/512. Psychology of Learning. 4 *credits.*
Prerequisite, 147. Problems of conditioning and learning; acquisition of individual responses; reinforcement, drive, frequency, transfer, retention, problem solving. Lectures, readings, and experiments.

375:417/517. History and Systems of Psychology. 4 *credits.*
Pyschology in the pre-scientific period and the details of the development of systematic viewpoints in the 19th and 20th centuries.

375:420/520. Human Factor. 4 *credits.*
Prerequisites, 141, 18 credits in Psychology. Definition, analysis, and solution of specific selected Human factors. Design problems.

375:430/530. Abnormal Psychology. 5 *credits.*
Prerequisite, 9 credits in Psychology. Syndromes, etiology, diagnosis and treatment of the major psychopathological conditions ranging from transient maladjustments to the psychoses.

375:440-441-442. Honors Seminar in Psychology. 3 *credits each quarter.*
Sequential; prerequisite, psychology major, Senior standing and permission.

GRADUATE COURSES

375:601. Thesis-Dissertation Seminar. 4 *credits.*
Prerequisite, permission. Preparation and writing of the thesis and dissertation. Analysis of research designs. Review of profession problems and ethics.

375:602. Advanced Psychological Statistics I. 4 *credits.*
Prerequisites, 375:145 or permission. Basic theory of hypothesis testing, dhi square, analysis of variance, regression analysis and correlation.

375:603. Advanced Psychological Statistics II. 4 *credits.*
Prerequisites, 375:602, 375:145 or permission. Advanced topics in hypothesis testing and correlational analysis. Survey of selected non-parametric techniques.

375:604. Advanced Developmental Psychology. 4 *credits.*
Prerequisite, 14 credits of psychology. Influence of developmental stages upon individual and group behavior throughout the life span with implications for educational, clinical and industrial counseling.

375:606. Individual Intelligence Testing I: Stanford-Binet. 3 *credits.*
Prerequisite, 407 and permission. Lectures and practice in the administration and scoring of the Stanford-Binet.

375:607. Individual Intelligence Testing II: Wechsler Scales. 3 *credits.*
Prerequisite, 407 and permission. Lectures and practice in the administration, scoring, and interpretation of the Wechsler Adult Intelligence Scale (WAIS) and the Wechsler Intelligence Scale for Children (WISC).

375:611. The Psychology of Individual Differences. 3 *credits.*
Prerequisite, 14 credits of psychology. Significance, nature and role of inter- and intra-individual differences; applications to educational,

industrial and clinical situations; group differences and their measurement.

375:612. THEORIES OF PERSONALITY. 5 *credits.*
Prerequisites, 403 and 430. Historical considerations 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.

375:618. 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, 430, 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. 3 *credits.*
(May be repeated to a total of 9 credits)
Prerequisites, 20 hours of Graduate Psychology and permission. Supervised work-experience in the application of psychological techinques to human assessments and interpretations.

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. 4 *credits.*
Prerequisites, 141, 147, 310 and graduate standing. Research techniques and apparatus historically and presently in use, review and interpretation of the literature, the construction and use of novel and traditional equipment including elementary circuit design. *Two hours* lecture and *two hours* lab per week.

375:641. RESEARCH SEMINAR. 4 *credits.*
Prerequisites, 141, 147, 310, 640. An extension of 640. The student will be required to design an experiment, build any required apparatus, run the experiment and report the results to the class relating it to other studies in the field. Individual work and participation will be emphasized. *Two hours* lecture and *two hours* lab per week.

375:650-651. ENGINEERING PSYCHOLOGY. 4 *credits each quarter.*
Prerequisites, 141, 145, 147, and 310. 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, 601. Research analysis of data and preparation of thesis for the Master's Degree.

375:705. COMPUTER TECHNIQUES IN PSYCHOLOGICAL MEASUREMENT. 3 *credits.*
Prerequisite, 602 or permission. Information about the computer and its application to research on typical problems in psychology.

375:706. ADVANCED TESTS AND MEASUREMENTS. 3 *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.

375:713. PERCEPTION. 3 *credits.*
Prerequisites, 320 and 412 or permission. The neural and physiological correlates of behavior in organisms.

375:715. PHYSIOLOGICAL PSYCHOLOGY. 3 *credits.*
Prerequisites, 320, 412. Treatment of neural and physiological correlates of behavior with special emphasis on functional aspects of behavior.

375:717. PSYCHOLOGY OF MOTIVATION. 3 *credits.*
The role of primary and secondary motives in behavior. Lectures, readings and experiments.

375:730. SEMINAR IN INDUSTRIAL PSYCHOLOGY. 3 *credits.*
Prerequisites, permission. Intensive evaluation of selected industrial psychology techniques. May be repeated to a total of 9 credits. Techniques include leadership, morale, merit ratings, job evaluation, interviewing, attitude scaling, advertising, and public relations.

375:733. RESEARCH IN INDUSTRIAL PSYCHOLOGY. 3 *credits* (May be repeated twice for credit)
Prerequisite, 602 or permission. Performance of research on problems found in business, industry or governmental agencies.

375:736. LITERATURE SURVEY, SELECTED TOPICS. 3 *credit hours.*
Prerequisite, permission. Readings in psychology according to the needs of the student. May be repeated to total of 9 credits.

375:739. SOCIAL-INDUSTRIAL PSYCHOLOGY. 3 *credits.*
Prerequisite, permission. Organizational Psychology—The study of the relationships between organizational characteristics and human behavior.

375:742. PSYCHOLOGY OF INDUSTRIAL SELECTION. 3 *credits.*

Prerequisite, 602 or permission. Evaluation of techniques employed by psychologists for initial job selection and subsequent promotions. Excludes formal testing.

375:745. PERFORMANCE EVALUATION. 3 *credits.*

Prerequisite, 602 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. 3 *credits.*

Prerequisite, 412 or permission. The nature of industrial training, needs for training, methods and techniques, evaluation of training, training and learning theory.

375:754. FACTOR ANALYSIS. 2 *credits.*

Prerequisite, 602 or permission. Theory and techniques in identifying 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 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 permission. Theory and application of statistical tests of significance to more complex psychological experimental designs than in 603.

375:790. DISSERTATION RESEARCH. 20 *credits.*

Open to properly qualified students accepted to candidacy for the degree of Doctor of Philosophy in Psychology. Supervised research on a topic deemed suitable by the dissertation committee.

385: SOCIOLOGY

385:101. GENERAL SOCIOLOGY: CONCEPTS. 3 *credits.*

Basic terminology, concepts, and approaches in sociology. Required of majors.

385:102. GENERAL SOCIOLOGY: PROCESSES. 3 *credits.*

Prerequisite, 101. Introduction to the analysis of social groups: application of sociological concepts to understanding social systems. Required of majors.

385:103. GENERAL SOCIOLOGY: PROBLEMS. 3 *credits.*

Prerequisite, 101. Introduction to problematic aspects of social systems. Required of majors.

385:151. GENERAL ANTHROPOLOGY: PHYSICAL AND LINGUISTIC. 3 *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 socio-cultural 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.

385:152. GENERAL ANTHROPOLOGY: CULTURAL. 3 *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.

385:276. INTRODUCTION TO SOCIAL WELFARE. 3 *credits.*

Prerequisite, 101, 102 or 103. 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.

385:301. METHODS OF SOCIAL RESEARCH. 3 *credits.*

Prerequisites, 101, 102 or 103, 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.

385:302. METHODS OF SOCIAL RESEARCH. 3 *credits.*

Prerequisite, 301, continuation of 301. Required of majors.

385:303. METHODS OF SOCIAL RESEARCH. 3 *credits.*

Prerequisite, 302, continuation of 301 and 302. Required of majors.

385:314. CRIMINOLOGY. 3 *credits.*

Prerequisites, 101, 102 or 103, 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, societal values, social settings and motivational orientations; the study of the etiologies of criminal behavioral systems.

385:320. POPULATION. 3 *credits.*

Prerequisites, 101, 102 or 103, or permission. Introduction to demographic analysis; the num-

bers, distribution, characteristics, and trends of U. S. and world population.

385:327. Social Stratification. 3 *credits.*
Prerequisite, 101, 102 or 103, 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. 3 *credits.*
Prerequisites, 101, 102 or 103, 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. 3 *credits.*
Prerequisites, 101, 102 or 103, 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. 1-3 *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.

385:357. Magic, Myth and Religion. 3 *credits.*
Prerequisites, 101, 102 or 103, or 152. 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.

385:376. Field Experience in a Social Agency. 3 *credits.*
Prerequisite, 476 or permission. Individual placement in selected community agencies for supervised experience in casework, groupwork, corrections, and similar fields. Primarily for senior majors.

385:377. Field Experience in a Social Agency. 3 *credits.*
Prerequisite, 376, continuation of 376. Courses must be taken consecutively to receive credit.

385:404/504. The Family. 3 *credits.*
Prerequisite, 9 hours of sociology. Analysis of the Family as a social system; historical, comparative, and contemporary sociological approaches examined in relation to family structure and functions.

385:414/514. The History of Sociological Thought. 3 *credits.*
Prerequisites, 101, 102 or 103, 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. 3 *credits.*
Prerequisite, 414 or permission. An examination and critical evaluation of the works of modern sociological theorists. Each is studied in breadth and depth; provide a perspective of the range of problems in the field and suggested approaches. Required of majors.

385:423/523. Juvenile Delinquency. 3 *credits.*
Prerequisites, 101, 102 or 103, 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; the interrelationships between social/cultural settings, motivational orientations and the developmental process of varied delinquent role formations. The legal processing of juveniles and the etiologies of forms of delinquency.

385:424/524. Probation and Parole. 3 *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.

385:427/527. Racial and Cultural Intergroup Relations. 3 *credits.*
Prerequisites, 101, 102 or 103, or permission. A sociological interpretation of the relationships between dominant and minority groups. An analysis of minority response patterns, the development of prejudice, discrimination, stereotypes, and ways of coping with intergroup tensions.

385:430/530. Social Structure and Personality. 3 *credits.*
Prerequisite, 385:102, 103 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. 3 *credits.*
Prerequisites, 101, 102 or 103 or 375:141, or permission. A 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. 3 *credits.*
Prerequisites, 385:202 or 203, or 375:141, or permission. Theoretical and empirical analyses of the learning and playing of social roles.

385:433/533. Social Organization. 3 *credits.*
Prerequisite: 9 hours of sociology. The nature of social organization and social control; organizational typologies; theories of organizational structure and functions; analysis of complex organizations in a social system.

385:435/535. Sociology of Urbanization. 3 *credits.*
Prerequisites, 101, 102 or 103, or permission. A study of the implications of growing density and nucleation of population on attitudes, social structures and social change.

385:438/538. Industrial Sociology. 3 *credits.*
Prerequisite, 9 hours 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. 3 *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.

385:441/541. Urban Research Methods II. 3 *credits.*
Prerequisite, 440. A continuation of 440.

385:455/555. Culture and Personality. 3 *credits.*
Prerequisites, 101, 102 or 103, and 152. 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.

385:459/559. Facts and Values in Culture. 3 *credits.*
Prerequisites, 101, 102 or 103, or 152. 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.

385:461/561. Language and Culture. 3 *credits.*
Prerequisites, 101, 102 or 103, or 152, or permission. Language as a subsystem 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.

385:463/563. Types of Kinship and Social Organization. 3 *credits.*
Prerequisites, 101, 102 or 103, or 152. 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.

385:476/576. Methods and Concepts of Social Work. 3 *credits.*
Prerequisite, 276, or permission. Analysis of concepts used in the profession of social work: their application in contemporary practice; evaluation of current approaches, theories and research. Required of pre-professional social work students.

385:477/577. The Individual and the Group in Social Work. 3 *credits.*
Prerequisite, permission. The treatment techniques and the methodology of social work analyzed through the use of case materials to achieve better understanding of the concepts and theories of change and growth in individuals and groups.

385:485/585. Community Organization. 3 *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

385:600. Sociological Research Methods. 3 *credits.*
Advanced research methods including advanced statistical techniques.

385:601. Seminar in Social Research Design. 3 *credits.*
Corequisite, 603. 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. 3 *credits.*
Prerequisite, 385:600 and 601, or permission. Theories of social attitudes and techniques for their measurement.

385:603. Seminar in Sociological Theory Construction. 3 *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. Taken concurrently with 601.

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. 3 *credits.*
Prerequisite, permission. Theory of small group relationships and discussion of empirical findings about primary groups.

385:610. SEMINAR IN SMALL GROUP RESEARCH TECHNIQUES. 3 *credits.*
Prerequisite, 385:609. Application and implications of techniques of laboratory research in small groups.

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. 3 *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. 3 *credits.*
An advanced seminar in the theories of social change.

385:620. POPULATION THEORY. 3 *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.

385:630. SEMINAR IN THE SOCIOLOGY OF POLITICAL BEHAVIOR. 2 *credits.*
Description, analysis, and interpretation of political behavior through the application of sociological concepts.

385:631. SEMINAR IN THE SOCIOLOGY OF POLITICAL BEHAVIOR. 2 *credits.*
Prerequisite, 385:630. Description, analysis, and interpretation of political behavior, through the application of sociological concepts.

385:635. READINGS IN CONTEMPORARY SOCIOLOGICAL LITERATURE. 3 *credits.*
Prerequisite, 10 hours 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.

385:640. SEMINAR IN CRIMINOLOGY AND JUVENILE DELINQUENCY. 3 *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. 3 *credits.*
Prerequisite, 30 hours of Sociology and permission. Significance of some major sociological concepts for Theoretical and practical significance of selected sociological concepts for understanding contemporary social issues.

385:650. THESIS. 3 *credits.*
Prerequisite, permission. Supervised thesis writing.

385:651. SEMINAR IN ANTHROPOLOGICAL THEORIES AND METHODS. 3 *credits.*
Major theoretical viewpoints in cultural anthropology. Nature and scope of research problems in anthropology. Survey of methods in field work.

394: POLYMER SCIENCE

394:407. 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.

GRADUATE COURSES

394:604-605. SPECIAL PROJECTS IN POLYMER SCIENCE. 2 *credits each quarter.*
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.

394:691. 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 quarter.*
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.

394:711-712. Special Topics in Polymer Science. 2 *credits each quarter.*

Prerequisite, permission. Study of topical subjects of current interest in Polymer Science, encompassing the chemistry, physics or engineering aspects of macro-molecular substances, and including laboratory work where applicable. Lectures and/or laboratory.

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

398:601. Fiscal Problems and Policies of Urban Development. 3 *credits.*

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.*

An examination of the urban economic unit and its susceptibility to social, economic, political and physical change.

398:611. Politics in Urban Areas. 3 *credits.*

An empirical analysis of urban political structure and processes, and major political problems.

398:612. Administration of Urban Government. 3 *credits.*

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.*

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.*

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.

398:630. Engineering Aspects of Urban Problems. 3 *credits.*

A study of major engineering concepts and considerations in urban planning and development.

398:631. Urban Facilities Planning. 3 *credits.*

A study of the approaches to urban facilities planning—the need, process and limitation.

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.

The College of Engineering

410: GENERAL ENGINEERING

410:101. 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.

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. Process Calculations I.
3 *credits.* (3-0)
Introduction to the material balance and other fundamental concepts as applied to the solution of chemical engineering problems.

420:201. Process Calculations II.
3 *credits.* (3-0)
Sequential; prerequisite, 200. Introduction to the energy balance and to the solution of chemical engineering problems requiring material and energy balances.

420:220. Staged Operations. 4 *credits.* (4-0)
Sequential; prerequisite, 201. The graphical and analytical applications of equilibrium and material balance considerations to the solution of multistage processes.

420:305. Materials Science. 3 *credits.* (3-0)
Sequential; corequisite, 315:122. The study of the atomic and molecular structure and their relationship to the behavior of engineering materials, under thermal, chemical, mechanical, nuclear, and electrical stresses.

420:310. Chemical Process Industries.
3 *credits.* (3-0)
Sequential; prerequisite, 201. A study of the processes used to manufacture basic chemicals. Included are raw materials, processing sequences and economic factors.

420:321. Transport Phenomena I.
4 *credits.* (4-0)
Sequential; prerequisite, 220 and 345:225. Theory and application of momentum transfer in chemical engineering.

420:322. Transport Phenomena II.
4 *credits.* (4-0)
Sequential; prerequisite, 321. Theory and application of energy transfer and simultaneous energy and momentum transfer in chemical engineering applications.

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.

420:415. Unit Operations. Laboratory I.
2 *credits.* (0-2)
Corequisite, 423. Experiments in chemical engineering operations. Emphasis is on collection and analyses of data and report writing.

420:416. Unit Operations. Laboratory II.
2 *credits.* (0-2)
Sequential; prerequisite, 423.

420:417. Unit Operations. Laboratory III.
2 *credits.* (0-2)
Sequential; prerequisite, 423.

420:423. Transport Phenomena III.
4 *credits.* (4-0)
Sequential; prerequisite, 322. Theory and application of mass transfer phenomena. Includes evaporation, distillation, absorption, crystallization and diffusional operations.

420:425. Thermodynamics I. 3 *credits.* (3-0)
Sequential; prerequisites, 201, 315:315. A study of the fundamental laws of thermodynamics as applied to chemical processes.

420:426. Thermodynamics II. 2 *credits.* (2-0)
Sequential; prerequisite, 425. Continuation of 425 and an introduction to statistical thermodynamics.

420:430. Reaction Kinetics. 4 *credits.* (4-0)
Sequential; prerequisite, 423. Study of nonequilibrium processes. Reaction mechanisms, rate equations and reactor design as applied to both homogenous and heterogenous systems.

420:435. Process Control. 3 *credits.* (3-0)
Sequential; prerequisite or corequisite, 423, 345:225. The study of the response of process systems, controllers, sensing elements, and application to control systems design.

420:440. PROCESS ECONOMICS. 3 *credits.* (3-0)
Sequential; corequisite, 423. Economic analyses of chemical process, equipment selection and cost estimation.

420:441. PLANT DESIGN I. 3 *credits.* (3-0)
Sequential; prerequisite, 440. Chemical plant equipment design, plant layout, site selection.

420:442. PLANT DESIGN II. 2 *credits.* (0-2)
Sequential; prerequisite, 441. Chemical plant design project.

420:443. PLANT TRIP. 1 *credit.* (0-1)
Sequential; prerequisite, 440. Visitations to typical chemical process industries. Critical inspection and discussion of faciliites.

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, 423 or permission. The momentum, continuity, and energy equations. Exact and aproximate solutions using rector and tensor notation. Applications to typical laminar flow systems.

420:601. 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.

420:602. NON-NEWTONIAN FLOW. 3 *credits.* (3-0)
Prerequisite, 600. Rheological behavior of non-Newtonian fluids. Viscometry. Applications to engineering design.

420:605. ENERGY TRANSPORT I. 3 *credits.* (3-0)
Prerequisite, 423 or permission. Conduction and forced convection heat transfer. Analytical and graphical solutions.

420:606. ENERGY TRANSPORT II. 3 *credits.* (3-0)
Prerequisite, 605. Heat transfer in boundary layers. Natural convection phenomena. Radiation.

420:610. DIFFUSIONAL OPERATIONS. 3 *credits.* (3-0)
Prerequisite, 423 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.

420:612. DISTILLATION. 3 *credits.* (3-0)
Prerequisite, 423 or permission. Multicomponent calculational techniques applied to the design of distillation equipment. Extractive and azeotropic distillation.

420:613. SPECIAL TOPICS IN MASS TRANSFER. 3 *credits.* (3-0)
Prerequisite, 345:225 or permission. Topics in advanced mass transfer operations of chemical engineering such as multicomponent distillation, absorption, extraction, leaching and diffusion.

420:615. ADVANCED REACTION KINETICS I. 3 *credits.* (3-0)
Prerequisite, 430 or permission. Kinetics of homogenous systems. Reactor design. Non-ideal flows.

420:616. ADVANCED REACTION KINETICS II. 3 *credits.* (3-0)
Prerequisite, 615. Kinetics of heterogenous systems. Fluidized reactors. Non-ideal mixing models applied to reactor design.

420:620. ADVANCED CHEMICAL ENGINEERING THERMO I. 3 *credits.* (3-0)
Prerequisite, 425 or permission. Discussion of the law of thermodynamics. Prediction and correlation of thermodynamic data. Phase and reaction equilibria.

420:621. ADVANCED CHEMICAL ENGINEERING THERMO II. 3 *credits.* (3-0)
Prerequisite, 620. An introduction to statistical and non-equilibrium thermodynamics with application in chemical engineering.

420:625. ANALOG COMPUTATION. 3 *credits.* (3-0)
Prerequisite, 345:225. Discussion of the use of analog computation in chemical engineering including programming and operational techniques.

420:626. ADVANCED CALCULATION METHODS I. 3 *credits.* (3-0)
Prerequisite, 345:225 or permission. Discussion of methods used to develop mathematical models for chemical engineering problems and their analytical solutions.

420:627. ADVANCED CALCULATION METHODS II. 3 *credits.* (3-0)
Prerequisite, 345:225 and permission. Discussion of numerical and optimization techniques in the solution of chemical engineering problems.

420:628. SPECIAL TOPICS IN ADVANCED CALCULATIONS. 3 *credits.* (3-0)
Prerequisite, 345:225 or permission. Advanced calculation techniques applied to the solution of complex problems in chemical engineering operations.

420:630. PROCESS DYNAMICS I. 3 *credits.* (3-0)
Prerequisite, 435 or permission. Discussion of

the dynamic response of processes, controllers, and sensing elements, stability criteria. Application to control of simple chemical process.

420:631. 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.

420:635. CHEMICAL ENGINEERING OF POLYMERS I. 3 *credits.* (3-0)
Prerequisite, 423 or permission. Study of the plastics industry with emphasis on the application of common unit operations in the production of plastics.

420:636. 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.

420:640. SOLIDS PROCESSING. 3 *credits.* (3-0)
Prerequisite, 423 or permission. Comprehensive problems in sedimentation, fluidization drying and other operations involving treatment of particulate solids.

420:650. TOPICS IN DESIGN. 3 *credits.* (3-0)
Prerequisite, 345:225 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.

420:670. WATER POLLUTION CONTROL I. 3 *credits.* (3-0)
Prerequisite, permission. Waste treatment methods as applied to the chemical process industries.

420:671. WATER POLLUTION CONTROL II. 3 *credits.* (3-0)
Prerequisite, 670. Advanced waste treatment methods as applied to the chemical process industries.

420:680. AIR POLLUTION CONTROL. 3 *credits.* (3-0)
Prerequisite, permission. Basic methods and applications of air pollution control in the chemical process industries.

420:699. CHEMICAL ENGINEERING RESEARCH. 1 *to* 6 *credits.* (0-1 to 6)
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.

430: CIVIL ENGINEERING

430:231. SURVEYING I. 4 *credits.* (3-1)
Principles of plane surveying. Use of tape, level and transit. Computation of areas. Field problems involving measurement of horizontal and vertical distances and angles.

430:301. ENGINEERING MECHANICS I. 4 *credits.* (4-0)
Prerequisite, 365:106; corequisite, 345:224. 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.

430:302. ENGINEERING MECHANICS II. 4 *credits.* (4-0)
Prerequisite, 301; corequisite, 345:225. Kinetics of particles, and rigid bodies. Force, mass and acceleration; work and energy; momentum and impulse methods. Vibrations. Stresses and deformations caused by axial, torsional and flexural force systems.

430:303. ENGINEERING MECHANICS III. 4 *credits.* (3-1)
Prerequisite, 302 or permission. Analysis of stresses and strains under various conditions. Elastic bending. Inelastic, composite and curved beams. Shear analysis. Solution of statically indeterminate problems by three-moment equation and by moment distribution (relaxation) methods. Design of columns. Buckling. Analysis of torsion. Determination of mechanical properties of materials by standard laboratory techniques. Experimental stress analysis.

430:304. MECHANICS I. 4 *credits.* (4-0)
Prerequisite, 365:201; corequisite, 345:225. 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. 4 *credits.*
Prerequisite, 303. Analysis of roof trusses, mill bents and bridge trusses. Fixed and moving loads. Influence lines.

430:307. THEORY OF STRUCTURES II. 4 *credits.*
Prerequisite, 306. Indeterminate beams, frames, and trusses. Moment-area, energy, slope-deflection, moment distribution, Williot-Mohr and column analogy methods.

430:321. Environmental Engineering I.
4 *credits.* (4-0)
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.

430:323. Environmental Engineering III.
4 *credits.* (4-0)
Prerequisite, 310:177 and 430:322. 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 waste disposal.

430:332. Surveying II. 4 *credits.* (3-1)
Prerequisite, 231. Precise leveling, triangulation, topographic surveying, astronomic observations pertinent to surveying, horizontal and vertical alignment of transportation routes, earthwork computations.

430:350. Urban Planning. 4 *credits.* (4-0)
History of the development of cities from the earliest civilizations through the industrial revolution of the 19th century. Early attempts to planning. The necessity, organization and legal aspects of planning and zoning. Environmental problems affecting engineers. The search for new solutions.

430:351. Transportation Engineering I.
4 *credits.* (4-0)
Prerequisite, 350. 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. Transportation Engineering II.
4 *credits.* (3-1)
Prerequisites, 332, 351. Complete and 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.

430:401-402. Steel Design I and II.
3 *credits each quarter.*
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 quarter.*
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 quarter.*
Torsioned analysis, rotating discs, membrane analysis, beams on elastic foundation, bending of plates, energy methods. Stability analysis.

430:411. Soil Mechanics. 4 *credits.* (3-1)
Prerequisite, 303. 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.

430:412. Foundations. 4 *credits.* (3-1)
Prerequisite, 411. Soil exploration. Groundwater flow. Spread footings, combined footings, mat-foundations. Design of pile foundations. Caissons. Retaining walls, sheetpiling, cofferdams. Earthworks. Tunneling.

430:433/533. Photogrammetry. 3 *credits.*
Prerequisite, 332. Photogrammetry. Fundamental principles involved in surveying by aerial or other photography, including the reduction of photograph to a map. Laboratory exercises in the photographic study of a prepared geometric landscape. Experience with the basic photogrammetric instruments.

430:440. Water Resources Engineering.
5 *credits.* (4-1)
Prerequisite, 460:310. Engineering hydrology. Probability concepts in hydraulic design. Reservoirs, dams, spillways, gates, outlet works. Open-channel flow. Pumps and turbines. Irrigation. Water power. River navigation. Drainage. Flood control. Water law. Planning for comprehensive water resources development. Laboratory includes individual assignments of model study of hydraulic structures.

430:441. Hydraulic Structures I. 4 *credits.*
(4-0)
Prerequisite, 430:440 and 430:411. 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. STRUCTURAL MECHANICS I. 3 *credits.* (3-0)
Prerequisite, 430:307. Deflection Theory; moment distribution; slope deflection method; elastic center and column analogy methods.

430:452. STRUCTURAL MECHANICS II. 3 *credits.* (3-0)
Prerequisite, 430:451. A continuation of 430:451 including work and energy methods, influence lines, variable moment of inertia, arch theory, axially loaded members, beams and columns.

430:453. COMPUTER METHODS IN STRUCTURAL MECHANICS. 4 *credits.* (4-0)
Prerequisite, 430:451. Fundamental concepts of computers; role of computers in structural and solid mechanics; fundamental concepts in structural analysis; stiffness and flexibility characteristics of structures; introduction to determinants and matrices; solution of linear equations; eigenvalue problems; energy concepts in structures; transformation matrices; flexibility and stiffness methods of analysis.

430:461. HIGHWAY ECONOMICS AND ADMINISTRATION. 4 *credits.* (4-0)
Prerequisite, 430:352. 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 *I.* 4 *credits.* (2-2)
Prerequisite, 430:352. 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.

430:464. HIGHWAY PLANNING *II.* 4 *credits.* (2-2)
Prerequisite, 430:463. Continuation of 430:463 with emphasis on urban locations and planning.

430:471. CONSTRUCTION ADMINISTRATION. 3 *credits.* (3-0)
Prerequisite, senior standing or permission of Department. 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.

GRADUATE COURSES

430:601-602. THEORY OF ELASTICITY I AND II. 3 *credits each quarter.*
Prerequisite, 405/505. Analysis of stress and strain; equilibrium equations; plane stress and plane strain problems. Torsion of bars. Finite difference approximations and relaxation methods. Energy principles and variational methods. Solutions by means of complex variables. Advanced topics in elasticity.

430:603-604. THEORY OF PLASTICITY I & II. 3 *credits each quarter.* (3-0).
Prerequisite, 430:601. State of stress and strain; theories of strength; plastic stress-strain relations; problems in plastic flow; strain hardening problems; bending of plates; extremum principles; special topics and problems.

430:605. THEORY OF PLATES. 3 *credits.*
Prerequisite, 405/505 or permission. Pure bending of plates, small deflection theory, solutions for various edge conditions, plates on elastic foundations, large deflection theory.

430:606. SHELL STRUCTURES. 3 *credits.*
Prerequisite, 405/505 or permission. General theory of thin shells. Analysis of dooms, and shell walls. Shells of double curvature. Practical design problems.

430:608-609. ADVANCED THEORY OF STRUCTURES I AND II. 3 *credits each quarter.*
Energy methods. Continuous beams and frames of variable moment of inertia. Equivalent systems. Continuous trusses and bents. Arches and rings. Curved members. Flexible members. Special problems. Matrix methods.

430:611. ADVANCED SOIL MECHANICS I. 3 *credits.*
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.*
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.*
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.*
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.*
Prerequisite, 615 or permission. Advanced methods of foundation construction including dewatering, soil stabilization, freezing, and pile sinking techniques. Cofferdams, underpinning, and other special problems.

430:617. SOIL DYNAMICS. 3 *credits.*
Prerequisites, 611, 657, 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.

430:620. SANITARY ENGINEERING PROBLEMS. 3 *credits.*
Prerequisites, 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 quarter.*
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.*
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. Open channel flow.

430:642. MULTIPHASE FLOW. 3 *credits.*
Prerequisite, 641 or permission. Flow of liquid-gas-solid mixtures in pipes. Design of transport pipelines. Erosion, transport, and sedimentation in open channels. Stratified flow.

430:643. ADVANCED FLUID MECHANICS. 3 *credits.*
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.

430:645. POTENTIAL FLOW THEORY. 3 *credits.*
Laplace's equation, its solution by analytic and numerical methods. Conformal transformation of regions with fixed and free (implicite) boundaries. Direct and inverse relaxation. Simplified solutions. Applications to groundwater seepage, heat flow, electric potential fields, and fluid dynamic problems.

430:646-647. THEORY OF WAVES I & II. 3 *credits each quarter.* (3-0)
Prerequisite, 430:643. Theory of wave motion. Analysis of periodic and solitary waves. Study of tsunamis, storm surges and harbor oscillations. Effects of structures on waves. 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.

430:650. ENERGY METHODS. 3 *credits.* (3-0)
Prerequisite, 430:506. 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, 430:452. 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; elastic-plastic deformations; minimum-weight design; grids and arches.

430:652. PLASTIC ANALYSIS II. 3 *credits.* (3-0)
Prerequisite, 430:651 and 430:506. 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.

430:653-654. ELASTIC STABILITY I & II. 3 *credits each quarter.* (3-0)
Prerequisite, 430:506. Buckling of beam-columns, bars and frames; torsional buckling; inelastic buckling; energy approach and energy methods; buckling of rings, curved bars and arches; buckling of thin plates and shells; applications; special problems.

430:655. PRESTRESSED CONCRETE. 3 *credits.*
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 quarter.*

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.

430:659. Dynamics of Plates and Shells. 3 *credits.*

Prerequisites, 657, 658. Vibration of membranes, plates and shells with various boundary conditions. Dynamic response of plates and shells subjected to external dynamic forces. Special problems.

430:660. Viscoelasticity. 3 *credits.* (3-0)

Prerequisite, 430:601. Linear theory of viscoelasticity; viscoelastic models; hereditary integrals; viscoelastic beams; vibrations; axial impact; buckling of columns; viscoelasticity in three dimensions.

430:661-662. Advanced Engineering Materials I and II. 3 *credits each quarter.*

Prerequisite, permission. The behavior of solid materials used by engineers. Principles which explain, describe, and define such behavior.

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 in final examination.

440: ELECTRICAL ENGINEERING

440:290. Circuits I. 3 *credits.* (3-0)

Corequisite, 345:225. Fundamentals of circuit analysis including loop and nodal methods, phasor techniques, resonance phenomena, and polyphase circuits.

440:300. Analog Computers. 3 *credits.* (2-1)

Prerequisite, 345:225. Basic concepts involved in the solution of engineering problems via the analog computer.

440:334. Circuits II. 3 *credits.* (3-0)

Prerequisite, 290. A continuation of circuit analysis including magnetic coupling in circuits, network theorems. Fourier methods, transfer functions. Laplace and Fourier transforms.

440:335. Circuits III. 3 *credits.* (3-0)

Prerequisite, 334. 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, 290. Study of DC meters, potentiometers, ohmmeters, galvanometers, balanced and unbalanced Wheatstone bridges.

440:341. Electrical Measurements II. 3 *credits.* (2-1)

Prerequisite, 340. Study of AC meters and bridges. Analysis and characteristics of temperature and displacement transducers.

440:342. Electrical Measurements III. 3 *credits.* (3-0)

Prerequisite, 341. Interpretation and presentation of measured variables. Evaluation of errors involved in measurement. Introduction to power spectral density approach.

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, 345:225. 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, 334 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.

440:355. Electrical Machinery III.
4 *credits.* (3-1)
Prerequisite, 354. The realistic electrical machine. Wave forms and machine windings. Saturation in machines. Unbalanced loads on transformers. Transients in machines.

440:356. Electrical Machinery. 3 *credits.* (2-1)
Prerequisite, 290. A course for non-EE majors stressing the practical aspects of AC and DC machinery and associated schematic diagrams.

440:357. Control and Application of Electrical Motors. 4 *credits.* (3-1)
Prerequisite, 355. 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 transmission. Laboratory.

440:363. Electrical Engineering Problems.
1, 2 or 3 *credits.*
Prerequisite, permission of department head. Select comprehensive problems, supervised discussions and computation periods. May be repeated for credit.

440:365. Electronics I. 4 *credits.* (3-1)
Prerequisite, 334. 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, waveform generation and pulse analysis. Laboratory.

440:368. Electronic Fundamentals.
3 *credits.* (2-1)
Prerequisite, 290. A course for non-EE majors covering vacuum and semiconductor devices. Applications including amplifiers, oscillators, timing circuits, and industrial electronic equipment.

440:369. Microwaves I. 3 *credits.* (3-0)
Prerequisite, 352. Dynamic fields, Maxwell's equations, and the wave equations. Field analysis of wave-guides. Microwave sources.

440:370. Microwaves II. 3 *credits.* (2-1)
Prerequisite, 369. Microwave components. Techniques of microwave measurements. Microwave systems. Laboratory.

440:371. Elements of Servomechanisms.
3 *credits.* (3-0)
Prerequisite, 337. Introduction to closed-loop systems and feedback principles. The calculation and manipulation of input output transfer functions.

440:372. Control Systems I. 3 *credits.* (2-1)
Prerequisite, 371. The representation of systems in the time domain. Techniques for determining the stability of linear systems.

440:373. Control Systems II. 3 *credits.* (3-0)
Prerequisite, 372. Methods for synthesizing closed loop systems. Application of servomechanism principles.

440:375. Symmetrical Components I.
3 *credits.* (3-0)
Prerequisite, 334. Per unit method as applied to power system calculations. Fundamental principles of symmetrical components as applied to the analysis of unbalanced electrical cirucits.

440:377. Symmetrical Components II.
3 *credits.* (3-0)
Prerequisites, 375 and 355. Sequence impedance of machines, sequence filter circuits, impedance calculations of transmission lines, and simultaneous fault calculations.

440:379. Computer Circuitry. 4 *credits.* (3-1)
Prerequisite, 366. Analysis of computer circuits. Introduction to the use of Boolean Algebra and mapping techniques in analyzing switching circuits.

GRADUATE COURSES

440:600. Linear Circuit Analysis I.
3 *credits.* (3-0)
Prerequisite, 345:225 and B.S. in Electrical Engineering or permission. Steady state and transient response of circuits in time and frequency domain via use of Fourier, Laplace and State Variable methods.

440:601. Linear Circuit Analysis II.
3 *credits.* (3-0)
Prerequisite, 600. Continuation of 600 with emphasis on the circuit. Use of pole-zero and matrix methods in circuit studies.

440:602. Network Analysis and Synthesis.
3 *credits.* (3-0)
Prerequisite, 601. Study of filter circuits. Synthesis techniques such as Foster and Cauer.

440:603. Principles of Servomechanisms.
3 *credits.* (3-0)
Prerequisite, 373 or permission of instructor. Formulation of describing equations for electro-

mechanical systems. Modern techniques of linear system analysis.

440:604. CONTROL SYSTEM THEORY.
3 *credits.* (3-0)
Prerequisite, 603. The stability problem. State variable feedback. Advanced topics in linear synthesis.

440:605. NON-LINEAR CONTROL THEORY.
3 *credits.* (3-0)
Prerequisite, 604. Techniques for the determination of stability for non-linear systems such as describing function analysis, the second method of Liapunov, and Popov frequency locus techniques.

440:606. ELECTROMAGNETIC FIELD THEORY I.
3 *credits.* (3-0)
Prerequisite, 352 or permission. Advanced field theory including boundary value problems and solutions in rectangular, cylindrical and spherical coordinates. Applications of Maxwell's equations to lines, waveguides and cavities.

440:607. ELECTROMAGNETIC FIELD THEORY II.
3 *credits.* (3-0)
Prerequisite, 606. Application of Maxwell's equations continued. Propagation equations and antenna analysis.

440:608. SEMICONDUCTOR ELECTRONICS.
3 *credits.* (3-0)
Prerequisite, 660. Concepts of semiconductor physics and circuit design.

440:609. SEMICONDUCTOR APPLICATIONS I.
3 *credits.* (3-0)
Prerequisite, 608. 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.

440:611. DATA ANALYSIS. 3 *credits.* (3-0)
Prerequisite, 345:225. Analysis, interpretation and smoothing of engineering data through application of statistical and correlation methods. Use of probability and Gumbel papers.

440:612. SYSTEMS ANALYSIS. 3 *credits.* (3-0)
Prerequisite, 345:225. Application of operations research methods and optimization approach to engineering problems. Linear and dynamic programming, queueing, and Monte Carlo techniques.

440:613. OPTIMAL AND ADAPTIVE CONTROL THEORY. 3 *credits.* (3-0)
Prerequisite, 373. The design of control systems to minimize scalar performance indices. Introduction to Pontryagin's Maximum Principle.

440:614. RANDOM PROCESS ANALYSIS.
3 *credits.* (3-0)
Prerequisite, 613. Analysis and design of control systems with stochastically defined input. Introduction to estimation filters.

440:615. SPECIAL PROBLEMS. 1 to 6 *credits.*
Prerequisite, permission of department head. For qualified candidates for the Master's degree. Supervised research or investigation in student's major field of training or experience. Credit dependent upon nature and extent of project as determined by supervisor, department head or dean.

440:616. POWER SYSTEM ANALYSIS I.
3 *credits.* (3-0)
Prerequisite, B. S. degree in electrical engineering. Study of transient conditions in electrical machinery and unbalanced three phase networks.

440:617. POWER SYSTEM ANALYSIS II.
3 *credits.* (3-0)
Prerequisite, 616 or permission. Positive, negative and zero sequence impedance calculations of apparatus and lines. ABCD constants of power systems, power circle diagrams.

440:618. POWER SYSTEM ANALYSIS III.
3 *credits.* (3-0)
Prerequisite, 617 or permission. Steady state and transient stability analysis of power systems.

440:619. COMPUTER APPLICATION I.
3 *credits.* (3-0)
Prerequisite, 345:160 and 225. Organization of engineering problems for computer adaptation. Subject matter selected from various branches of engineering.

440:620. COMPUTER APPLICATION II.
3 *credits.* (3-0)
Prerequisite, 619. Extension of 619 into more complex problems selected by students on the basis of interest. Class operation will be more or less of a seminar.

440:621. PROTECTIVE RELAYING. 3 *credits.* (3-0)
Prerequisite, 617 or permission. The principles and application of relays as applied to the protection of power systems.

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)
Sequential; prerequisite, 300. Entropy, inequality of Clausius, the irreversible process, irreversibility, availability, cycle analysis.

460:302. THERMODYNAMICS III. 3 *credits.* (3-0)
Sequential; prerequisite, 301. Maxwell relations, real gases, ideal mixtures, fugacity, chemical reactions, phase and chemical equilibrium, nozzle and blade passage flow.

460:310. FLUID MECHANICS. 3 *credits.* (3-0)
Sequential; prerequisite, 430:302. 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. Characteristics of turbines, pumps, and fluid couplings.

460:311. COMPRESSIBLE FLUID MECHANICS.
3 *credits.* (3-0)
Sequential; prerequisite, 310. Ideal flow, flow with friction, flow with heat transfer. Shock.

460:315. HEAT TRANSFER. 4 *credits.* (3-1)
Sequential; prerequisite, 310. Fundamentals of heat transfer by conduction, convection, radiation, and combinations of these.

460:320. KINEMATIC ANALYSIS OF MECHANISMS.
4 *credits.* (3-1)
Sequential; prerequisite, 345:225. Displacements, velocities, accelerations, and introduction to static and inertia forces in plane-motion mechanisms. Introduction to design of gears, gear trains, and cams.

460:325. VIBRATIONS. 3 *credits.* (3-0)
Sequential; prerequisites, 430:303, 345:225. Undamped, damped, and forced vibrations for systems having a single degree of freedom.

460:330. DYNAMICS OF MACHINERY.
4 *credits.* (3-1)
Sequential; prerequisites, 320, 430:302. Dynamic analysis of components and machines—dynamic forces and reactions. Balancing of rotating and reciprocating masses.

460:335. ANALYSIS OF MECHANICAL COMPONENTS.
4 *credits.* (3-1)
Sequential; prerequisites, 330, 430:303. Materials and design stresses. Theories of failure for static, dynamic, and thermal loads. Application to analysis and design of components.

460:340. MECHANICAL MEASUREMENTS.
3 *credits.* (2-1)
Sequential; prerequisites, 345:225, 440:190. Dimensional analysis. Data reduction. Measurement of force, torque, displacement, velocity, acceleration, mass, temperature, pressure, heat, light, sound, fluid flow, vibrations. Instrument location and response. Error analysis.

460:360. ENGINEERING ANALYSIS I.
3 *credits.* (3-0)
Sequential; prerequisite, 345:225. Application of ordinary differential equations to the solution of problems in mechanical engineering.

460:361. ENGINEERING ANALYSIS II.
3 *credits.* (3-0)
Sequential; prerequisite, 360. Special topics in the "closed-form" analysis of problems in mechanical engineering.

460:362. ENGINEERING ANALYSIS III.
3 *credits.* (3-0)
Sequential; prerequisite, 361. The application of numerical and computer techniques to the solution of problems in Mechanical Engineering.

460:410. ENVIRONMENTAL CONTROL.
3 *credits.* (3-0)
Sequential; prerequisites, 320, 315 or permission. Thermodynamics of gas mixtures. Physiological requirements for sustenance and comfort. Control of gas mixtures, heating, cooling, and humidity.

460:412/512. PRINCIPLES OF NUCLEAR ENGINEERING I. 3 *credits.* (3-0)
Prerequisite, permission. Basic principles of nuclear engineering. Review of nuclear physics with application to nuclear engineering.

460:415. ENERGY CONVERSION. 3 *credits.* (3-0)
Sequential; prerequisite, 320. Cycle analysis. Modern conversion devices.

460:420. MECHANICAL DESIGN I. 4 *credits.* (3-1)
Sequential; prerequisite, 335. The design process. Creativity and inventiveness. The tools of decision making—probability, reliability, optimization.

460:421. MECHANICAL DESIGN II. 4 *credits.* (3-1)
Sequential; prerequisite, 420. Decision-making. The interdisciplinary aspects of design. Case studies and projects.

460:422/522. EXPERIMENTAL STRESS ANALYSIS I.
3 *credits.* (3-0)
Sequential; prerequisite, 420, 430:303. Experimental methods of determining stress or strain. Use of brittle lacquer, strain gages, and photoelasticity. Advantages and limitations of each method. May be taken for graduate credit.

460:430/530. ENGINEERING DYNAMICS I.
3 *credits.* (3-0)
Prerequisites, 430:103, 345:114. Engineering applications of: systems of particles, work, energy, Lagrangian mechanics, rigid body kinetics, the inertia tensor.

460:440. AUTOMATIC CONTROLS I.
3 *credits.* (3-0)
Sequential; prerequisite, 345:225. 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)
Sequential; prerequisite, 440. Transfer functions. First and second order systems. System accuracy and error analysis. Stability criteria. Polar and log-frequency plots.

460:495. MECHANICAL ENGINEERING PROBLEMS.
1-3 *credits.*
(May be repeated for a maximum of 3 credits.)
Sequential; prerequisite, senior standing. Investigation of a project by individual or small student groups. Detailed formal report required.

460:496. SPECIAL TOPICS. 3 *credits.* (3-0)
Sequential; prerequisite, permission. Brief description of current content to be announced in schedule of classes.

GRADUATE COURSES

460:600. FLUID DYNAMICS. 3 *credits.* (3-0)
Sequential; prerequisites, 310, 302. Fluid flow as affected by thermodynamic considerations. Study of shock and shock areas. Application of dynamic fluid flow.

460:605. JET PROPULSION PRINCIPLES.
3 *credits.* (3-0)
Sequential; prerequisites, 310, 302. Fundamentals of propulsion systems. Analysis of ramjet, turbojet, rockets, and thrust augmentation.

460:608. THERMODYNAMICS. 3 *credits.* (3-0)
Sequential; prerequisites, 302, 345:225. (345: 432 desirable). Extension and generalization of the basic concepts of thermodynamics. Thermodynamic systems and states. Criteria for equilibrium. Third law. Irreversible processes.

460:610. DYNAMICS OF VISCOUS FLOW I.
3 *credits.* (3-0)
Prerequisites, 430:643 or permission. Mathematical derivation and solution of the conservation equations for viscous flow. Fractional analysis of basic equations and boundary conditions to obtain simplified models. Boundary layer analysis. Application to engineering problems by exact and approximate methods. Consideration of laminar and turbulent flows. Temperature dependent properties. Tensor notation.

460:611. DYNAMICS OF VISCOUS FLOW II.
3 *credits.* (3-0)
Prerequisite, 460:610. Continuation of Dynamics of Viscous Flow I. Laminar boundary layer theory, similarity solutions and integral methods. Consideration of high speed flows in a continuum and in a rarefied atmosphere.

460:612. PRINCIPLES OF NUCLEAR ENGINEERING.
II. 3 *credits.* (3-0)
Prerequisite, 460:412. Study of theory, design and operation of nuclear reactors, including, shielding calculations, instrumentation, health physics, fuel cycles and use of radioactive isotopes.

460:615. CONDUCTIVE HEAT TRANSFER.
3 *credits.* (3-0)
Sequential; prerequisites, 315, 345:225, (345: 432 desirable). Study of the one-, two-, and three-dimensional conduction equation. Development of theoretical, graphical, and analog techniques for analysis and design.

460:616. CONVECTIVE HEAT TRANSFER.
3 *credits.* (3-0)
Sequential; prerequisites, 315, 345:225, (345: 432 desirable). Study of the equations for convective heat transfer and the conditions associated with the equations. Techniques for analysis and design.

460:617. RADIATIVE HEAT TRANSFER.
3 *credits.* (3-0)
Sequential; prerequisites, 315, 245:225, (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.

460:618. HEAT TRANSFER PROBLEMS.
3 *credits.* (3-0)
Sequential; prerequisite, permission. Special topics and problems in conduction, convection, or radiation.

460:620. EXPERIMENTAL STRESS ANALYSIS II.
3 *credits.* (3-0)
Sequential; prerequisite, 422. Continuation of 422. Course covers design of transducers, reflective photoelasticity, and Moire fringe techniques.

460:621. EXPERIMENTAL STRESS ANALYSIS III.
3 *credits.* (3-0)
Sequential; prerequisite, 620. Measurement of dynamic stress or strain. Special topics and projects in experimental stress analysis.

460:622. CONTINUUM MECHANICS. 3 *credits.*
(3-0)
Prerequisites, 430:103, 345:114 or equivalent. 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 those of thermodynamics. Relations between stress and strain and strain rate. Specialized laws affecting the stress-strain relationships.

460:623. APPLIED STRESS ANALYSIS *I.* 3 *credits.* (3-0)
Prerequisite, 460:622. Elastic analysis of stress, stress analysis beyond elastic limit, Non-Linear elastic stress analysis, mathematical techniques applied to stress analysis.

460:624. APPLIED STRESS ANALYSIS *II.* 3 *credits.* (3-0)
Prerequisite, permission. Stress analysis of systems subjected to dynamic loads, stress analysis of elements subjected to thermal loads. The concept of stress, advanced topics in fatigue, creep, stress relaxation and related effects.

460:625. ANALYSIS OF MECHANICAL COMPONENTS. 3 *credits.* (3-0)
Sequential; prerequisite, 420. Theories of failure. Determination of strength-static loading, fatigue, creep, and stress rupture. Determination of stress-torsion, contact stress, and thermoelastic problems.

460:626. THERMOELASTICITY. 3 *credits.* (3-0)
Prerequisite, 430:602. Thermoelastic equations, thermal stresses, dynamical thermal stress problems, Papkovitch potentials, variational methods.

460:627. NON-LINEAR CONTINUUM MECHANICS. 3 *credits.* (3-0)
Prerequisites, 460:622 or permission. Finite deformation and strain, stress, constitutive equations, strain energy functions. The solution of finite deformation problems, hypoelasticity, and electro-elasticity.

460:630. MECHANICAL VIBRATIONS I. 3 *credits.* (3-0)
Sequential; prerequisite, 345:225. The study of free vibrations, damped vibrations, transient response, and forced vibrations in linear elastic systems. This course is intended for those graduate students who have done no previous course work in vibrations.

460:631. MECHANICAL VIBRATIONS II. 3 *credits.* (3-0)
Sequential; prerequisite, 630 or equivalent. Laplace transform and Fourier series analysis of linear systems. Analysis of two-degree-of-freedom systems, multimass lumped systems, and distributed mass systems.

460:632. RANDOM VIBRATIONS. 3 *credits.* (3-0)
Prerequisites, 460:630 or equivalent. Stationary random processes and their transmission through linear time-invariant systems. Interaction of random vibration with three mechanisms of failure.

460:633. ENGINEERING DYNAMICS II. 3 *credits.* (3-0)
Prerequisite, 460:530. Engineering applications of: Euler's differential equation, Hamilton's principle, the principle of Manpertuis oscillatory motion, phase space, and the Hamilton-Jacobi equation.

460:660-661. ENGINEERING ANALYSIS I & II. 3 *credits each quarter.* (3-0)
Sequential; prerequisite, 345:225. The engineering method as typified by selections, application, execution, and comparison of effective solution precedures. Accuracy considerations. Methods of checking. Analysis and interpretation of results.

460:680. POLYMER PROCESSING. 3 *credits.* (3-0)
Sequential; 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)
Sequential; prerequisite, 430:303 or 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.*
Sequential; 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.*
Sequential; prerequisite, permission. Research and thesis on some suitable topic in mechanical engineering.

The College of Education

510: GENERAL AND FOUNDATION EDUCATION

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.

510:360. NURSERY SCHOOL LABORATORY 4 *credits* (1-4)
Prerequisite, 740-165. Concentrated experience in nursery schools under the direction of a supervising teacher and a University supervisor.

510:400. STUDENT PARTICIPATION. 1 *credit.*
Systematic observation and participation in the classroom.

510:401. PROBLEMS IN EDUCATION. 5 *credits.*
Prerequisite, Senior status in Education. To assist the Senior student in developing a personal philosophy of education upon which he will base his professional practices; to deepen personal commitment to teaching as a profession.

510:402. STUDENT TEACHING. 6-9-12 *credits.*
Corequisite, 403, prerequisite, 530:313 or equivalent. Student teaching under supervision of supervising teacher and University supervisor.

510:403. SEMINAR IN STUDENT TEACHING. 3 *credits.*
Corequisite, 402.

510:405. INDEPENDENT STUDY. 3-4 *credits.*
Designed for students who have demonstrated high academic achievement and who wish to do special work in education.

510:410/510. 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

510:603. EDUCATION AND SOCIAL TRENDS. 3 *credits.*
Study of contemporary political, economic and social trends and their effects on educational policies and practices.

510:690-691-692. INTERNSHIP TEACHING AND SEMINAR. 4 *credits each quarter.*
Teaching at least ½ time under supervision from the University and the school system. Includes a two-hour seminar each week.

510:700. PHILOSOPHIES OF EDUCATION. 5 *credits.*
A survey and analysis of educational ideas and their relationship to society throughout the history of Western Culture, with some emphasis on contemporary philosophies.

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, 510:701 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.

510:705. 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.

510:706. COMPARATIVE EDUCATION. 3 *credits.*
Educational philosophy and organization in foreign countries.

510:730. 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.

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.

520:162. ELEMENTARY SCHOOL MUSIC LITERATURE AND APPRECIATION. 3 *credits.*
Prerequisite, 750:161. For non-music majors only. Materials and methods for teaching music appreciation in the grades. Correlation of these methods and materials with children's activities. A study of the enjoyment of familiar music through recordings, films and required concert attendance.

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.

520:321. 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.

520:322. PRIMARY-ELEMENTARY MUSIC EDUCATION. 3 *credits.*
Prerequisite, 750:161. For non-music majors only. Theory and practice of presenting general music in the grades. Discussion of objectives and methods for grades one through six and a survey of materials in these fields. Required observations of music teaching in the city schools.

520:323. TEACHING AND SUPERVISION OF MUSIC IN THE PRIMARY GRADES. 2 *credits.*
Prerequisite, 750:253. To prepare vocal and instrumental music teachers for organizing, teaching, and supervising music education in the primary grades (1-3). Observation and participation are required.

520:324. TEACHING AND SUPERVISION OF MUSIC IN THE ELEMENTARY GRADES. 2 *credits.*
Prerequisite, 520:323. To prepare vocal and instrumental music teachers for organizing, teaching, and supervising music education in the elementary grades (4-6). Observation and participation are required.

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, 520:330. 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, 520:331. 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 a study of methods of presenting science material.

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. ARITHMETIC IN THE ELEMENTARY GRADES. 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. 3 *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. 4 *credits.*
Nature of reading problems in a classroom setting. Methods and materials employed in a corrective reading program by the classroom teacher.

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.

520:631. ELEMENTARY SCHOOL ADMINISTRATION. 3 *credits.*
Prerequisite, 570:601. Problems, procedures and principles of organization, administration and supervision in elementary schools.

520:640. THEORY AND PRACTICE IN ELEMENTARY MATHEMATICS. 5 *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.

520:732. SUPERVISION OF INSTRUCTION IN THE ELEMENTARY SCHOOL. 3 *credits.*
A study of supervisory role of the elementary principal and other supervisory personnel. Con-

sideration 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.*
An intensive examination of a particular discipline in elementary education.

530: SECONDARY EDUCATION

530:313. PRINCIPLES AND PRACTICES IN SECONDARY EDUCATION. 5 *credits.*
Prerequisite, 565:157. Four units of study carried on concurrently: (1) basic principles of teaching; (2) a working knowledge of methodology in a specific field; (3) observaton and participation; (4) preparation of teaching materials.

530:314. TEACHING OF SPEECH. 3 *credits.*
Methods to improve speech of elementary and secondary school children.

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. 5 *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.

530:325. TEACHING AND SUEPRVISION OF MUSIC IN THE JUNIOR HIGH SCHOOL. 2 *credits.*
Prerequisite, 520:324. To prepare music teachers for organizing, teaching, and supervising music education in junior high school grades (7-9). Special emphasis on the adolescent voice, the changing voice, the general music class, and special interest groups and ensembles. Observation and participation required.

530:326. TEACHING AND SUPERVISION OF MUSIC IN THE SENIOR HIGH SCHOOL. 2 *credits.*
Prerequisite, 750:253 and 361. To prepare music teachers for organizing, teaching, and supervising music education in the senior high school. Emphasis will be on theory and applied music, especially instrumental organizations.

530:351. HOME ECONOMICS EDUCATION. 5 *credits.*
Organization of home economics in secondary schools. Two hours observation, two hours lecture.

530:373. PRINCIPLES OF TYPEWRITING INSTRUCTION. 2 *credits.*
Prerequisite, Typewriting 254:155 and a quality point ratio of 2 in the field. Methods of presentation in typewriting. Demonstrations and observations required. A theory test in the field must be passed before credit will be given for the course.

530:374. PRINCIPLES OF SHORTHAND INSTRUCTION. 2 *credits.*
Prerequisite, Shorthand 254:163 and a quality point ratio of 2 in the field. Methods of presentation in shorthand and transcription. Demonstrations and observations required. A theory test in the field must be passed before credit will be given for the course.

530:375. PRINCIPLES OF BOOKKEEPING INSTRUCTION. 2 *credits.*
Prerequisite, Accounting 620:222 and a quality point ratio of 2 in the field. Methods of presentation in bookkeeping, business cycle, practice sets and lesson plans. A theory test in the field must be passed before credit will be given for the course.

530:425/525. READING PROGRAMS IN SECONDARY SCHOOLS. 3 *credits.*
Relationship of reading to human development; materials, class organization and procedures for developing reading improvement programs for high school and college students.

GRADUATE COURSES

530:619. SECONDARY SCHOOL CURRICULUM AND INSTRUCTION. 3 *credits.*
Application of the findings of recent research to curriculum building and procedures in teaching.

530:620. SECONDARY SCHOOL ADMINISTRATION. 3 *credits.*
Prerequisite, 570:601. Problems, procedures and principles of organization and administration in secondary schools.

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.*
An intensive examination of a particular area of secondary education.

555: PHYSICAL EDUCATION

555:101. APPLIED ANATOMY. 5 *credits.*
Study of the human body; origin, insertion, action, innervation and blood supply of the important muscles of the body in relation to Physical Education and health.

555:102. Applied Physiology. 4 *credits.*
General laws of life; functional activity of tissues, organs, systems; what they can do and how they work in everyday life.

555:170. Organization and Administration of Recreation. 3 *credits.*
Administration, budgets, management of individual playgrounds, the neighborhood recreation center and community activities.

555:304. Theory and Practice of Swimming. 3 *credits.*
Analysis of strokes, dives and related skills; methods and practice in teaching of swimming.

555:311. 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.

555:315. Adaptive Physical Education. 3 *credits.*
Prerequisite, 101 and 102. 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.

555:321-322. Organization and Administration of Physical Education. 3 *credits each quarter.*
Organization and administration of Physical Education programs.

555:325. Organization and Administration of School Health. 4 *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. 5 *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.

555:338. Health and Physical Education Activities for Elementary Grades. 5 *credits.*
Two lectures and two laboratory periods each week. Philosophy and objectives of health and Physical Education programs on the elementary level. Practice in teaching games and rhythms of low organization; planning health and Physical Education programs based upon needs, interests and development of elementary children; common communicable and non-communicable diseases; methods of organization; study of source materials available.

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, sceondary 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 educaton 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

557:145-146. Basic Course in Physical Education Activities. 3 *credits each quarter.*
For men majoring in Physical Education. Learn-

ing rules and skills in sports, games and activities commonly included in Physical Education programs.

557:193-194. THEORY AND PRACTICE OF PHYSICAL EDUCATION. 3 *credits each quarter.*

Prerequisite, 146. 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.

557:305-306. THEORY AND PRACTICE OF ATHLETICS. 3 *credits each quarter.*

Interpretation of rules, techniques and practice in officiating in team and individual sports.

557:312. ATHLETIC INJURIES AND MASSAGE. 2 *credits.*

Theory and practice in scientific manipulation of the muscles as related to therapeutic exercise.

559: WOMEN'S PHYSICAL EDUCATION

559:147-148. BASIC COURSE IN PHYSICAL EDUCATION ACTIVITIES. 3 *credits each quarter.*

For women majoring in Physical Education. Learning rules and skills in sports, games and activities commonly included in Physical Education programs.

559:195-196. THEORY AND PRACTICE OF TEAM AND INDIVIDUAL SPORTS. 3 *credits each quarter.*

Prerequisite, 148. Analysis of skills essential to selected sports, techniques of organizing and teaching classes in these sports, laboratory experience through supervised teaching in service courses, application of current rules in officiating.

559:303. THEORY AND PRACTICE OF PHYSICAL EDUCATION. 3 *credits.*

Historical development, methods and practice in the teaching of apparatus, gymnastics, stunts and tumbling. Tests and measurements in Physical Education.

559:308. THEORY AND PRACTICE OF DANCE. 3 *credits.*

Analysis of the basic dance steps for folk, square and social dance; square dance calling; modern dance technique and improvisations; methods and materials of teaching dance. Supervised teaching in service courses.

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.

GRADUATE COURSES

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.

560:605. 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.

560:606. 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.

560:607. PATTERNS OF CAREER DEVELOPMENT. 3 *credits.*

Prerequisite, 608. Traces career development from early childhood through retirement and provides fundamental knowledge necessary in elementary and secondary counseling in the area of careers.

560:608. TECHNIQUES OF GUIDANCE. 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.

560:609. VOCATIONAL GUIDANCE AND OCCUPATIONAL INFORMATION. 3 *credits.*

Sources, organization and uses of occupational information; principles, practices and techniques of group instruction and individual guidance in studying, evaluating and choosing an occupation.

560:610. THE COUNSELING INTERVIEW—APPROACHES, PROCEDURES AND EVALUATIONS. 3 *credits.*

Prerequisite, 608 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 615.)

560:612. GROUP AND EDUCATIONAL GUIDANCE. 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.

560:614. EVALUATION AND DIAGNOSIS OF LEARNING PROBLEMS. 4 *credits.*

Study and measurement of factors leading to learning problems with some attention to remedial procedures.

560:615. PRACTICUM IN COUNSELING. 5 *credits.*

Prerequisite, 608. Supervised counseling experience with individuals and small groups.

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 quarter.*

Prerequisite, 590:713, approval 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 quarter.*

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.*

Prerequisites, 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.

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

565:601. DEVELOPMENTAL PROCEDURES IN LEARNING. 3 *credits.*

Basic concepts in the areas of human development and learning and their practical application by the classroom teacher in working with individuals and groups.

570: SCHOOL ADMINISTRATION

GRADUATE COURSES

570:601. PRINCIPLES OF EDUCATIONAL ADMINISTRATION. 5 *credits.*

Theory and practices of educational administration in state and county systems, cities and rural districts. School law, organizing, administration, finance, pupil accounting, planning and completion of school buildings.

570:602. 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.

570:603. PRINCIPLES OF SCHOOL FINANCE. 3 *credits.*

Prerequisite, 601. Study of financial operations of school systems including tax and other income, expenditures and budgeting.

570:604. SCHOOL AND COMMUNITY RELATIONS. 3 *credits.*

Principles and practices in maintaining cooperative relationships between the schools and the public.

570:610. PRINCIPLES OF EDUCATIONAL SUPERVISION. 5 *credits.*

Study of the principles, organizations and tech-

niques 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.

570:701. SCHOOL BUILDING AND CONSTRUCTION. 3 *credits.*

Prerequisite, 601. Designed mainly for the potential superintendent, executive head or 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.

570:710. 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.

570:720. EVALUATING EDUCATIONAL INSTITUTIONS. 3 *credits.*

Laboratory course in which the evaluation of educational institutions will be made by use of up-to-date techniques and criteria.

570:730. SEMINAR IN SCHOOL ADMINISTRATION. 4 *credits.*

Prerequisites, 601 and 590:603. Focus will be on recent research in administration; current problems in school administration will be explored, especially those dealing with organization theory and those in which new research has been done.

580: SPECIAL EDUCATIONAL PROGRAMS

580:420/520. 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.

580:431-434/531-534. WORKSHOP. *(Elementary or Secondary School)* 3-4 *credits each quarter.*

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. 3-4 *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. 3-4 *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. 3-4 *credits.*

Opportunity for individual work under staff guidance or curriculum problems; utilization of community resources; planning of curriculum units.

580:438/538. WORKSHOP ON EXCEPTIONAL CHILDREN. 3-4 *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. 3-4 *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. 3-4 *credits.*

Opportunity for individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

580:460/560. 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.

580:461/561. PRINCIPLES OF TEACHING EXCEPTIONAL CHILDREN. 4 *credits.*

Basic principles underlying the instruction of exceptional children—slow learners, gifted, physically handicapped, etc.

580:462/562. 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.

580:463/563. ARTS AND CRAFTS FOR THE SLOW LEARNER. 3 *credits.*

Arts and crafts especially suited to the unique characteristics of slow learners.

580:464/564. 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.

580:465/565. 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.

580:466/566. 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.

580:468/568. 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.

580:470-479/570-579. EDUCATIONAL INSTITUTES AND FOUNDATION PROGRAMS. 3-4 *credits each quarter.*

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.

580:481/581. SOCIOLOGICAL FOUNDATIONS OF INNER-CITY SCHOOL PROBLEMS. 5 *credits.*

The basic characteristics of the inner-city: deterioration, social stratification, value patterns, etc., and their effects on the school and the educational process.

580:482/582. 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

580:680. 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.

580:681. DIAGNOSIS OF READING PROBLEMS. 5 *credits.*

Prerequisite, 520:335 or 530:445 or 580:680 or permission. Relation of growth to reading development and reasons for retardation. Implementation of diagnostic techniques by developing case studies in a supervised setting.

580:682. CORRECTION OF READING PROBLEMS. 5 *credits.*

Prerequisite, 580:681. Incorporating formal and informal procedures for screening disabled readers. Study of materials and techniques for improving reading performance.

580:683. CLINICAL PRACTICES IN READING I. 4 *quarter hours.*

Prerequisite, 580:682. 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.

580:684. CLINICAL PRACTICES IN READING II. 4 *quarter hours.*

Prerequisite, 580:683. 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.

580:686. 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.

580:692. ADVANCED STUDY AND RESEARCH IN READING INSTRUCTION. 5 *credits.*

Prerequisites, 520:335 or 530:425; 590:603 and teaching experience. Survey of research, comparison and evaluation of programs, design and development of projects in reading through group and individual study.

580:693. SUPERVISION AND CURRICULUM DEVELOPMENT IN READING INSTRUCTION. 3 *credits.*

Prerequisites, 530:619 or 520:630, and teaching experience. Study of reading realtive 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.

580:759. 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.

580:760-761-762. INTERNSHIP IN SCHOOL PSYCHOLOGY. 3 *credits each quarter.*

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.

590: EDUCATIONAL RESEARCH

GRADUATE COURSES

590:603. TECHNIQUES OF RESEARCH. 3 *credits.*
Research methods and techniques commonly used in education and psychology; preparation of research reports.

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.

590:810-811-812. FIELD EXPERIENCE. 3 *credits each quarter.*
On the job experience in a public school system working with administrators and/or supervisors.

590:890. RESEARCH PROJECTS IN SPECIAL AREAS. 3 *credits.*
Study, analysis and reporting of an educational problem.

590:899. RESEARCH IN EDUCATION. 3-30 *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. ACCOUNTING. 4 *credits each quarter.*
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.*
Prerequisite, 222 and 6 credits of Economics. 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.*
Prerequisite, 222 and 6 credits of Economics. 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 quarter.*
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 graduate 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 quarter.*
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. Accounting 430 is a prerequisite for 431.

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.

620:454/554. 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.

620:460/560. CONTROLLER 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. ACCOUNTING PROBLEMS. 4 *credits.*
Prerequisite, 318 and permission of instructor. Individual research on an advanced accounting problem in area of student's particular interest.

620:488/588. CPA PROBLEMS—AUDITING.
3 *credits.*

620:489/589. CPA PROBLEMS—THEORY. 3 *credits.*
Prerequisites, 430, 440 and approval of instructor. Application of auditing and accounting theory through the study of advanced problems.

620:491. SEMINAR IN ACCOUNTING. 1-3 *credits.*

GRADUATE COURSES

620:610. ACCOUNTING MANAGEMENT AND CONTROL. 5 *credits.*
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.*
This course invites a critical examination of accounting concepts and standards. Current trends are discussed.

620:680. INTERNATIONAL ACCOUNTING. 5 *credits.*
Prerequisite, 420. International variations in accounting standards and reporting problems; auditing problems in the multinational firm.

620:698. SEMINAR IN ACCOUNTING. 5 *credits.*
Research projects, group reports and discussions.

640: FINANCE

640:161. Business Organization and Management. 4 *credits.*

Survey of modern business procedures, including kinds of business organizations, production systems, personnel problems, wage payment plans, product design, purchasing, marketing and advertising.

640:341-342. Business Law. 341, 5 *credits;* 342, 4 *credits.*

Sequential. Origin of commercial law, operation and discharge of contracts; law of sales, agency, negotiable instruments; partnerships and corporations; recent court cases integrated with the text material to demonstrate how principles apply to concrete cases.

640:344. Law of Credit and Collections. 3 *credits.*

Types and characteristics of sales contracts; law of collection procedure, liens, and other legal recourses of creditors.

640:346. Real Estate Law. 3 *credits.*

Legal problems connected with property transfer and acquisition, landlord and tenant relationships, trusts, etc.

640:356. Foreign Trade. 5 *credits.*

Prerequisite, 9 credits of Economics. Economics and practices of foreign trade with emphasis on world trade from the standpoint of United States.

640:358. Principles of Insurance. 4 *credits.*

Prerequisite, 371. Underlying principles on which all forms of insurance are based. Beginning with the theory of probabilities, the principles are developed as they apply to the divisions of insurance—life, fire, marine, casualty and security bonds.

640:371. Business Finance. 5 *credits.*

Prerequisite, 620:222 and 9 credits of Economics. Principles and practices used in financing large and small organizations. Forms of organization, raising of capital by means of stocks and bonds, investing the capital in fixed and working assets, conservation of capital, failures and reorganization.

640:374. Credits and Collections. 3 *credits.*

Prerequisites, 161 and 9 credits of Economics, or experience. Nature and fundamentals of credit, credit investigation and analysis, credit and collection operations, collection aids and problems.

640:376. Banking Practice and Management. 5 *credits.*

Prerequisite, 371. Surveys work of the more important credit institutions, including commercial banks, finance companies, savings banks and consumer credit and government credit agencies. Role of each type of institution in the economic system. Function of bank reserves; bank portfolio policy; capitalization and earning power; impact of public policy upon organization, structure, and operation of the credit system.

640:450. Business and Society. 5 *credits.*

Prerequisite, Senior standing and permission. Primarily a conceptional course which considers the economic and social implications of modern business in society and the norms and values by which their functioning is or might be directed.

640:472. Investments. 5 *credits.*

Prerequisite, 371. Formulation of investment policies for various types of individual and institutional investors, consideration of principles and techniques applicable to analyzing securities of industrial corporations, railroad utilities and municipalities and to development of workable criteria for the selection or rejection of issues.

640:477/577. Security Analysis. 5 *credits.*

Prerequisite, 472. Comparative study of organized security markets. Principles and practices of organized stock exchanges and over-the-counter markets. Protecting the public interest through regulation and control of promotions, the issue of securities, underwriting practices and stock-trading practices.

640:479/579. Problems in Finance. 5 *credits.*

Prerequisite, 371. Financing of large corporations. Use of different types of securities as instruments of finance; internal financing by reserve accruals and by retention of net income: mergers, consolidation; and holding syndicates; influence of taxation on corporate policy; and reorganization under the Federal Bankruptcy Act.

640:499. Seminar. 1 *credit.*

Enables the student to make up a deficit in major area in his senior year.

GRADUATE COURSES

640:650. Administering Costs and Prices. 5 *credits.*

The purpose of the course will be to provide an understanding of the techniques used by managers in reaching both short and long-run decisions in these areas. The course will explore the areas of decision-making on costs and prices which determine business profitability.

640:665. Comparative Industrial Rationale. 5 *credits.*

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.*

Working capital management, controlling inventory investments, administering costs and funds, managing investment in plant and equipment, administering business income and forecasting for financial management.

640:678. CAPITAL BUDGETING. 5 *credits.*

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.

640:680. FINANCIAL PROBLEMS OF THE MULTINATIONAL FIRM. 5 *credits.*

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 GENERAL BUSINESS. 5 *credits.*

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 346. 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, 302. Study of the theory of work measurement and various methods used for the purpose, including work sampling and direct stopwatch time study. Emphasis is placed on evaluation and analysis of collected data.

650:346. BUSINESS STATISTICS I. 3 *credits.*

Prerequisite, 345:101. Nature and uses of statistical data, measures of location and variation, elementary probability, binomial and normal distributions, interval estimation, and hypothesis testing.

650:347. BUSINESS STATISTICS II. 3 *credits.*

Prereuqisite, 346. Tests of randomness, control chart concepts, linear regression, correlation, index numbers, and time series analysis.

650:350. PERSONNEL MANAGEMENT. 3 *credits.*

Prerequisite, 263. 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. 3 *credits.*

Prerequisite, 263. 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, 263 and 347. 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.

650:371. PRINCIPLES OF MANAGEMENT. 3 *credits.*

Prerequisites, 640:161 and 5 credits of Psychology. This course is a comprehensive introduction to modern management practices which examines conceptually the management process, management functions, and management principles.

650:403. PRINCIPLES OF CONTROL. 3 *credits.*

Prerequisite, 347. Control principles and techniques basic to management decision-making process and effective operational control.

650:404. PRODUCTION PLANNING AND CONTROL. 3 *credits.*

Prerequisite, 403. 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.*

Prerequisite, 403. 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, 347. Sampling theory and applications, random sampling, stratified sampling, systematic and cluster sampling, area and multistage sampling, ratio estimates, sampling in time series.

650:456/556. MANAGEMENT PROBLEMS. 2 *to* 5 *credits.*
Prerequisites, 403 and Senior Standing. The student applies modern management principles, practices and theory to an actual problem in industry.

650:469/569. PERSONNEL RELATIONS. 3 *credits.*
Prerequisites, 350 and 325:247. 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.*
Prerequisite, Senior standing. The course is designed to enable the student to understand informal organization; the philosophy of modern management; evaluation of objectives of management; policy requirements of business and use of various management tools in operating the business firm.

650:499. SEMINAR IN MANAGEMENT. 1 *to* 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

650:651. MANAGEMENT OF INTERNATIONAL OPERATIONS I. 3 *credits.*
Prerequisite, 668 and 325:641. 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 would be 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.*
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 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 quantification 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, 18 hours of graduate level credit designed to direct critical thinking toward the internal goal sharing and competitive nature of hierarchal 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 ORGANIZATIONS. 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 satisfactions and control patterns. Contemporary theories reflecting how people behave in organizations. Organizational lab assignments.

650:675. APPLIED INDUSTRIAL STATISTICS I. 3 *credits.*
Prerequisite, 447. 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, 30 hours of course work at the

Master's level. This is a course for the Master's in Industrial Management Degree candidate in his last two quarters. It enables the degree candidate 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

660:283. INTRODUCTION TO MARKETING. 4 *credits.*
Prerequisite, 6 credits of Economics. This broad course integrates commodity, institutional, functional and managerial concepts of the marketing process to provide the student with a total framework of the economic activity.

660:351. MARKETING LOGISTICS. 4 *credits.*
Prerequisite, 6 credits of Economics. 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.

660:352. TRAFFIC MANAGEMENT. 3 *credits.*
Prerequisite, 351. A functional consideration of commodity classifications, tariffs, routing, and traffic claims.

660:353-354. INTERNATIONAL COMMERCE.
4 *credits each quarter.*
Prerequisite, 6 credits of Economics. In the first quarter, students concentrate on principles of international trade, balances, and import and export distribution machinery. The second quarter pinpoints characteristics and potentials of various foreign markets. Credit not given for both Foreign Trade and International Commerce.

660:385. INTRODUCTION TO ADVERTISING. 3 *credits.*
Prerequisite, 283. 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.

660:386. ADVERTISING PROBLEMS. 3 *credits.*
Prerequisite, 385. Case analysis of specific corporate experience in consumer and industrial goods, and in the institutional setting.

660:388. SALES PROMOTION AND MARKET DEVELOPMENT. 4 *credits.*
Prerequisite, 283. In the context 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.

660:389. PURCHASING. 3 *credits.*
Prerequisite, 6 credits of Economics. 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.

660:394. MERCHANDSING PRINCIPLES I. 3 *credits.*
Prerequisite, 283. Reviews and applies the basic concepts of presenting merchandise to the customer, with special emphasis on the individual entrepreneur and the small, regionalized chain.

660:395. MERCHANDISING PRINCIPLES II. 3 *credits.*
Prerequisite, 394. A continuation of 394, this course focuses on large, national firms and chains. Attention is devoted to the implications of mass marketing for the firm's resources and its impact on the other functional areas.

660:484. RETAIL MANAGEMENT PROBLEMS.
3 *credits.*
Prerequisite, 395. 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.

660:486. ADVERTISING SEMINAR. 3 *credits.*
Prerequisite, 386. An intensive examination of the philosophical and theoretical considerations surrounding modern advertising in the U.S. Each student develops a contemporary case for discussion and analysis.

660:491/591. SALES ADMINISTRATION. 4 *credits.*
Prerequisites, 283, 385 or 388. 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.

660:493/593. MARKETING PROBLEMS. 4 *credits.*
Prerequisite, 491 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.

660:496/596. MARKETING ANALYSIS. 4 *credits.*
Prerequisites, 283, 650:346 and 347. 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. 2-4 *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

660:690. MARKETING MANAGEMENT AND POLICY.
3 *credits.*
This basic survey stresses company functions in relation to demand and consumer factors, and the cost and 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.

660:694. MARKETING THEORY. 3 *credits.*

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.

660:696. INTERNATIONAL MARKETING POLICIES. 3 *credits.*

Explores some of the problems of planning and implementing multinational markets including marketing to and within different national and regional areas. Attention is directed to the impact of different economic philosophies on marketing policies, strategies, channels, and communication problems with promotional media.

660:699. SEMINAR IN MARKETING. 3 *credits.*

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

710:121. DESIGN. 3 *credits.*
Basic principles of creative design and color theory. Discussion and studio. No credit toward major or minor in art for students starting Fall 1968.

710:123-124. COSTUME—STYLES AND FASHION. 3 *credits each quarter.*
Desirable that 121 precede this course. Design as applied to costume, contributing influences, the human figure, occasion and personality. Discussion and studio. No credit toward major.

710:125. DRAWING—DESIGN I. 5 *credits.*
Freehand drawing experience with an orientation to elements and principles of visual organization. Restricted media.

710:126. DRAWING—DESIGN II. 5 *credits.*
Prerequisite, 125. Continuation of Drawing—Design I. In-depth exploration of a wide range of techniques and media. Attention to controlled descriptive drawing and space illusion and their aesthetic applications. In addition to the studio work, the student will attend a series of weekly lectures which will provide an orientation to the wide range of career possibilities available in the art field.

710:133-134. HOUSE PLANNING AND DECORATION. 3 *credits each quarter.*
Desirable that 121 precede this course. Historic and contemporary styles in housing, interiors, furniture, textiles, etc. Discussion and studio. No credit toward major or minor.

710:135. UNDERSTANDING ART. 5 *credits.*
A foundation for the critical evaluation of the visual arts using the basic principles of design as applied to our environment, past and present. Consideration will be given to the possibilities and limitations of materials and processes in relation to design. No credit toward major or minor in art for students starting Fall 1968.

710:137-138. DESIGN AND COMPOSITION IN COMMERCIAL ART. 3 *credits each quarter.*
Principles of design as applied to commercial art, color theory, lettering, layout, reproduction processes. Discussion and studio. No credit toward major or minor.

710:143. INDUSTRIAL DESIGN. 3 *credits.*
Prerequisites, 121, 292:121-122. Materials and process requirements necessary to design for mass production. Discussion and studio.

710:145. DRAWING. 3 *credits.*
Prerequisite, 121 or permission of head of department. Fundamentals of graphic expression: perspective, development of form and space in line, value and texture through variety of media and techniques. Studio.

710:146. SPATIAL AWARENESS. 2 *credits.*
Prerequisites, 125 and 126. Development of the aesthetic perception of space. Emphasis is on awareness of three dimensional forms and their relationships to each other, to two-dimensional forms, and to environmental space.

710:147. TWO-DIMENSIONAL DESIGN. 3 *credits.*
Prerequisites, 125 and 126. Lecture and studio experience in two-dimensional design. Experimentation with systems for purposeful organization of visual elements. Study of visual theory including color theory.

710:150-151. DRAWING AND PAINTING. 3 *credits each quarter.*
Desirable that 145 precede this course. An introduction to painting, understanding and appreciation through application of fundamentals of color and composition. First quarter, oil; second quarter, water color. Studio. No credit toward major or minor.

710:175. HISTORY OF ART, ANCIENT, CLASSICAL AND MEDIEVAL. 2 *credits.*
Architecture, painting, sculpture, and minor arts, from prehistoric times to close of Middle Ages. Lecture. No credit toward major.

710:176. HISTORY OF ART, RENAISSANCE AND BAROQUE. 2 *credits.*
Arts of Western Europe (with exception of France) from close of Middle Ages to 1850. Lecture. No credit toward major or minor.

710:177. HISTORY OF ART, MODERN. 2 *credits.*
Arts of France from Gothic to present, art in United States, contemporary movements. Lecture. No credit toward major.

710:180-181-182. SURVEY OF HISTORY OF ART. 3 *credits each quarter.*
Sequential. Architecture, sculpture, painting and the minor arts from Prehistoric through Contemporary.

710:257. DESIGN AND CRAFTS. 3 *credits.*
Prerequisite, 121. Extension of design to objects in space; emphasis on the continuous interaction of physical materials, structural processes and significance of the total organization. Studio.

710:259. CERAMICS. 3 *credits.*
Prerequisite, 121. Design through the use of forming processes (hand-built and wheel), decorating, glazing, firing processes. Studio.

710:260. CERAMICS. 3 *credits.*
Prerequisite, 259. Advanced work in ceramic design, sculpture, molds, and glazes. Studio.

710:269. LIFE DRAWING. 3 *credits.*
Prerequisite, 145. Structure of the human figure: its anatomy, proportion and articulation as they relate to the visual arts. Studio.

710:290. ADVANCED DRAWING. 3 *credits.*
Prerequisite, 269. Drawing as an expressive, independent art form; development of creative attitudes through individual exploration of various media and techniques. Studio.

710:302. ADVANCED DESIGN IN CRAFTS. 3 *credits.*
Prerequisite, 257. Advanced problems of greater complexity and broader scope: individual exploration of sculptural and structural potentials of materials. Studio.

710:305. GRAPHIC ARTS. 3 *credits.*
Prerequisite, 269. Design related to screen printing (film or tusche), woodcut, wood engraving, acid and dry-point etching. Studio.

710:306-307. WEAVING. 3 *credits each quarter.*
Prerequisite, 121. Design related to weaving processes, warping and threading of looms, plain and pattern weaving, use of different looms and materials. Studio.

710:308-309. METAL CRAFT.
3 *credits each quarter.*
Prerequisite, 121. Creative design in terms of metals and processes, hammering, piercing, etching, stone setting, enameling. Studio.

710:315-316. PAINTING. 3 *credits each quarter.*
Prerequisite, 290 or permission. Creative and individual expression through painting media, color and composition, experimentation in techniques. First quarter, oil; second quarter, water color. Studio.

710:331-332. COMMERCIAL ART.
3 *credits each quarter.*
Prerequisite, 290. Professional approach to creative advertising art, lettering, layout, "finished art" techniques, reproduction processes. Studio.

710:351-352-353. COSTUME DESIGN.
3 *credits each quarter.*
Prerequisite, 269. Professional creative dress design, historic costume as source material. Discussion and studio.

710:371-372-373. INTERIOR DESIGN.
3 *credits each quarter.*
Sequential; prerequisites, 257, 145 and Technical Drawing I and II, 292:121-122. Professional approach to interior design, problems in house planning and furnishings, historic and contemporary furniture and interiors. Lectures, discussions, and studio.

710:379. BOOK ILLUSTRATION. 3 *credits.*
Prerequisite, 290. Professional approach to book illustration, different age levels, the book as an art form. Studio.

710:403-404-405/503-504-505. HISTORY OF ART SEMINAR. 3 *credits each quarter.*
Prerequisite, permission of head of department. A restricted field of study to be selected.

710:409/509. ADVANCED LIFE DRAWING.
3 *credits.*
Prerequisite, 290. A more fully developed conception of creative design in terms of the human figure and its significance as a fundamental expression element. Studio.

710:412/512. HISTORY OF ART IN THE UNITED STATES. 4 *credits.*
Prerequisite, 282 or permission. Consideration of the development of art in the United States from earliest evidences to approximately World War II.

710:413/513. HISTORY OF CONTEMPORARY ART.
4 *credits.*
Prerequisite, 282 or permission. A study of the significant developments in art during approximately the past 50 years.

710:425-426-427/525-526-527. SPECIAL PROBLEMS IN ART. 3 *credits each quarter.*
Prerequisite, permission of head of department. Problems of an advanced nature in the field of special interest. Studio.

740: HOME ECONOMICS

740:121. TEXTILES. 5 *credits.*
Natural and man-made fibers, their color, design, finishes and wearing quality, selection, use and care.

740:123. CLOTHING CONSTRUCTION. 5 *credits.*
Fundamental principles in use of patterns. Construction and fitting of garments. Line, design, color in relation to choice of material and pattern. Two or three garments will be made.

740:133. NUTRITION FUNDAMENTALS. 3 *credits.*
For students in Nursing or Community and Technical College. Basic nutritional principles and their application to self and others with normal nutritional needs; comparative nutritive value of various common foods; planning a well balanced diet with modifications in use of exchange lists.

740:141. FOOD FOR THE FAMILY. 4 *credits.* (1-4)
For non-majors. Application of nutrition to meal planning; problems in selection and buying of food on a budget; methods of food preparation; table etiquette, meal service, entertaining.

740:143. FOODS AND NUTRITION. 4 *credits.* (2-2)
Not open to majors or minors. Principles of

nutrition and cookery; selection and care of food; dietary requirements on various age levels, analysis of student's own diet, racial differences in dietary habits; cookery for the invalid, tray service.

740:145. General Foods. 3 *credits.* (1-4)
Composition of foods and principles involved in selection, purchase, and preparation.

740:146. General Foods. 3 *credits.* (1-4)
Continuation of 145. Meats, other protein foods, pastries.

740:147. Home Ec. Orientation. 2 *credits.*
History and development of home economics and survey of career opportunities.

740:158. House Furnishing. 3 *credits.*
Principles which contribute to a satisfactory selection and arrangement of home furnishings; selection of floor coverings, wall and window treatments, lighting, furniture, household textiles, china, glassware, silver, and accessories for the home in relation to styles of decoration, color, design, and cost.

740:159. Family Housing. 3 *credits.*
Understanding and evaluating home planning in relationship to the family values and needs. Includes study of material and services available for home building.

740:162. Home Management. 3 *credits.*
Operation and function of the home; human and material resources in the promotion of healthy family living; time, energy, and money management; purchase and use of household supplies and equipment.

740:165. Child Development. 5 *credits.* (4-2)
Physical, social, mental, and emotional development of the child in his first five years.

740:201. Modern Family Living. 5 *credits.*
Realistic study of interaction of family members in each of the family life cycles with emphasis on changing roles, developmental task, socio-economic and cultural influences.

740:305. Tailoring. 4 *credits.* (1-4)
Prerequisite, 123. Construction of a wool suit, coat or ensemble with lining.

740:306. Advanced Clothing. 4 *credits.*
Prerequisite, 123. Principles of clothing design in wardrobe planning, selection of ready-to-wear garments and accessories. Advanced construction methods. Basic pattern used to develop skill in fitting garments.

740:307. Advanced Textiles. 3 *credits.*
Prerequisite, 121. Economic, social, and health aspects of buying and caring for the family wardrobe; selecting ready-to-wear garments.

740:315. Experimental Foods. 5 *credits.* (1-4)
Prerequisite, 146. Techniques and methods in experimental cooking; group and individual experiments.

740:317. Historic Costume. 4 *credits.*
Costume from ancient to modern times and its influence on present-day styles.

740:318. Meal Service Demonstration. 4 *credits.* (1-4)
Prerequisite, 146 or permission. Problems in time, labor, money, and equipment in relation to planning, marketing, care of food, preparation and service of meals for the family group; appropriate forms of service for various types of meals, table etiquette; experience in planning and giving short demonstrations.

740:319. Nutrition in Health. 4 *credits.* (2-2)
Prerequisite, 145-146 and Chemistry 315:201-202-203. Composition, metabolism, and physiological functions of foodstuffs; nutritive requirements for individuals in different stages of development, and on various economic levels; results of dietary deficiencies.

740:320. Nutrition in Disease. 3 *credits.* (2-2)
Prerequisite, 319. Application of principles of normal nutrition to diet in disease; construction of diets for specific disease conditions.

740:321. Field Work—Spec. Problems. 2-5 *credits.*
Additional laboratory or apprentice experience in a specialized field of Home Economics. Open to Seniors in Home Economics.

740:322. Home Management Residence. 5 *credits.*
Six weeks residence in the Home Management House; practical problems in management of time, energy, and money; experience in group living.

740:323. Advanced Nutrition. 2 *credits.*
Continuing study of nutrition with greater emphasis on current research methods, results and application to world's food problems. Individual research paper required from each student.

740:412. Institutional Management. 4 *credits.*
Standards for good food service; food purchasing; time, labor, material, cost, equipment, and good will.

740:415. Household Equipment. 4 *credits.*
Selection, use, and care of modern household equipment.

740:416. Quantity Cooking. 5 *credits.*
Preparation of all types of food; care of equipment and utensils; layout of different types of food preparation and service centers. Six hours laboratory and conference.

750: MUSIC*

* Six music education courses are offered through the College of Education, numbered 520:162, 322, 323 and 324, 530:325 and 326.

750:101. FUNDAMENTALS OF MUSIC. 3 *credits.*
Functional introduction to music, notation, terminology, scale construction, simple melodic dictation, sight-singing, familiarity with piano keyboard and experience in singing part songs.

750:151-152-153. THEORY I, II, III.
3 *credits each quarter.*
Sequential. Study and creative use of the elements of music; keyboard harmony; sight-singing; melodic, harmonic and rhythmic dictation; 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 quarter.*
Familiarization of student with large body of musical material from all branches of musical 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. (Freshmen and Sophomores). 0 *credit.*
A weekly meeting of music students with members of the faculty, providing opportunity for experience in public performance before an audience, lecture and discussion of problems in the general area of performance, including ensemble playing and singing, conducting, accompanying, stage deportment, solo performance.

750:160-161-162. SIGHT-SINGING AND EAR TRAINING I, II, III. 2 *credits each quarter.*
Prerequisite, 153. 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.

750:251-252-253. THEORY IV, V, VI.
3 *credits each quarter.*
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 quarter.*
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 quarter.*
Prerequisite, 153. The essential of basic theory and harmony practically applied at the keyboard, accompaniment, improvisation, transportation, modulation and a 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 OF THE CLASSICAL AND ROMANTIC ERAS (EARLY MUSIC TO 1600). 2 *credits.*

750:302. EARLY MUSIC AND THE BAROQUE ERA (17TH AND 18TH CENTURIES). 2 *credits.*

750:303. MUSIC OF OUR TIMES (19TH AND 20TH CENTURIES). 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.

750:351-352-353. MUSIC HISTORY I, II, III.
2 *credits each quarter.*
Sequential; prerequisite, 153. 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 INSTRUMENT TECHNIQUES.
2 *credits.*
Prerequisite, 153. Playing of brass instruments. Basic techniques for trumpet, french horn, trombone, and tuba are presented and practiced.

750:356. PERCUSSION INSTRUMENT TECHNIQUES.
2 *credits.*
Prerequisite, 153. Playing of percussion instruments. Basic techniques of snare drum, timpani, xylophone, bells, chimes and other percussion instruments are presented and practiced.

750:357. STUDENT RECITAL. (Juniors and Seniors). 0 *credit.*
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.

750:451/551. 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 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 and 356. Theory of instrumentation ranging from small ensembles to full band and orchestras.

750:455. 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.

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 masterworks 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 Monteverdi's *Orfeo* to the present.

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 four 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 Session 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 student 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 semester) 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 Univeristy 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)
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.* (1 hour 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.

752: APPLIED MUSIC

2 or 4 *credits each quarter.*

(Undergraduate or Graduate)

No credit hour fee is charged for enrollment in applied music. Fees are based on the number of private lessons per week and are listed in the section on "Fees and Expenses." 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.

752:121/521. Percussion.

752:122/522. Classical Guitar.

752:123/523. Harp.

752:124/524. Voice.

752:125/525. Piano.

752:126/526. Organ.

752:127/527. Violin.

752:128/528. Viola.

752:129/529. Cello.

752:130/530. String Bass.

752:131/531. Trumpet or Cornet.

752:132/532. French Horn.

752:133/533. Trombone.

752:134/534. Baritone.

752:135/535. Tuba.

752:136/536. Flute or Piccolo.

752:137/537. Oboe or English Horn.

752:138/538. Clarinet or Bass Clarinet.

752:139/539. Bassoon or Contrabassoon.

752:140/540. Saxophone.

752:141/541. Harpsichord.

Students should contact the Music Department and consult with the applied music instructor before registering for course work. The final examination in Applied Music courses shall consist of performance before a committee of faculty members.

780: SPEECH

780:131. Public Speaking. 3 *credits.*
Training in types of public address; performance and individual criticism.

780:132. Ethical Persuasion. 2 *credits.*
Moral responsibility of the speaker; motivational forces in persuasive discourse.

780:133. Oral Interpretation I. 3 *credits.*
Oral interpretation from the printed page with special emphasis on factual prose and prose fiction.

780:134. Oral Interpretation II. 3 *credits.*
Oral interpretation from the printed page with special emphasis on poetry and drama.

780:135. INTRODUCTION TO PHONETICS. 3 *credits.*
Introduction to the use of the International Phonetic Alphabet, in General American speech. The physical, psychological and neurological bases of sound production.

780:136. BASES OF SPEECH. 3 *credits.*
Prerequisite, 135. Study of the social, linguistic, psychological, genetic and semantic bases of speech.

780:137. VOICE AND ARTICULATION. 3 *credits.*
Prerequisite, 135. Study of the principles and mechanisms of standard speech and voice.

780:141. INTERCOLLEGIATE DEBATE. 2 *credits.*
Substantive and legislative debate practice addressed to current issues.

780:142. INTERCOLLEGIATE DEBATE. 2 *credits.*
Substantive and legislative debate practice addressed to current issues.

780:143. PARLIAMENTARY PROCEDURE. 2 *credits.*
Current practices in parliamentary procedure.

780:144-145. ORAL ARGUMENT.
2 *credits each quarter.*
Theory of argument, analysis of logical processes, study of the current national intercollegiate debate proposition.

780:146. ORAL ARGUMENT. 2 *credits.*
Study of formal parliamentary procedures as they apply to conference and assembly speaking.

780:261. INTRODUCTION TO THEATRE. 3 *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.

780:265. STAGECRAFT. 3 *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. 3 *credits.*
The actor's approach to theatre: establishment of character, inner resources, stage practices, external acting techniques.

780:270. INTRODUCTION TO SPEECH DISORDERS.
3 *credits.*
Basic concepts and principles of speech pathology. Classification and incidents of speech disorders.

780:276. APPLIED PHONETICS. 3 *credits.*
Training in acoustic phonetic transcription, analysis of dialects, distortions and sound substitution.

780:278. THE 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.

780:281. RADIO SPEAKING. 5 *credits.*
Prerequisite, 133 or permission. Radio and television audience analysis research. Special projects in message design and development.

780:282. INTRODUCTION TO RADIO AND TELEVISION. 3 *credits.*
A study of the history, nature and function of educational and commercial broadcasting.

780:344. PUBLIC DISCUSSION AND GROUP PROCEDURES. 5 *credits.*
Prerequisite, permission of instructor. Techniques of discussion in terms of skills of the effective discussion leader and participant.

780:353. INTRODUCTION TO AUDIOLOGY. 3 *credits.*
Anatomy, physiology and acoustics of hearing. Survey of the field of audiology. The nature of hearing problems.

780:354. SPEECH READING. 3 *credits.*
Prerequisite, 353. Theories and practices in teaching lip reading to adults and children. Classical nature and modifications. Observation and practicum, The University of Akron Speech and Hearing Clinic.

780:361. PLAY DIRECTING. 3 *credits.*
A practical course in the principles and techniques of bringing a play from page to stage.

780:362. PLAY PRODUCTION. 3 *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. SCENE DESIGN. 3 *credits.*
Prerequisite, permission. Principles of design as applied to dramatic production.

780:367. HISTORY OF THEATRE: GREEK THROUGH RESTORATION PERIODS. 3 *credits.*
The physical stage, scene design, styles in acting and production, stage lighting, theatrical conventions, dramaturgy and influences on modern theatre.

780:368. HISTORY OF THEATRE: 17TH CENTURY TO PRESENT. 3 *credits.*
The physical stage, scene design, styles in acting and production, stage lighting, theatrical conventions, dramaturgy and influences on modern theatre.

780:381. RADIO AND TELEVISION PRODUCTION. 4 *credits.*
Prerequisites, 133 and 281. Analysis of the technique, performance and message in radio and television production. The impact of verbal and non-verbal cue systems in media on opinion change.

780:382. TELEVISION FUNDAMENTALS. 3 *credits.*
Prerequisite, 381 or permission. A study of the nature of television, its function as a medium of communication, and its use in education and persuasion.

780:384. ADVANCED TELEVISION PRODUCTION. 4 *credits.*
Prerequisite, 382 or permission. The role of broadcasting as it relates to modern communication theory. Special projects in research and production.

780:444/544. PROBLEMS IN GROUP COMMUNICATION. 5 *credits.*
Communication theory; group dynamics; interpersonal relations; semantics; applied individual projects and seminar reports.

780:457/557. PRINCIPLES OF AUDIOMETRY. 3 *credits.*
Prerequisite, 353. Hearing tests and hearing instruments. Case findings and referral. Interpretation of hearing test results. Organization of hearing conservation programs. Observation and practicum, The University of Akron Speech and Hearing Clinic.

780:462/562. EDUCATIONAL THEATRE ORGANIZATION AND MANAGEMENT. 3 *credits.*
The business end of educational theatre.

780:463. ADVANCED ACTING. 3 *credits.*
Prerequisite, 266. Acting styles and techniques for the more demanding serious and comic roles in both contemporary and classic plays. Special emphasis on vocal training, stage movement, use of costumes and properties.

780:464. STAGE LIGHTING. 3 *credits.*
The history of stage lighting; theories and practices of stage illumination.

780:465/565. SPECIAL PROJECTS IN THEATRE. 2-4 *credits.* (may be repeated for total of 6 credits)
Prerequisite, permission of the instructor. Individual or group projects, relative to a University Theatre production, in any of the following areas: costume, lighting, scene design and construction, acting, directing, make-up, children's theatre or theatre management.

780:467/567. CONTEMPORARY THEATRE STYLES. 4 *credits.*
The emergence of Modern Contemporary Theatre; selected examples of 19th and 20th Century plays; writing, scene design and production practices; the departures from Realism.

780:468/568. CHILDREN'S THEATRE WORKSHOP. 3 *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.

780:470/570. SPEECH 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 clinicians. Available for graduate credit only with approval of program director.

780:471/571. 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 Clinic.

780:472/572. 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.

780:473/573. 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 Clinic.

780:474/574. CLINICAL PRACTICES I. 3 *credits.*
Procedures used in The University of Akron Speech and Hearing Clinic. Methods of reporting. Initial experience in The Speech and Hearing Clinic leading to ASHA practicum requirements. To be concurrent with 471.

780:475/575. CLINICAL PRACTICES II. 3 *credits.*
Prerequisite, 90 hours laboratory experience and permission. Laboratory experience in The University of Akron Speech and Hearing Clinic.

780:476/576. SPEECH AND LANGUAGE DEVELOPMENT. 3 *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.

780:490/590. SPEECH CRITICISM. 4 *credits.*
Study of the goals and philosophy of rhetorical evaluation. Available for graduate credit only with approval of Head of Department.

780:497/597. SPEECH SEMINAR. 3 *credits.*
Special project relating to a selected area of speech.

GRADUATE COURSES

780:620. 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 Clinic 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.

780:623. SPEECH AND HEARING PROGRAMS. 3 *credits.*
The organization and management of speech and hearing programs in voluntary and official agencies.

780:625. RESEARCH METHODS IN COMMUNICATIVE DISORDERS. 3 *credits.* (may be repeated once)
Prerequisite, a statistics course. Types of research problems and approaches to them in communicative disorders.

780:650-651-652. TOPICS IN ADVANCED AUDIOLOGY I, II AND III. 3 *credits each quarter.*
Prerequisite, 6 credits in audiology or permission. Selected current topics in clinical and experimental audiology. Emphasis on review of current literature.

780:654. EXPERIMENTAL AUDIOLOGY. 3 *credits.*
Prerequisite, 9 credits in audiology or permission. Principles of psychoacoustics. Review of instrumentation and research techniques. Study of significant literature in the field.

780:655. INSTRUMENTATION IN AUDIOLOGY. 3 *credits.*
Prerequisites, 457, 654. Current methodology in auditory research. Emphasis on the type of equipment used in conducting auditory research.

780:656-657-658. CLINICAL AUDIOLOGY I, II AND III. 3 *credits each quarter.*
Prerequisites, 650, 651 or 652. 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.

780:659. SEMINAR IN AUDIOLOGY. 3 *credits.*
(may be repeated for a total of 9 credits)
Prerequisite, permission. Current methodology in auditory rehabilitation, experimental audiology, clinical audiology, or other selected areas.

780:660. ADVANCED TECHNICAL THEATRE. 3 *credits.*
Prerequisite, permission of instructor. Detailed problems in mounting plays on secondary school or university stages.

780:661. 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.

780:662-663-664-665-666. THEATRE SEMINARS. 3 *credits each quarter.*
(accumulative to 15 credits)
In-depth studies of specialized areas in theatre:
780:662. Musical Theatre
780:663. American Theatre
780:664. *Commedia dell'arte*
780:665. Theatre Audiences
780:666. Studies in Scene Design

780:667-668-669. STUDIES IN DRAMATIC PRACTICE. 3 *credits each quarter.*
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

780:671-672-673. ADVANCED SPEECH PATHOLOGY I, II AND III. 3 *credits each quarter.*
(each 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.

780:674. STUTTERING, THEORIES AND THERAPIES. 3 *credits.* (may be repeated once)
Reading and discussion of selected theories and therapies related to stuttering.

780:675. INSTRUMENTATION IN SPEECH PATHOLOGY. 3 *credits.*
Prerequisite, permission. Equipment usage in the clinical setting and in field studies.

780:676. COMMUNICATIVE DISORDERS OF CHILDREN. 3 *credits.*
Oral and aural language deviations. Their etiology, pathology and remediation.

780:677. VOICE PATHOLOGY. 4 *credits.*
Prerequisite, 473 or permission. Background and current research related to the etiology, diagnosis and therapy for various disorders of voice.

780:678. TOPICS IN DIFFERENTIAL DIAGNOSIS OF SPEECH AND LANGUAGE DISORDERS. 3 *credits.*
(may be repeated twice 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.

780:679. SPECIAL PROBLEMS. 2-4 *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.

780:690. CRITICAL STUDIES IN RHETORICAL THEORY. 3 *credits.*
Studies in classical and medieval rhetoric.

780:691-692. CRITICAL STUDIES IN AMERICAN PUBLIC ADDRESS I AND II. 3 *credits each quarter.*
Rhetorical criticism of speeches of American orators from the colonial period to the present.

780:693. CRITICAL STUDIES IN BRITISH PUBLIC ADDRESS. 3 *credits.*
Rhetorical criticism of the speeches of Fox, Pitt, Burke and other British speakers from the early Parliamentary period to the present.

780:694. RESEARCH AND THESIS. 3 *credits.*
(may be repeated for total of 9 credits)
Prerequisite, permission of the department head.

The College of Nursing

820: NURSING

820:159. HISTORY OF NURSING. 2 *credits.*

Nursing from prehistoric times to present day. An effort is made to show the relationship of the methods in care of the sick to political and economic conditions, and to show the professional heritage of the present day nurse and the ethical backgrounds of the profession.

820:261. NURSING IN A SOCIAL ORDER. 4 *credits.*

Prerequisite, by permission. This course includes a survey of the major historical, philosophical, and sociological factors which have affected nursing.

820:271-272. GENERAL NURSING.
8 *credits each quarter. Sequential.*

Prerequisite, by permission. Fundamental concepts are applied to all nursing conditions and situations within the whole health field, local, national and international health problems. A resolution of health problems is based on the understanding of the uniqueness of the human person and his behavior in health and illness. Knowledge and skills needed by nurses in any clinical setting are emphasized; i.e., interviewing, administering treatments, hygiene and comfort measures.

820:321-322-323. ADULT NURSING.
7 *credits each quarter.*

Prerequisites, 271-272. The purpose of this course 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 quarter.*

Prerequisites, 271-272. The basic concepts of nursing and human behavior are applied to the care of mothers and children in the family setting. The course begins with the adolescent as a potential parent and includes the psychological, anatomical and physiological aspects of childbearing. 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. PSYCHIATRIC NURSING. 10 *credits.*

Prerequisites, 271-272. 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. PUBLIC HEALTH ORGANIZATION AND PUBLIC HEALTH NURSING. 10 *credits.*

Prerequisites, 321-322-323, 331-332-333, and 341. 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.*

Prerequisite, 261. 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, and 341. 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 College of Law

920: LAW

920:602. DEVELOPMENT OF LAW AND LEGAL INSTITUTIONS. 4 *credits.*
An historical introduction to the development of the Anglo-American legal system.

920:603. LEGAL METHOD AND LEGISLATION. 4 *credits.*
Legal method; the formulation and operation of legal arguments based on cases and statutes.

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.

920:614. PROPERTY I. 3 *credits.*
Possession. Means by which title may be obtained. Fixtures. Emblements.

920:615. LEGAL RESEARCH AND WRITING. 1 *credit.*
Integration of methods of research and skill in legal problem solving, with communicative skills in the preparation of legal memoranda and briefs.

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. Continaution of Torts I.

920:619. AGENCY. 3 *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.

920:622. ADMINISTRATIVE PROCESS. 4 *credits.*
Prerequisite, 636. Traditional politico-legal theories of separation of powers and the administrative process; procedure for rule-making and adjudication; conclusiveness of administrative determination.

920:625. PROPERTY II. 4 *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 mortgaging 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. 1 *credit.*
The legal profession as an institution. Professional responsibility. Duties and privileges of members of the legal profession.

920:631. COMMERCIAL TRANSACTIONS I. 4 *credits.*
Prerequisite 606. Transactions involving chattels and intangibles, and the instruments used in those transactions. Two and three party arrangements. Warranties. Security. Risk at loss. Negotiability concept. Formal requirements of negotiable instruments. Endorsements. Rights and liabilities of the parties to the instruments. Uniform Commercial Code and prior uniform acts.

920:632. COMMERCIAL TRANSACTIONS II. 3 *credits.*
Prerequisite, 631. Continuation of Commercial Transactions I.

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 Evidence I.

920:635. PLEADING AND JOINDER. 5 *credits.*
Pleading under modern codes and rules. Petition. Answer. Reply. Motions and demurrers. Parties. Joinder. Amendment. General rules of pleading.

920:636. CONSTITUTIONAL LAW. 5 *credits.*
Judicial function in constitutional cases. The federal system. Powers delegated to the national government. Powers of the states as affected by such delegation. Limitations of powers. Political and civil rights. Amendments.

920:637. REMEDIES. 5 *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), and for specific performance, injunction, recission, reformation, bill of peace, interpleader, quiet title, and declaratory judgment.

920:638. CRIMINAL LAW. 4 *credits.*
Nature and source of criminal liability. The act. Mental conditions requisite to criminal respon-

sibility. Specific crimes and defenses thereto. These materials are studied in the light of modern trends and needs.

920:639. JURISDICTION AND JUDGMENTS. 4 *credits.*
Prerequisite, 602 or 603. Basic concepts of jurisdiction of courts over the subject-matter and person, and the control and effect of judgments.

920:640. AMINISTRATION OF CRIMINAL JUSTICE. 3 *credits.*
Prerequisite, 638. A study of the administration of criminal justice relating processes of criminal law to the objectives of criminal correction.

920:644. FEDERAL JURISDICTION AND PROCEDURE. 4 *credits.*
Prerequisite, 635. 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 jurisdicton of the Supreme Court.

920:645. PROBLEMS IN TRIAL ADVOCACY. 2 *credits.*
Prerequisite, 639. Assigned problems requiring the application of rules of procedure and professional considerations in typical trial contexts.

920:646. OHIO TRIAL AND APPELLATE PRACTICE. 3 *credits.*
Prerequisites, 635 and 639. Survey of the trial of a case from selection of a jury to judgment, and the procedure and problems of review.

920:651. SOCIAL LEGISLATION. 4 *credits.*
A study of social legislation including social security, workmen's compensation, full and fair employment, and general and special assistance to alleviate poverty and substandard housing.

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. MUNICIPAL CORPORATIONS. 3 *credits.*
Nature of municipal corporations. 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 to 5 *credits.*
Prerequisite, 615. 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. SECURITY TRANSACTIONS. 3 *credits.*
Prerequisites, 606 and 625. Security interests in real property mortgages, and in personal property with emphasis on the Uniform Commercial Code. Suretyship.

920:659. PROBLEMS IN CONFLICT OF LAWS. 4 *credits.*
Prerequisite, 639. Problems of law applicable in situations involving more than one state.

920:660. SEMINAR IN SELECTED LEGAL PROBLEMS. 1-4 *credits.*
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 non-legal materials, and expository legal writing.

920:661. SEMINAR IN POLITICAL AND CIVIL RIGHTS. 3 *credits.*
Prerequisite, 636. 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. 5 *credits.*
Prerequisite, 664. Analysis of relevant tax and nontax problems in planning estates and an examination of dispositive devices in accomplishing the objectives of estate planning. Project: drafting of an estate plan of some complexity.

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.

920:664. FEDERAL INCOME TAXATION. 5 *credits.*
A consideration of the law of federal income taxation and a survey of federal tax practice.

920:665. SEMINAR IN LAND USE PLANNING. 3 *credits.*
Prerequisite, 626. Examination of the assumptions, doctrines, and implications of city planning law, 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. 3 *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.

920:669. WORLD LAW. 4 *credits.*
Nature and substance of the law governing relationships of states with other states.

920:670. SEMINAR ON 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. BUSINESS ASSOCIATIONS I. 3 *credits.*
Prerequisites, 605 and 619. An introduction to the law relating to the conduct of the business enterprise, including agency relationships, partnerships, other unincorporated business associations, and corporations. Emphasis is on the control, management, financing, and governmental regulation of corporations, whether publicly owned or closely held.

920:672. BUSINESS ASSOCIATIONS II. 3 *credits.*
Prerequisite, 671. Continuance of Business Associations I with emphasis on managers' benefits and hazards, asset distribution to shareholders, dissolution and reorganization.

920:673. TRUSTS AND ESTATES I. 3 *credits.*
This course integrates the material traditionally covered in separate courses on wills, trusts and future interests. Intestacy, will substitutes and life insurance problems. Testamentary and inter vivos transactions applicable to dispositions of both real and personal property.

920:674. TRUSTS AND ESTATES II. 5 *credits.*
Prerequisite, 673. Continuation of Trusts and Estates I.

920:675. TRADE REGULATIONS I. 3 *credits.*
Study of concentration in market structure; monopoly, oligopoly and merger. Restrictive practices; collaboration in pricing, market sharing, boycott and other collective pressures, resale price maintenance, exclusive dealing and tying.

920:676. TRADE REGULATIONS II. 3 *credits.*
The legal monopolies; patent and copyright, market restraints by labor unions. Regulation of industry; regulation of entry; rate regulation, discrimination in prices or services.

920:677. LEGAL PROBLEMS IN BUSINESS PLANNING. 5 *credits.*
Prerequisite, 664 and 672. 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.

920:678. SEMINAR IN INTERNATIONAL TRANSACTIONS AND RELATIONS. 4 *credits.*
Prerequisite, 669. 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.

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John D. Grafton, B.B.A. ..... *Director of Housing*
Ralph Larson, M.Ed. ..... *Director of the Student Center*
Donald E. Sabatino, B.A. ..... *Assistant Director of Student Center, and Director of Student Activities*
Richard A. Calkins, B.A. ..... *Foreign Student Adviser*

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Stuart Terrass, M.A. ..... *Registrar*
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University Emeritus Faculty

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.

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.E., M.Ed., The University of Akron, 1931.

ANNA BELLE CHALFANT, *Assistant Professor Emeritus of French* (1947)
B.A., Ohio State University; M.A., Middlebury College, 1934.

WALTER A. COOK, *Professor Emeritus of Chemistry* (1926)
B.A., M.A., Ph.D., University of Cincinnati, 1924.

HJALMER W. DISTAD, *Professor Emeritus of Education* (1934)
B.S.Ed., M.A., Ph.D., University of Minnesota, 1926.

HOWARD M. DOUTT, *Professor Emeritus of Secretarial Science* (February 1926)
B.A., The University of Akron; M.A. University of Chicago, 1934.

CHARLES DUFFY, *Distinguished Professor Emeritus of English* (1944)
Ph.B., University of Wisconsin; M.A., University of Michigan; Ph.D., Cornell University, 1939.

ELDORA FLINT, *Associate Professor Emeritus of Secretarial Science* (1929)
B.E., The University of Akron; M.S.Ed., Syracuse University, 1935.

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.

FRED S. GRIFFIN, *Professor Emeritus of Mechanical Engineering* (1921)
M.E., The Ohio State University, 1911; P.E., Ohio

OSSIAN GRUBER, *Assistant Professor Emeritus of Business Administration* (1946)
B.A., University of Minnesota; M.B.A., Northwestern University, 1928.

E. K. HAMLEN, *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

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.

DAVID KING, *Associate Professor Emeritus of Political Science* (1927)
B.A., Maryville College; M.A., University of Chicago, 1925.

WALTER C. KRAATZ, *Professor Emeritus of Biology* (1924)
B.A., University of Wisconsin; M.A., Ph.D., The Ohio State University, 1923.

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.

NOTE: *The dates in parentheses indicate the beginning of service at Buchtel College or The University of Akron; unless otherwise stated, service began in the month of September.*

MARGARET EVELYN MAUGH, *Professor Emeritus of Mathematics* (1945)
B.S., Huron College; M.S., Ph.D., University of Chicago, 1938.

STEWART MCKINNON, *Assistant Professor Emeritus of Commerce* (1949)
B.A., M.A., University of Wisconsin, 1941.

WILLIAM I. PAINTER, *Associate Professor Emeritus of Education* (1945)
B.A., Oakland City College; M.A., Ph.D., Indiana University, 1933.

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.

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.

CHARLES ROGLER, *Professor Emeritus of Sociology* (1949)
B.A., M.A., University of Michigan; Ph.D., University of Kansas, 1935.

FREDERICK S. SEFTON, *Professor Emeritus of Physical Education* (1915)
B.S., Colgate University; M.Ed., Harvard University, 1925.

MRS. LUCY T. SELF, *Assistant Professor Emeritus of Secretarial Science* (February 1933)
B.A., Ohio Wesleyan University, 1920.

ROY V. SHERMAN, *Professor Emeritus of Political Science* (1929)
B.A., M.A., Ph.D., State University of Iowa, 1927.

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.

CLARENCE R. UPP, *Associate Professor Emeritus of Mechanical Engineering* (1925)
M.E., The Ohio State University, 1910; P.E., Ohio.

GEORGE STAFFORD WHITBY, *Professor Emeritus of Rubber Chemistry* (1942)
A.R.C.Sc., B.S., University of London; M.S., Ph.D., D.Sc., McGill University, 1939; LL.D., Mount Allison University, New Brunswick, 1932; D.Sc., The University of Akron, 1958.

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.

*University Faculty and Administration**

Full-Time

NORMAN P. AUBURN, *President of the University and Professor 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.

MRS. MAGDA ABDEL-LATIF, *Literature Chemist in Center for Information Services* (May 1966)
B.S., The University of Alexandria (Egypt); M.S., The University of Akron, 1967.

IRVING ACHORN, *Associate Professor of Art* (1965)
B.S., M.A., Kent State University, 1956.

MRS. ANN G. ALLAN, *Cataloger and Instructor in Bibliography* (January, 1968)
B.A., University of Michigan; M.L.S., Simmons College, 1963.

MRS. EILEEN K. AMBELANG, *Literature Specialist in Center for Information Services* (1965)
B.S., University of Manitoba (Canada), 1941.

LASCELLES F. ANDERSON, *Instructor in Economics* (1966)
B.A., Harvard University; M.A., New York School for Social Research.

ALEXIS M. ANIKEEF, *Professor of Psychology* (1967)
B.A., M.A., University of Michigan; Ph.D., Purdue University, 1949.

JOHN ARENDT, *Materials Testing Engineer in Civil Engineering* (February 1967)
B.S.E., Fenn College, 1944.

WILLIAM J. ARN, *Assistant Professor of Education* (1967)
B.S., Ohio Northern; M.S., Bowling Green State University; Ph.D., Kent State University, 1967.

MRS. HELEN ARNETT, *Associate Professor of Bibliography and Education Librarian* (1953)
B.A., The University of Akron; B.S.L.S., Western Reserve University; M.A., San Jose State College (California); Ph.D., Western Reserve University, 1965.

BARRY J. ARNOW, *Instructor in Mathematics and Administrative Systems Programmer in the Computer Center* (June 1967)
B.A., Temple University; M.S., The University of Akron, 1967.

GLENN A. ATWOOD, *Assistant Professor of Chemical Engineering* (1965)
B.S.Ch.E., M.S.Ch.E., Iowa State University; Ph.D., University of Washington, 1963.

JOHN T. AUSTON, *Associate Professor of Speech* (1962)
B.A., M.A., Ph.D., University of Denver, 1950.

JOHN BACHMANN, *PPG Chemical Division Professor of Chemistry* (February 1961)
B.Ch.E., Ph.D., University of Minnesota, 1939.

MRS. GERTRUDE BADGER, *Instructor in Education* (1965)
B.S.Ed., B.A., The Ohio State University; M.Ed., Kent State University, 1960.

EVELYN BAER, *Assistant Professor of Speech* (1966)
B.A., the University of Chicago; M.A., The University of Akron, 1948.

JOAN A. BAKER, *Assistant Professor of Law* (1968)
B.A., Reed College (Oregon); LL.B., George Washington University, 1967. Yale Law School.

MERRILL T. BAKER, *Professor of Speech* (1968)
B.A., M.A., Ph.D., The University of Iowa, 1952.

HOWARD R. BALDWIN, *Associate Registrar* (July 1967)
B.S.Ed., Mt. Union College; M.Ed., Kent State University.

GEORGE W. BALL, *Director of University Relations* (1957)
B.A., Mount Union College, 1943.

A. FREDERIC BANDA, *Associate Professor of Finance* (1968)
B.S., City College of New York; M.B.A., Ph.D., New York University, 1964.

JAMES P. BANKS, *Director of Development* (July 1966)
B.A., Ohio University, 1950.

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.*

*Personnel on record as of March, 1968.

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.

DAVID G. BARR, *Assistant Professor of Education* (1967)
B.S., M.A.M., Kent State University, 1966.

CHARLES M. BARRESI, *Associate Professor of Sociology* (1966)
B.A., M.A., Ph.D., University of New York at Buffalo, 1965.

CAROL JEAN BEASLEY, *Instructor in Home Economics* (1968)
B.S., Framington State College (Massachusetts), 1967; The Ohio State University.

DONALD BECKER, *Assistant Professor of Industrial Management* (1959)
B.A., M.A., Oberlin College, 1948.

MRS. SUE BECKHAM, *Instructor in English* (1966)
B.A., Georgetown College, 1960.

WILLIAM H. BEISEL, JR., *Associate Professor of Education and Director of Student Teaching and Field Services* (1960)
B.S., West Chester State Teachers College; M.Ed., Ed.D., Pennsylvania State University, 1969.

MRS. JUTTA T. BENDREMER, *Lecturer in English* (1967)
M.A., Hunter College; M.S., Brooklyn College, 1951.

WILBUR EARLE BENSON, *Dean of the College of Business Administration and Professor of Finance* (July 1968)
B.A., M.B.A., Ph.D., George Washington University, 1960.

RAYMOND S. BERNHARDT, *Assistant Professor of Finance* (1967)
B.A., Dartmouth College; M.B.A., Harvard University, 1932.

ROBERT C. BERRY, *Director of Placement,* (August 1946)
B.S.B.A., The University of Akron, 1942.

CARL A. BERSANI, *Assistant Professor of Sociology* (1965)
B.A., Eastern Michigan University; M.A., University of Michigan; Ph.D., Iowa State University, 1965.

WILLIAM BEYER, *Professor of Mathematics* (1961)
B.S., The University of Akron; M.S., Ph.D., Virginia Polytechnic Institute, 1961.

MICHAEL BEZBATCHENKO, *Associate Professor of Mechanical Engineering* (June 1949)
B.M.E., The University of Akron; M.S., Case Institute of Technology, 1954; P.E., Ohio.

EMILIE LADD BIDLINGMEYER, *Associate Director of Admissions* (August 1965)
B.A., University of Cincinnati, 1963.

CLARK E. BIGGINS, *Director of Purchasing* (April 1967)
B.S.C., Ohio University, 1957.

LESTER JAMES BILSKY, *Instructor in History* (1962)
B.A., Washington University (St. Louis), 1956; University of Washington.

LEILA A. BITTING, *Adviser of Women* (August 1967)
B.A., University of Kentucky; M.A., The Ohio State University, 1967.

ROBERT R. BLACK, *Associate Professor of Economics* (1958)
B.A., Carleton College; M.B.A., University of Chicago; Ph.D., University of California, 1963.

RALPH O. BLACKWOOD, *Associate Professor of Education* (1967)
B.A., Muskingum College; M.A., Ph.D., The Ohio State University, 1962.

CHARLES V. BLAIR, *Acting Dean of the Evening College, Assistant Professor in the Community and Technical College and Director of the Institute for Civic Education* (April 1959)
B.A., M.A., The University of Akron, 1963.

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.

JACQUES BOURGEACQ, *Instructor in Modern Languages* (1968)
B.A., Southeast Missouri State College; M.A., Saint Louis University, 1965.

DONALD L. BOWLES, *Assistant to the Vice President for Planning* (February 1959)
B.S.I.M., B.A.Ed., The University of Akron, 1959

ALLEN M. BOYER, *Director of Akron U. Alumni Fund* (November 1966)
B.A., The University of Akron, 1942.

FRANK BRADSHAW, *Assistant Professor of Music* (1968)
B.A., M.A., Bob Jones University, 1950.

TIMOTHY J. BRAND, *Computer Science Associate in the Computer Center* (July 1967)
B.A., Eastern Baptist College (Pennsylvania), 1961.

MARKO BRDAR, *Assistant Professor in the Community and Technical College* (1967)
B.S., M.A., Western Reserve University, 1954.

ARTHUR K. BRINTNALL, *Vice President for Academic Affairs and Professor of Psychology*, (1966)
B.A., Denison University; Ph.D., University of California (Los Angeles), 1939.

THOMAS M. BRITTAIN, *Assistant Professor of Mechanical Engineering* (February 1965)
B.M.E., The University of Akron; M.S., Ph.D., University of Illinois, 1966

MRS. EVELINE M. BROTZMAN, *Assistant Professor of Nursing* (December 1967)
B.S.N., M.S.N., University of Washington (Seattle), 1953; R.N.

JOYCE E. BROWN, *Literature Chemist in Center for Information Services* (January 1966)
B.A., Bowling Green State University, 1964.

THOMAS O. BROWN, *Instructor in Education and Assistant Director-Counselor in the Testing and Counseling Bureau* (July 1964)
B.S., M.Ed., Mississippi State University, 1958; University of Missouri.

MELVIN D. BROWNSTEIN, *Assistant Professor of Sociology* (1966)
B.S.Ed., Temple University; M.S.W., University of Pennsylvania School of Social Work, 1958.

ARTHUR BURFORD, *Professor of Geography* (1968)
B.A., Cornell University; M.S., University of Tulsa; Ph.D., University of Michigan, 1960.

DONALD R. BURROWBRIDGE, *Associate Professor of Coordination and Director of the Cooperative Program, College of Engineering* (July 1965)
B.S., University of Wisconsin; M.S., Virginia Polytechnic Institute, 1965.

KENNETH D. BUSHNELL, *Director of Alumni Relations* (January 1960)
B.A.Ed., M.A.Ed., The University of Akron, 1968.

RICHARD A. CALKINS, *Instructor in the Community and Technical College and Foreign Student Adviser* (1961)
B.A., Westminster College (Pa.) 1961.

MRS. VIRGINIA E. CAMP, *Computer Scientist, Computer Center* (April 1967)
B.A., Western Reserve University, 1963.

MARY CAPOTOSTO, *Instructor in Speech* (1968)
B.A., The University of Akron; M.A., DePaul University, 1967.

CAESAR A. CARRINO, *Assistant Professor of Education* (1967)
B.S., Baldwin-Wallace College; M.S., The University of Akron; Ph.D., Western Reserve University, 1965.

ROBERT C. CARSON, *Associate Professor of Mathematics, Assistant Dean of Graduate Studies and Research and Coordinator of Funded Research* (July 1963)
B.S., M.S., Purdue University; Ph.D., University of Wisconsin, 1953.

ROMEO E. CARTIER, JR., *Assistant Professor of Civil Engineering* (1966)
B.S.C.E., University of Miami; M.S.Eng., University of Connecticut, 1962; P.E., Ohio, West Virginia.

STEPHEN S. CASTLE, *Professor of Marketing* (1967)
B.A., Hillsdale College; M.B.A., University of Michigan; Ph.D., Michigan State University, 1964.

CHUN-FU CHEN, *Assistant Professor of Electrical Engineering* (February 1968)
B.S., National Taiwan University; M.S., The University of Tennessee; Ph.D., Vanderbilt University, 1968.

MRS MARY ELIZABETH CHESROWN, *Assistant to the Dean of the Evening College and Assistant to the Director of the Institute for Civic Education* (May 1965)
B.A., The University of Akron, 1949.

MRS. ANNA L. CHIANG, *Cataloger* (1967)
B.A., Christian University, China; M.A., George Peabody College for Teachers, 1964.

FRANK L. CHLAD, *Administrative Assistant, Department of Chemistry* (January 1967)
B.B.A., Michigan State University, 1956.

WALTER S. CHMIELEWSKI, *Associate Professor of Mechanical Engineering* (1967)
B.S.M.E., Michigan State University; M.S.M.E., University of Michigan; Ph.D., West Virginia University, 1966.

YONG H. CHO, *Assistant Professor of Urban Studies, Assistant Professor of Political Science and Assistant Director of the Center for Urban Studies* (1967)
B.A., Seoul National University (Korea); M.P.A., Ph.D., Syracuse University, 1965.

MAMERTO L. CHU, JR., *Assistant Professor of Mechanical Engineering* (1968)
B.S.M.E., Iloilo City University (Philippines); M.S.M.E., Ph.D., University of Houston, 1967.

MRS. BARBARA CLARK, *Library Cataloger* (1948)
B.S., The University of Akron, 1950.

FRANCES CLARK, *Assistant Professor of Accounting* (1946)
B.S., The University of Akron; M.Ed., University of Pittsburgh, 1946.

MRS. RUTH CLINEFELTER, *Assistant Professor of Bibliography and Social Sciences Librarian* (June 1952)
B.A., M.A., The University of Akron; M.A.L.S., Kent State University, 1956.

KENNETH COCHRANE, *Professor of Physical Education and Director of Athletics* (1948)
B.E., The Universty of Akron; M.Ed., University of Pittsburgh, 1941.

BERNARD J. COHEN, *Assistant Professor of Mathematics* (1965)
B.A., M.A., Indiana University, 1954.

ROBERT E. COLLINS, *Assistant Professor in the Community and Technical College* (1964)
B.A., Glenville State Teachers College (W. Va.); M.A., West Virginia University, 1952.

ROBERT N. COLLINS, *Professor of Mechanical Engineering* (1966)
B.S.M.E., University of Oklahoma; M.S.M.E., Ph.D.M.E., University of Wisconsin, 1963.

VERNON COOK, *Instructor in Political Science* (1965)
B.A., The Ohio State University, 1951.

FORD L. COOLMAN, *Literature Chemist, Center for Information Services* (April 1967)
B.A., Wittenberg University, 1931.

GERALD CORSARO, *Associate Professor of Chemistry* (1948)
B.S., Fenn College; M.S., Ph.D., Western Reserve University, 1944.

WILLIAM CRAMER, *Editor, University News Service* (November 1966)
B.A., The Ohio State University, 1966.

MRS. FAYE DAMBROT, *Lecturer in Psychology* (1967)
B.S., Carnegie Institute of Technology; M.A., The University of Akron, 1966.

ALEX DARBES, *Associate Professor of Psychology* (1968)
B.A., Ph.D., Western Reserve University, 1952.

MALCOLM J. DASHIELL, *Associate Professor of Art* (1953)
B.F.A., John Herron Art School; M.F.A., State University of Iowa, 1953.

PAUL A. DAUM, *Instructor in Speech* (1965)
B.F.A., Wesleyan College; M.A., The University of Akron, 1964.

DONALD M. DAVIS, *Instructor in the Community and Technical College* (1966)
B.S.B.A., University of Dayton; M.S., University of North Carolina, 1951.

EMILY DAVIS, *Professor of Art* (1945)
B.A., Ohio State University; M.A., Columbia University, Teachers College; Ph.D., Ohio State University, 1936.

ROBERT L. DECKER, *Instructor in Speech* (1967)
B.A., University of Miami; M.A., Western Reserve University, 1956.

BERNARD A. DEITZER, *Associate Professor of Management* (January 1967)
B.A., Allegheny College; M.L.L., University of Pittsburgh; Ph.D., The Ohio State University, 1967.

JOHN M. DENISON, *Assistant Director of University Relations* (February 1946)
The University of Akron.

JAMES L. DENNISON, *Instructor in Physical Education* (1965)
B.A., College of Wooster, 1960.

PETER DESY, *Instructor in English* (1966)
B.A., M.A., University of Detroit, 1959.

ROBERT L. DIAL, *Assistant Professor of English* (1965)
B.S., Central Missouri State College; M.A., Ph.D., University of Kansas City, 1963.

CECIL L. DOBBINS, *Assistant Dean of the Evening College* (February 1965)
B.B.A., Fenn College, 1952.

DALE DOEPKE, *Assistant Professor of English* (1965)
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., University of Pittsburgh, 1957.

JOSEPH J. DONATELLI, JR., *Lecturer in Modern Languages and Director of Language Laboratory* (1967)
B.A., The University of Akron, 1966.

RAY E. DORR, *Lecturer in Physical Education* (March 1968)
B.A., West Virginia Wesleyan College, 1965.

JAMES E. DOVERSPIKE, *Associate Professor of Education* (1960)
B.S., Indiana State College; M.Ed., Ed.D., Pennsylvania State University, 1961.

ROBERT G. DUBENSKY, *Associate Professor of Mechanical Engineering* (February 1968)
B.M.E., Fenn College; M.S.M.E., University of Kansas; Ph.D.ME, University of Iowa, 1968.

MILAN F. DUBRAVCIC, *Assistant Professor in the Community and Technical College.* (January 1968)
Ingenieur of Chemistry, University of Zagreb; Ph.D., University of Massachusetts, 1968.

R. WAYNE DUFF, *Business Manager* (May 1963)
B.A., Oberlin College; LL.B., Cleveland-Marshall Law School, 1951.

THEODORE DUKE, *Professor of Latin and Greek* (1946)
B.A., The University of Akron; M.A., Western Reserve University; Ph.D., Johns Hopkins University, 1946.

JAMES F. DUNLAP, *Professor of Speech* (1955)
B.S.Ed., Wilmington College; M.A., Ph.D., Ohio State University, 1954.

JAMES W. DUNLAP, *Professor of Finance* (1963)
B.B.A., Memphis State University; M.B.A., Ph.D., University of Arkansas, 1963.

DAVID R. DURST, *Assistant Professor of Finance* (1968)
B.S., Kent State University; M.B.A., Georgia State College, 1966.

ASHOK DUTT, *Assistant Professor of Geography, Assistant Professor of Urban Studies and Assistant Director of the Center for Urban Studies* (1968)
B.A., M.A., Ph.D., Patna University (India), 1961.

JOSEPH A. EDMINISTER, *Associate Professor of Electrical Engineering* (June 1957)
B.E.E., M.S.E., The University of Akron, 1960.

HAROLD L. EDWARDS, *Assistant Professor in the Community and Technical College* (1965)
B.S.E.E., U.S. Naval Academy; M.Ed., Pennsylvania State University, 1965.

EARL L. ERTMAN, *Instructor in Art* (1967)
B.S., University of Southern Mississippi; M.A., Western Reserve University, 1967.

MRS. CHARLOTTE ESSNER, *Instructor in Speech* (1965)
B.A., Hunter College; M.A., The University of Akron, 1964.

THOMAS W. EVANS, *Assistant Professor of Physical Education* (April 1948)
B.A., College of Wooster; M.Ed., Kent State University, 1955.

JAMES RUSSELL EWERS, *Associate Professor of Physical Education* (1963)
B.A., College of Wooster; M.Ed., Ohio University; Ph.D., The Ohio State University, 1963.

STEPHEN FARIA, JR., *Instructor in Modern Languages* (1967)
B.A., Harvard University; M.A., Cornell University, 1965.

MICHAEL F. FARONA, *Assistant Professor of Chemistry* (1964)
B.S., Western Reserve University; M.S., Ph.D., The Ohio State University, 1964.

ALI FATEMI, *Associate Professor of Economics* (1965)
B.S., Fairleigh Dickinson University; M.A., Ph.D., New School for Social Research, 1967.

JAMES V. FEE, *Associate Professor of Speech* (1967)
B.S.Ed., M.S.Ed., Southern Illinois University; Ph.D., The Ohio State University, 1964.

ROBERT E. FERGUSON, *Associate Professor of Education* (1965)
B.S.Ed., M.A., Kent State University; Ed.D., Western Reserve University, 1965.

D. G. FERTIS, *Professor of Civil Engineering* (1966)
B.S., Urban Planning, B.S.C.E., M.S.C.E., Michigan State University; Ph.D. Eng, National Technical University (Athens, Greece), 1964.

LEWIS J. FETTERS, *Assistant Professor of Chemistry and Assistant Professor of Polymer Science and Research Associate in the Institute of Polymer Science* (1967)
B.A., The College of Wooster, Ph.D., The University of Akron, 1962.

JOHN P. FINAN, *Assistant Professor of Law* (1967)
B.A., Fordham University; LL.B. Columbia Law School, 1961.

MRS. ALICE M. FLAKSMAN, *Assistant Professor of Music* (1965)
B.A., Hunter College; M.A., Columbia University, Teachers College, 1937.

EUGENE FLAUMENHAFT, *Associate Professor of Biology* (1963)
B.A., M.A., Adelphi College; Ph.D., University of Chicago, 1958.

WILLIAM FLEMING, *Assistant Professor in the Community and Technical College* (1966)
B.S., Rutgers University; M.A., University of Pennsylvania, 1966.

VAUGHN W. FLOUTZ, *Professor of Chemistry* (1941)
B.A., Olivet College; M.A., Ph.D., University of Colorado, 1932.

LAWRENCE G. FOCHT, *Assistant Professor of Chemical Engineering* (1968)
B.S.Ch.E., University of Iowa; M.S.Ch.E., Louisiana State University, 1966.

JAMES G. FRANCE, *Professor of Law* (1966)
B.A., Brown University; LL.B., Yale University Law School, 1941.

WILLIAM A. C. FRANCIS, *Instructor in English* (1966)
B.A., M.A., Duquesne University, 1964.

PAULINE FRANKS, *Assistant Professor of Bibliography and Associate University Librarian* (1950)
B.S.Ed., Kent State University; B.S.L.S., Western Reserve University, 1940.

J. E. FREDERICK, *Assistant Professor of Chemistry, Assistant Professor of Polymer Science and Research Associate in the Institute of Polymer Science* (1966)
B.S.Ch., Glenville State College; Ph.D., University of Wisconsin, 1964.

ANDREW GALOS, *Professor of Music* (1966)
B.S., M.S., Juilliard School of Music; M.A., Ed.D., Columbia University Teachers College, 1958.

VIRGINIA GARDNER, *Documents Librarian* (March 1961)
B.A., The University of Akron, 1953.

PAUL D. GARN, *Professor of Chemistry* (1963)
B. S., M.S., Ph.D., Ohio State University, 1952.

EVELYN GAUSE, *Assistant Literature Chemist, Center for Information Services* (January 1968)
B.S., The University of Akron, 1967.

MRS. VIRGINIA HICKS GATLIN, *Assistant Professor of Accounting* (1968)
B.B.A., Memphis State University; M.A., The University of Alabama, 1967. C.P.A., Tennessee.

DEMOS P. GELOPULOS, *Assistant Professor of Electrical Engineering* (1967)
B.S.E.E., Valparaiso University; M.S.E.E., Notre Dame University; Ph.D., University of Arizona, 1967.

ALAN N. GENT, *Professor of Polymer Physics and Assistant Director of the Institute of Polymer Science* (April 1961)
B.S., Leicester Technical College and University College (England); B.S. (Special), Ph.D., London University (England), 1955.

DON R. GERLACH, *Associate Professor of History* (1962)
B.S.Ed., M.A., Ph.D., University of Nebraska, 1961.

RUSSEL N. GIERSCH, *Director of the Physical Plant* (1966)
B.M.E., Cleveland State University (Fenn College), 1954.

WILLIAM M. GLAZIER, *Assistant Professor in the Community and Technical College* (1958) (1967)
B.S.C.E., Michigan Technical University; M.S.E., University of Michigan, 1956; P.E., Ohio and District of Columbia.

DONALD GOLDSTROHM, *Assistant Professor of Biology* (1967)
B.S., Waynesburg College; M.S., Ph.D., West Virginia University, 1966.

DENNIS GORDON, *Professor of Accounting* (1946)
B.A., M.B.A., University of Chicago, 1938; C.P.A., Ohio.

JOHN D. GRAFTON, *Director of Housing* (October 1964)
B.B.A., The University of Cincinnati, 1964.

REGINALD A. GRAHAM, *Assistant Professor of Marketing* (1966)
B.S., Miami University; M.B.A., Kent State University, 1958.

RICHARD L. GRANT, *Assistant Professor of Law* (1967)
B.S., University of Pennsylvania; LL.B., Stanford University; LL.M., Georgetown University, 1964.

HOWARD L. GREENE, *Assistant Professor of Chemical Engineering* (1965)
B.Ch.E., M.Ch.E., Ph.D., Cornell University, 1966.

C. FRANK GRIFFIN, *Assistant Professor of Physics* (1967)
B.S., M.S., Texas Technological College; Ph.D., The Ohio State University, 1964.

JOHN E. GRIMM, *Adviser of Men* (July 1967)
B.S.Ed., M.Ed., Ohio University, 1966.

EDNA P. GRIST, *Assistant Professor of Nursing* (January 1968).
B.S.N.Ed., The University of Akron; M.S.Ed., Western Reserve University, 1967; R.N.

RICHARD J. GROSS, *Assistant Professor of Mechanical Engineering* (1967)
B.S.M.E., University of Pittsburgh; M.S.M.E., Ph.D., Carnegie Institute of Technology, 1967.

FRANK J. GRUCCIO, JR., *Instructor in the Community and Technical College* (1966)
B.A., M.A., The University of Akron, 1967.

ROBERT GRUMBACH, *Associate Professor of Electrical Engineering* (1961)
B.S.E.E., Case Institute of Technology; M.S.E.E., West Virginia University, 1951.

EMILE GRUNBERG, *Professor of Economics* (1946) 1956)
M.A., Ph.D., University of Frankfurt (Germany), 1930.

MRS. BARBARA GSELLMAN, *Lecturer in the Community and Technical College* (1967)
B.M.E., The University of Akron, 1950.

SCOTT D. HAGEN, *Instructor in Biology* (1966)
B.S., Kansas State University; M.S., Kansas State Teachers College.

GORDON A. HAGERMAN, *Assistant to the Vice President for Academic Affairs* (July 1941)
B.A., The University of Akron, 1941.

CARL L. HALL, *Controller and Treasurer* (1959) (March 1965)
B.S., Ohio State University, 1950.

DOROTHY HAMLEN, *Professor of Bibliography, Director of University Archives, Rare Books Librarian* (February 1937)
B.A., The University of Akron; B.S.L.S., Western Reserve University, 1942.

LOUIS F. HAMPEL, *Associate Professor of Finance* (1968)
B.S., The University of Akron; M.B.A., Northwestern University, 1931.

PETER J. HAMPTON, *Associate Professor of Psychology and Director-Counselor of Testing and Counseling Bureau* (August 1954)
B.A., M.A., University of Manitoba (Canada); Ph.D., Western Reserve University, 1950.

RICHARD L. HANSFORD, *Dean of Student Services* (August 1949)
B.A.Ed., M.A.Ed., The University of Akron, 1954.

EDWARD W. HANTEN, *Associate Professor of Geography and Associate Professor of Urban Studies and Director of the Center for Urban Studies* (1963)
B.A., Earlham College; M.A., Ph.D., University of Pittsburgh, 1962.

HORACE HARBY, *Assistant to the Vice President for Development* (May 1966)
B.S., Clemson College, 1936.

MRS. PHYLLIS HARDENSTEIN, *Assistant Professor of Speech* (February 1947) (1956)
B.A., The University of Akron; M.A., University of Wisconsin, 1951.

MARY GRACE HARRINGTON, *Assistant Professor of Bibliography and Business Administration Librarian* (November 1960)
B.A., The University of Akron; B.A.L.S., University of Michigan, 1939.

H. JAMES HARWOOD, *Associate Professor of Chemistry, Associate Professor of Polymer Science, and Research Associate in the Institute of Polymer Science* (October 1959)
B.S., The University of Akron; Ph.D., Yale University, 1956.

WADE B. HATCH, *Physical Facilities Analyst* (October 1966)
B.S.C.E., University of California L.A., 1949.

MRS. MARLENE HATHAWAY, *Instructor in English* (1965)
B.A., Kalamazoo College; M.A., The University of Akron, 1965

ROBERT S. HATHAWAY, *Instructor in the Community and Technical College and Director of the Computer Center* (1963)
B.S.Ch.E., Northwestern University, 1954.

RICHARD H. HAUDE, *Assistant Professor of Psychology* (1967)
B.A., Kenyon College; M.S., Ph.D., University of Pittsburgh, 1964.

PAUL C. HAYES, *Associate Professor of Education* (1967)
B.S., Wilmington College; M.A., Miami University; Ph.D., University of Ottawa (Canada), 1940.

HOWARD D. HAYNES, *Director of Admissions* (June 1961)
B.A., Baker University, 1956.

HERBERT C. HAYWARD, *Professor of Management* (1963)
B.A., The University of Akron; Ph.D., University of Tennessee, 1956.

GERALD S. HEALY, *Associate Professor of Mechanical Engineering* (1967)
B.S.M.E., M.S., Ph.D., Virginia Polytechnic Institute, 1966.

JOHN G. HEDRICK, *Associate Director of the Institute for Civic Education and Assistant Dean of the Evening College* (July 1967)
B.S.Ed., Kent State University; M.A., University of Notre Dame, 1958.

MRS. JACQUELINE HEGBAR, *Lecturer in Classics* (1967)
B.A., M.A., The University of Akron, 1967.

WALTER H. HEINTZ, *Associate Professor of Physics* (1967)
B.S., University of Massachusetts; M.S., Ph.D., The Ohio State University, 1962.

RICHARD HENRY, *Assistant Professor in the Community and Technical College* (1961)
B.M.E., The Ohio State University; M.S.E., The University of Akron, 1965.

THOMAS P. HERBERT, *Instructor in the Community and Technical College* (1968)
B.S.E.E., University of Dayton, 1960; Pennsylvania State University.

JAMES HERBSTREIT, *Instructor in Physical Education* (June 1966)
B.S., The Ohio State University, 1961.

JAY R. HERSHEY, *Adviser of Men* (1967)
B.A., Hiram College; M.Ed., University of Illinois, 1965.

NICHOLAS C. HILYARD, *Assistant Professor of Physics, Assistant Professor of Polymer Science and Research Associate in the Institute of Polymer Science* (1966)
B.S., Ph.D., Southampton University (England), 1963.

ELIZABETH J. HITTLE, *Professor of Speech and Director of the Speech and Hearing Clinic* (1950)
B.S.Ed., The University of Akron; M.A., Kent State University; Ed.D., Western Reserve University, 1963.

KENNETH C. HOEDT, *Associate Professor of Education* (1962)
B.S., State University of New York, College of Education (Buffalo); M.S., Ph.D., University of Wisconsin, 1960.

WILLIAM W. HOKMAN, *Assistant Professor of Mathematics* (1967)
B.S.Ed., M.A., M.S., West Virginia University.

R. BRUCE HOLLAND, *Instructor in English* (1967)
B.A., University of Rochester; M.A., University of Michigan, 1963.

THOMAS J. HOLTON, *Associate Professor of Law* (1967)
B.A., Mount St. Mary's College; LL.B., Stanford University; LL.M., New York University; J.S.D., Yale, 1966.

DONALD L. HOLUB, *Scientific Computing Specialist* (January 1968)
B.S.Ch.E., Iowa State University, 1963.

KATHRYN HOMEIER, *Assistant Professor of Nursing* (February 1967)
B.S.N.E., St. Louis University; M.S.Ed., The University of Akron, 1963, R.N.

IRENE HORNING, *Assistant Professor of Biology* (1946)
B.S.N., Western Reserve University, 1934, R.N.

MARTHA HOSFELT, *Instructor in English* (1961)
B.A., The University of Akron, 1959.

RICHARD B. HOSKIN, *Assistant Professor in the Community and Technical College* (1967)
B.A., Hiram College; M.E., Kent State University, 1955.

JOHN J. HOUSER, *Assistant Professor of Chemistry* (1965)
B.S., Villanova University; Ph.D., Pennsylvania State University, 1964.

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.

DOROTHY R. HUFLER, *Assistant Professor of Nursing* (1968)
B.S.N., St. Louis University; M.S., University of Colorado, 1964, R.N.

JOHN HULL, *Assistant Professor of English* (1946) (1954)
B.A., The University of Akron; M.A., Western Reserve University, 1953.

MRS. JULIA HULL, *Assistant Professor of English* (1946)
B.A., The University of Akron; M.A., Western Reserve University, 1950.

MRS. JUDITH HUNTER, *Adviser of Women* (July 1967)
B.A., The University of Akron, 1966.

PAUL O. HUSS, *Professor of Electrical Engineering* (January 1941)
B.S.Ed., B.S.E., M.S.E., D.Sc., University of Michigan, 1935; P.E., Ohio.

FARLEY K. HUTCHINS, *Professor of Music* (1957)
M.B., Lawrence Conservatory of Music; S.M.M., S.M.D., School of Sacred Music, Union Theological Seminary, 1951.

JAMES E. INMAN, *Instructor in the Community and Technical College* (1966)
B.A., Baldwin-Wallace College; M.B.A., The Ohio State University, 1966.

RICHARD JACKOBOICE, *Instructor in Music* (July 1967)
B.M., M.M., University of Michigan, 1965.

DALE L. JACKSON, *Associate Professor of Biology* (1961)
B.S., Ph.D., University of Durham (England), 1959.

JIM L. JACKSON, *Instructor in Geology* (1967)
B.S., Kent State University; M.S., Western Reserve University, 1964.

DONALD M. JENKINS, *Assistant Professor of Business Law* (1965)
B.S.B.A., University of Kansas; B.A., LL.B., The University of Akron, 1964.

MRS. JANICE JENSEN, *Instructor in the Community and Technical College* (1966)
B.A., College of Wooster; M.A., Kent State University, 1966.

ALFRED H. JOHNSON, *Associate Professor of Education* (1956)
B.S., College of Wooster; M.S., Ph.D., University of Wisconsin, 1956.

DUDLEY C. JOHNSON, JR., *Director of Counseling and Advising* (July 1961)
B.S., University of Vermont; M.S.Ed., University of Southern California, 1961.

MRS. GERTRUDE JOHNSON, *Assistant Professor of Law and Law Librarian* (1964)
B.A., LL.B., Western Reserve University; M.L.S., Kent State University, 1965.

MARY JEAN JOHNSTON, *Assistant Professor in the Community and Technical College* (1965)
B.S., Carnegie Institute of Technology; M.Ed., University of Pittsburgh, 1960.

DAVID L. JONES, *Associate Professor of English* (February 1961)
B.A., M.A., Ph.D., Harvard University, 1958.

BURT K. KAGEFF, *Assistant Professor of Music* (1962)
B.A., M.Ed., Wayne State University; M.A., University of Missouri, 1962.

SEBASTIAN KANAKKANATT, *Senior Literature Chemist, Center for Information Services* (1965)
B.S., Madras University (India); M.S., The University of Akron, 1966.

PEGGY KAUFFMAN, *Instructor in Modern Languages* (1967)
B.A., Wilson College; M.A., University of Arizona, 1965.

JAMES M. KEEFE, *Adviser of Men* (July 1967)
B.A., Illinois Wesleyan University; M.S., Illinois State University, 1967.

DON A. KEISTER, *Dean of Buchtel College of Liberal Arts and Professor of English* (1931)
B.A., M.A., The University of Akron; Ph.D., Western Reserve University, 1947.

ORVILLE R. KEISTER, JR., *Associate Professor of Accounting* (1966)
B.S., M.B.A., The Ohio State University; Ph.D., University of Illinois, 1964.

MRS. MARY KEITH, *Instructor in the Community and Technical College* (1966)
B.A., West Virginia University; M.A., Kent State University, 1966.

ROGER F. KELLER, JR., *Professor of Biology* (1954)
B.S., University of New Hampshire; Ph.D., Michigan State University, 1953.

MRS. JOAN KELLOGG, *Literature Chemist in Center for Information Services* (June 1967)
B.A., Western Reserve University, 1944.

HERBERT S. KENNEDY, *Assistant Professor in the Community and Technical College* (1965)
B.S.A.E., University of Washington; Diploma in Aeronautics, College of Aeronautics (United Kingdom); M.S., U.S. Naval Postgraduate School; Pennsylvania State University.

SALLY KENNEDY, *Assistant Professor of English* (1966)
B.A., Columbia College; M.A., Ph.D., University of Tennessee, 1968.

MRS. LILLIAN KING, *Instructor in the Community and Technical College* (1966)
B.S., The University of Akron; M.S., Kent State University, 1965.

MICHAEL KLEIN, *Computer Scientist in the Computer Center* (1964)
B.S., The University of Akron, 1963.

ROBERT S. KLINE, *Assistant Professor in the Community and Technical College* (1967)
B.S., Indiana State College; M.Ed., Indiana University of Pennsylvania, 1967; University of Pittsburgh.

KENNETH KLOUDA, *Computer Systems Senior Associate* (January 1967)
B.S., Kent State University, 1964.

GEORGE W. KNEPPER, *Professor of History* (August 1954)
B.A., The University of Akron; M.A., Ph.D., University of Michigan, 1954.

NANCY A. KNIGHT, *Instructor in Bibliography and Assistant General Reference Librarian* (1967)
B.A., University of Idaho; M.S.L.S., Louisiana State University, 1960.

WILLIAM G. KOFRON, *Assistant Professor of Chemistry* (1965)
B.S., Notre Dame University; Ph.D., University of Rochester, 1961.

PANOS KOKOROPOULOS, *Director of the Center for Information Services* (1965)
B.S., University of Thessaloniki (Greece); M.S., University of Dayton, 1964.

ALBERT KORSOK, Associate Professor of Geography (1968)
B.S., Western Reserve University; M.A., Northwestern University; Ph.D., University of Illinois, 1960.

ROBERT KOVACH, *Associate Professor of Law* (1963)
B.B.A., LL.B., Western Reserve University; LL.M., New York University, 1957.

ALAN F. KRIVIS, *Associate Professor of Chemistry* (1966)
B.A., Columbia College; M.A., Columbia University; M.S.Ch., Ph.D., University of Michigan, 1958.

DORIS KRUSE, *Systems Associate in Computer Center* (August 1966)
B.S., Valparaiso University; M.B.A., The Ohio State University, 1964.

WARREN F. KUEHL, *Professor of History* (1964)
B.A., Rollins College; M.A., Ph.D., Northwestern University, 1954.

ERNEST A. KUEHLS, *Assistant Professor of Mathematics* (1965)
B.S.Ed., M.Ed., Miami University, 1955.

MILTON L. KULT, *Associate Professor of Electrical Engineering* (June 1954)
B.S.E.E., M.S., University of Illinois, 1952; P.E., Illinois, Ohio.

HENRY A. KUSKA, *Assistant Professor of Chemistry* (1965)
B.A., Cornell College (Iowa); Ph.D., Michigan State University, 1965.

ROGER A. KVAM, *Assistant Professor of Political Science* (1964)
B.A., Wheaton College; B.D., Princeton Theological Seminary; M.A., Harvard University, 1964

JOHN A. LAHOSKI, *Lecturer in Physical Education* (July 1966)
B.S.Ed., The University of Akron, 1966.

DENO L. LANARI, *Accountant* (November 1966)
B.B.A., Kent State University, 1957.

SUSANNAH LANE, *Instructor in Speech* (1967)
B.F.A., Ohio Wesleyan University; M.F.A., Ohio University, 1957.

GORDON LARSON, *Associate Professor of Physical Education and Assistant Director of Athletics* (February 1961)
B.S.Ed., M.E., Kent State University, 1954.

RALPH LARSON, *Director of the Student Center* (July 1960)
B.S.Ed., M.Ed., Kent State University, 1953.

ROBERT W. LARSON, *Director of Student Financial Aids* (August 1958)
B.S.B.A., The University of Akron, 1946.

ERVIN LASZLO, *Associate Professor of Philosophy* (1967)
M.A., National Academy of Music (Hungary), 1947; Institute of East European Studies, University of Fribourg, (Switzerland) Inst. Certificate, 1967; Sorbonne (Paris).

ANTHONY S. LATERZA, *Assistant Professor of Physical Education* (August 1955)
B.S.Ed., The University of Akron; M.Ed., Kent State University, 1963.

†JOSEPH LATONA, *Assistant Professor in the Community and Technical College* (June 1961)
B.A.Ed., The University of Akron; M.B.A., Kent State University, 1962.

DOROTHY LAUBACHER, *Associate Professor of Home Economics* (1950)
B.S., M.A., The Ohio State University, 1941.

REINE LEDUC, *Instructor in Modern Languages* (1968)
B.Ed., Rhode Island College; M.A., Middlebury College, 1964. The University of Wisconsin.

WALTER D. LEHRMAN, *Instructor in English* (1956)
B.S., M.A., Columbia University, 1953.

ARNO K. LEPKE, *Professor of Modern Languages* (1961)
University of Greifswald (Germany); Ph.D., University of Marburg (Germany), 1947.

JOSEPH F. LESTINGI, *Assistant Professor of Civil Engineering* (1967)
B.C.E., Manhattan College; M.S., Virginia Polytechnic Institute; D.Eng., Yale University, 1966. P.E. Ohio, New Jersey.

GERALD H. LEVIN, *Associate Professor of English* (1960)
Vanderbilt University; M.A., University of Chicago; Ph.D., University of Michigan, 1956.

RUTH B. LEWIS, *Assistant Professor of Speech* (1966)
B.S., Wittenberg University; M.A., Ph.D., The Ohio State University, 1961.

CARL LIEBERMAN, *Instructor in Political Science* (1967)
B.A., Temple University; M.A., University of Pittsburgh, 1964.

MRS. MARTHA LIERHAUS, *Instructor in 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, *Assistant Professor of Education* (1967)
B.S., Carnegie Institute of Technology; M.S.Ch., M.Ed., D.Ed., University of Pittsburgh, 1964.

JOHN H. LINDQUIST, *Associate Professor of Sociology* (1965)
B.S.Ed., Phoenix College (Arizona); M.A.Ed., Arizona State College; D.S.S., Syracuse University, 1961.

SHELDON B. LISS, *Associate Professor of History* (1967)
B.A., The American University; M.A., Duquesne University; Ph.D., The American University, 1964.

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, 1947.

MRS. KRIEMHILDE LIVINGSTON, *Lecturer in Modern Languages* (1968)
Diploma, University of Munich; Diploma, Bavarian Interpreter School, 1947.

MRS. MARIAN LOTT, *Assistant Professor of Music* (1967)
B.M., M.M., Chicago Musical College, 1951.

LLOYD B. LUEPTOW, *Associate Professor of Urban Studies, Associate Professor of Sociology and Assistant Director of Center for Urban Studies* (1967)
B.S., M.S., Ph.D., University of Wisconsin, 1964.

WILLIAM D. LYON, *Assistant Professor of Chemistry* (1967)
B.S.Chem., University of Illinois; Ph.D., University of Wisconsin, 1967.

JERROLD WILLIAM MABEN, *Associate Professor of Education* (1963)
B.A., B.S., M.S., Wayne State University, 1954.

JOHN A. MACDONALD, *Associate 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.

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, *Assistant Professor of Biology* (1967)
B.A., M.A., Columbia University; Ph.D., University of Wisconsin, 1959.

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†Leave of Absence, 1967-68.

THEODORE MACKIW, *Associate Professor of Modern Languages* (1962)
Ph.D., University of Frankfurt (Germany), 1951; Yale University.

BERND MAGNUS, *Assistant Professor of Philosophy* (1965)
B.A., Hunter College; Ph.D., Columbia University, 1967.

COLEMAN J. MAJOR, *Professor of Chemical Engineering* (1964)
B.S., University of Illinois; Ph.D., Cornell University, 1941; P.E., California, Iowa.

ANDREW MALUKE, *Assistant Professor of Physical Education* (February 1946)
B.S.Ed., The University of Akron; M.A., Kent State University, 1949.

EUGENE R. MANCINI, *Assistant Professor of Music* (1967)
B.M., M.M., Cleveland Institute of Music, 1953.

†GEORGE P. MANOS, *Assistant Professor of Civil Engineering* (1957).
B.Ch.E., The Ohio State University, 1948; P.E., Ohio.

PHILIP S. MANTHEY, *Management Science Senior Associate in Computer Center* (November 1965)
B.A., Kent State University; M.B.A., The University of Akron, 1960.

FREDERICK A. MANZARA, *Associate Professor of Marketing* (1962)
B.A., Northwestern University; M.S., Ph.D., University of Illinois, 1961.

RICHARD C. MARSHALL, *Assistant Professor of Law* (1959)
LL.B., Akron Law School, 1954.

MRS. AGNES L. MARTIN, *Assistant Professor of Bibliography and Senior Library Cataloger* (1962)
B.A., Ohio Wesleyan University; B.S.L.S., University of Illinois, 1929.

ROBERT C. MARTIN, *Supervisor of Instructional Television* (1967)
Temple University.

TERRELL O. MARTIN, JR., *Adviser of Men* (August 1966)
B.S., Erskine College; M.S., Indiana University, 1964.

WILLIAM MAVRIDES, *Assistant Professor of Education and Director of Instructional Media* (July 1960)
B.A., The University of Akron; M.A., Peabody College for Teachers, 1958.

MRS. ALICE MAYOR, *Instructor in Chemistry* (1967)
B.S., Eastern Michigan University; M.S., Purdue University, 1947.

KATHLEEN MCCONKEY, *Artist, Publications* (November 1966)
B.F.A., Ohio University, 1962.

GERALD S. MCFADDEN, *Director of Staff Personnel* (August 1966)
B.S., M.Ed., Kent State University, 1959.

WILLIAM MCGUCKEN, *Instructor in History* (1968)
B.S., M.A., Queens University (Canada), 1963. The University of Pennsylvania.

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.

JAMES MCLAIN, *Assistant Professor of Economics* (1946)
B.A., The University of Akron; M.A., Western Reserve University; Ph.D., Ohio State University, 1959.

ROBERT C. MCNEIL, *Assistant Professor of Classics* (1963)
B.A., The University of Akron, 1953; University of Pennsylvania.

MARION W. MCPHERSON, *Lecturer in Psychology and Associate Director of the Archives of History of American Psychology* (1967)
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, *Assistant Professor of Education* (1967)
B.S., West Chester State College (Pennsylvania); M.A., University of Pennsylvania; Ph.D., The Ohio State University, 1966.

JANICE MEIKLE, *Instructor in Modern Languages* (1965)
B.A., Butler University; M.A., Indiana University, 1964.

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†Leave of Absence, 1967-68.

EBERHARD A. MEINECKE, *Assistant Professor of Mechanical Engineering, Assistant Professor of Polymer Science and Research Associate in the Institute of Polymer Science* (October 1963)
D.Eng., Braunschweig Institute of Technology (Germany), 1960.

J. F. MERCER, *Instructor in the Community and Technical College* (1965)
B.A., Ohio University; M.A., Western Reserve University, 1958.

ROBERT MERRIX, *Assistant Professor of English* (1966)
B.A., M.A., Butler University; Ph.D., University of Cincinnati, 1966.

MRS. RUTH MESSENGER, *Lecturer in English* (1968)
B.A., Wellesley College; M.A., Western Reserve University, 1948.

DONALD J. METZGER, *Instructor in Sociology* (1968)
B.A., Youngstown University, 1962.

SYLVIA V. MEYERS, *Instructor in the Community and Technical College* (1966)
B.S., St. Louis University; M.A., John Carroll University, 1965; R.N.

JOHN E. MILKEREIT, *Director, University News Service* (January 1965)
B.S., Purdue University, 1960.

STEPHEN DEAN MILLER, *Adviser of Men* (August 1966)
B.S., University of Maine; M.A., Syracuse University, 1965.

ALOYSIUS E. MISKO, *Professor of Secretarial Science* (1962)
B.S., Central Michigan University; M.S., Ed.D., University of Michigan, 1962.

MRS. TRAUTE R. MITTERHOFER, *Computer Scientist* (March 1966)
B.S., University of Technology, Vienna (Austria), 1963.

HAROLD MOLINEU, *Assistant Professor of Political Science* (1967)
B.A., Berea College; M.A., Ohio University; Ph.D., The American University, 1967.

JOHN B. MONROE, *Instructor in the Community and Technical College* (1966)
B.A., College of Wooster; M.A., Rutgers University, 1963.

MARVIN M. MOORE, *Associate Professor of Law* (July 1960)
B.A., Wayne State University; LL.B., LL.M., Duke University, 1960.

KENNETH T. MORRIS, *Counselor in Testing and Counseling Bureau* (June 1967)
B.A., Lewis College; M.A., Bradley University, 1965; Purdue University.

DEANNA I. MORROW, *Literature Chemist-Editor in Center for Information Services* (April 1966)
B.A., University of Saskatchewan (Canada), 1962.

MAURICE MORTON, *Professor of Polymer Chemistry and Director of the Institute of Polymer Science* (October 1948)
B.S., Ph.D., McGill University (Canada), 1945.

RICHARD MOSTARDI, *Instructor in Biology* (1967)
B.S.Ed., M.Ed., Kent State University, 1964; The Ohio State University.

JUDITH MOWERY, *Assistant Humanities Librarian* (May 1967)
B.A., Ohio University; M.S.L.S., Western Reserve University, 1965.

JOHN MULHAUSER, *Instructor in Geography* (1966)
B.A., M.A., Kent State University, 1961.

FRED L. MULLEN, *Instructor in the Community and Technical College* (1967)
B.S.E.E., Case Institute of Technology; M.S.E., The University of Akron, 1966.

JEROME MUSHKAT, *Assistant Professor of History* (1962)
B.A., M.A., D.S.S., Syracuse University, 1964.

MRS. LOIS MYERS, *Assistant Professor of Bibliography and Humanities Librarian* (1946)
B.A., Wittenberg University; B.S.L.S., Carnegie Institute of Technology, 1939.

ROBERT H. MYERS, *Assistant Professor of Education* (1966)
B.S.Ed., M.A., Ph.D., The Ohio State University, 1964.

ESTELLE NAES, *Dean of the College of Nursing and Professor of Nursing* (June 1966)
B.S.N.Ed., M.S.Ed., Ph.D., St. Louis University, 1962; R.N.

CHARLES F. NAGY, *Professor of Accounting* (1961)
B.S., M.S., Indiana State University; Ph.D., University of Alabama, 1959; C.P.A., Tenn.

THOMAS NASH, *Assistant Professor of Geography* (1967)
B.A., M.A., Kent State University, 1963.

HENRY NETTLING, *Assistant Controller* (February 1964)
B.S.B.A., The University of Akron, 1964.

SAMUEL C. NEWMAN, *Associate Professor of Sociology* (1951)
B.A., University of Pittsburgh; M.A., Oberlin College; Ph.D., Ohio State University, 1939.

ALLEN G. NOBLE, *Associate Professor of Geography* (1964)
B.A., Syracuse University; M.A., University of Maryland; Ph.D., University of Illinois, 1957.

MRS. GAY L. NOKES, *Instructor in Physical Education* (1958) (1967)
B.S., Michigan State University; M.A., Kent State University, 1964.

RICHARD F. NOKES, *Assistant Professor of Biology* (January 1962)
B.S., D.V.M., Michigan State University, 1958.

GUESSLER NORMAND, *Instructor in Modern Languages* (1968)
B.A., Southern University; M.A., University of Kentucky, 1967.

DOROTHY M. NUNN, *Associate Professor of Biology* (1967)
B.S. Med. Tech., Ph.D., University of Cincinnati, 1962.

OLIVER OCASEK, *Assistant Professor of Education* (January 1961)
B.S.Ed., M.A., Kent State University, 1950.

MARY OLSON, *Instructor in Music* (1967)
B.M., Baldwin-Wallace College; M.Music, University of Texas, 1961.

SARAH ORLINOFF, *Associate Professor of Education* (1963)
B.A., M.A.Ed., The University of Akron; Ph.D., Western Reserve University, 1963.

R. THOMAS OST, *Assistant Registrar* (June 1967)
B.A., The University of Akron, 1960.

DONALD C. OTT, *Assistant Professor of Psychology* (1967)
B.S., The Ohio State University; M.A., Western Reserve University; Ph.D., The Ohio State University, 1965.

JOHN W. OWEN, *Assistant Director of Admissions* (June 1965)
B.A., Johns Hopkins University, 1965.

LORRAINE V. PAINTER, *Adviser of Women* (July 1967)
B.M.E., Denison University; M.S.Ed., Indiana University, 1967.

BERNARD PANDITHARATNA, *Visiting Associate Professor of Geography* (February 1968)
B.A., University of Ceylon; M.A., University of the Philippines; Ph.D., University of London, 1960.

EDWARD A. PAUL, *Assistant Professor of English* (1955)
B.A., The University of Akron; M.A., Ph.D., Western Reserve University, 1958.

MRS. PHYLLIS PAUL, *Counselor in Testing and Counseling Bureau* (July 1955)
B.A., The University of Akron; M.A., Western Reserve University, 1937.

MRS. D'ORSAY PEARSON, *Instructor in English* (1966)
B.A., University of North Carolina; M.A., University of Florida, 1962.

W. M. PETRY, *Dean of the Community and Technical College and Professor of Mechanical Engineering* (1946)
B.S.M.E., University of Missouri; M.S.M.E., Case Institute of Technology, 1951; P.E., Ohio.

MRS. ISABEL L. PFEIFFER, *Assistant Professor of Education* (1966)
B.A., Manchester College (Indiana); M.S., Indiana University; Ph.D., Kent State University, 1966.

JOHN S. PHILLIPSON, *Associate Professor of English* (1961)
B.A., University of Rochester; M.A., Ph.D., University of Wisconsin, 1952.

FRANK T. PHIPPS, *Professor of English* (1953)
B.A., M.A., Miami University; Ph.D., Ohio State University, 1953.

MRS. IRJA PIIRMA, *Assistant Professer of Polymer Science and Research Associate in the Institute of Polymer Science* (1963)
Diploma in Chemistry, Technische Hochschule of Darmstadt (Germany); M.S., Ph.D., The University of Akron, 1960.

HARRY T. PINNICK, *Associate Professor of Physics* (1964)
B.A., Southwestern College (Kansas); Ph.D., University of Buffalo, 1955.

JOHN PIZOR, *Assistant Professor in the Community and Technical College* (1966)
B.S., Grove City College; M.Ed., University of Pittsburgh, 1946.

R. R. PLISKIN, *Adjunct Professor of Anatomy in the Department of Biology* (1967)
The University of Akron, 1930; M.A., The Ohio State University, 1930; M.D., The Ohio State University, 1934; University of Pennsylvania, 1946 (Chief of Surgery, Children's Hospital of Akron).

ARTHUR R. POLLOCK, JR., *Instructor in the Community and Technical College* (1967)
B.S.Ed., Indiana University of Pennsylvania, 1962; Western Reserve University.

BERNARD PONETTE, *Lecturer in Modern Languages* (1968)
Interpreters Diploma, School of Language and Linguistics, Georgetown University, 1967.

JOHN A. POPPLESTONE, *Professor of Psychology and Director of the Archives of the History of American Psychology* (1961)
B.A., University of Michigan; M.A., Wayne State University; Ph.D., Washington University, 1958.

CHARLES F. POSTON, *Professor of Finance and Director of Institutional Research* (1959)
B.A., Eastern Illinois State College; M.A., University of Illinois; Ph.D., University of North Carolina, 1959.

EFTHIMIOS POURNARAKIS, *Assistant Professor of Economics* (1967)
B.A., Athens Graduate School of Economics and Business Science (Greece); M.A., Ph.D., The University of Kansas, 1967.

GRACE L. POWELL, *Assistant Professor of Geography* (1966)
B.A., M.S., University of Alberta (Canada); Ph.D., Pennsylvania State University, 1968.

KENNETH PRAMUK, *Lecturer in English* (1967)
B.A., M.A., The University of Akron, 1968.

RICHARD N. PRATTE, *Associate Professor of Education* (1967)
B.A., M.A., American International College; Ph.D., University of Connecticut, 1967.

MRS. MINNIE PRITCHARD, *Lecturer in the Community and Technical College* (1967)
B.S.Ch.E., The University of Akron, 1955.

RICHARD C. RAILSBACK, *Adviser of Men* (July 1966)
B.A., Oberlin College; M.A.Ed., University of Toledo, 1966.

BRIAN G. RAMSEY, *Assistant Professor of Chemistry* (1964)
B.S., University of South Carolina; M.S., University of Wisconsin; Ph.D., Florida State University, 1962.

GEORGE E. RAYMER, *Director of Radio and Television Information* (August 1961)
B.A., Kent State University, 1952.

†RICHARD C. REIDENBACH, *Professor of Marketing* (August 1962)
B.A., Michigan State University; M.S., New York University; Ph.D., St. Louis University, 1958.

ELMER N. REIGHARD, JR., *Production Manager of Instructional Television* (June 1967)
B.A., The University of Akron, 1948.

HOWARD REINMUTH, JR., *Associate Professor of History* (1966)
B.A., M.A., Ph.D., University of Minnesota, 1958.

MAURICE S. REISMAN, *Assistant Professor of Law* (1968)
B.A., Syracuse University; J.D., University of Chicago Law School, 1968.

H. LAMARR RICE, *Vice President for Development* (July 1967)
B.A., Denison University; B.D., Colgate-Rochester Divinity School; M.A.Ed., Columbia University; L.H.D., Cedarville College, 1942.

DICK I. RICH, *Associate Professor of Education* (1965)
B.A., Otterbein College; M.Ed., Kent State University; Ed.D., Columbia University, Teachers College, 1961.

†RUSSELL V. RICH, *Computer Processing Specialist, Center for Information Services* (February 1967)
B.S.B.A., The University of Akron, 1967.

ALVIN M. RICHARDS, JR., *Associate Professor of Civil Engineering* (1949)
B.C.E., The University of Akron; M.S., Harvard University, 1949; P.E., Ohio.

JAMES RICHARDSON, *Associate Professor of History and Associate Professor of Urban Studies* (1967)
B.A., Iona College; M.A., Georgetown University; Ph.D., New York University, 1961.

DAVID C. RIEDE, *Associate Professor of History* (1955)
B.A., M.A., Ph.D., State University of Iowa, 1957.

MABEL RIEDINGER, *Distinguished Professor 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.

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†Leave of Absence, 1967-68.

RICHARD S. ROBERTS, *Associate Professor of Accounting* (1964)
B.B.A., University of Cincinnati; M.B.A., Ph.D., The Ohio State University, 1966; C.P.A., Ohio.

ROBERT W. ROBERTS, *Associate Professor of Chemical Engineering* (1966)
B.S.Ch.E., Washington University; M.S.Ch.E., Ph.D.Ch.E., State University of Iowa, 1962.

LOUIS D. RODABAUGH, *Associate Professor of Mathematics* (1964)
B.A., Miami University; M.A., Ph.D., The Ohio State University, 1938.

MRS. LINDA C. RODDA, *Lecturer in the Community and Technical College* (1967)
B.S.Ed., The University of Akron, 1963.

CECIL A. ROGERS, *University Auditor* (1932)
B.S.B.A., The University of Akron, 1932.

WILLIAM A. ROGERS, *Dean of Administration, Associate Professor of Education, and Director of the Summer Sessions* (1957)
B.A., Ed.M., Ed.D., University of Buffalo, 1967.

MRS. MARGARET F. ROGLER, *Assistant Professor of Marketing* (1948)
B.S., University of Nebraska; M.S., University of Denver, 1944.

WILLIAM ROOT, *Associate Professor of Education and Director of Teacher Placement* (1968)
B.A., M.A., Ph.D., The Ohio State University, 1958.

HENRY ROSENQUIST, *Assistant Professor of Psychology* (1965)
B.S., M.A., Columbia University; Ph.D., Tulane University, 1964.

LOUIS ROSS, *Associate Professor of Mathematics* (February 1946)
B.S., B.A., M.A.Ed., The University of Akron; Ph.D., Western Reserve University, 1955.

DENNY D. ROTRAMEL, *Assistant Professor of Accounting* (1968)
B.S., M.S., Southern Illinois University, 1966. C.P.A., Illinois.

MARIO E. RUIZ, *Assistant Professor of Modern Languages* (1967)
B.A., San Francisco State College; M.A., Ph.D., Stanford University, 1967.

MAX M. RULE, *Assistant Professor in the Community and Technical College* (1965)
B.A., M.B.A., University of Maryland, 1963.

WILMA RUMAN, *Assistant Professor of Physical Education* (1959)
B.S.Ed., The University of Akron; M.A., Columbia University, Teachers College, 1950.

MRS. ELIZABETH RUNYAN, *Instructor in English* (1967)
B.A., University of Chicago; M.A., Kent State University, 1966.

HELEN RYAN, *Instructor in Modern Languages* (1968)
B.A., Ohio Wesleyan University; M.A., Middlebury College, 1967.

MICHAEL J. RZASA, *Dean of the College of Engineering and Professor of Chemical Engineering* (February 1964)
B.E., Yale University; M.S., Ph.D., University of Michigan, 1947.

DONALD E. SABATINO, *Assistant Director of Student Center and Director of Student Activities* (1963)
B.A., The University of Akron, 1964.

CHARLES T. SALEM, *Instructor in the Community and Technical College* (1965)
B.S.S., M.A., John Carroll University, 1965.

STANLEY A. SAMAD, *Dean of the College of Law and Professor of Law* (1959)
B.A., J.D., University of Cincinnati; LL.M., Western Reserve University, 1959; LL.M., New York University, 1964.

RAY H. SANDEFUR, *Dean of the College of Fine and Applied Arts and Professor of Speech* (1950)
B.A., B.S.Ed., Emporia State Teachers College; M.A., University of Colorado; Ph.D., State University of Iowa, 1950.

EVERETT SANTEE, JR., *Scientific Instruments Technician* (1966)
B.S., West Virginia State College, 1962.

SIMSEK SARIKELLE, *Assistant Professor of Civil Engineering* (1967)
B.S., Robert College (Istanbul, Turkey); M.S., Ph.D., West Virginia, 1966.

ROBERT S. SARTORIS, *Director of University Publications* (July 1963)
B.S., Purdue University, 1951.

BLIN B. SCATTERDAY, *Associate Professor in the Community and Technical College* (1964)
B.A., M.A.Ed., The University of Akron, 1963.

RICHARD J. SCHMEIDLER, JR., *Instructor in Psychology* (January 1968)
B.A., Yale University, 1961; Columbia University.

ROBERT G. SCHMIDT, *Associate Professor of Sociology* (1967)
B.A., Illinois College; M.A.T., Harvard University; Ph.D., Washington University, 1955.

RONALD E. SCHNEIDER, *Associate Professor of Physics* (1962)
B.S., The University of Akron; M.S., John Carroll University, 1958; Ph.D., Case Institute of Technology, 1964.

H. PAUL SCHRANK, JR., *Assistant Professor of Bibliography and University Librarian* (January 1965)
B.S., Ohio University; M.S., University of Illinois, 1963.

C. DONALD SCHUMACHER, *Adviser of Men* (July 1967)
B.S., Bowling Green State University, 1956.

MRS. ANNETTE K. SEERY, *Assistant Professor of Economics* (1951)
B.A., Mount Holyoke College; M.A., Washington University, 1947.

MRS. JOAN G. SEIFERT, *Assistant Professor of Education* (1967)
B.S., M.Ed., Ph.D., Kent State University, 1967.

SAMUEL SELBY, *Distinguished Professor of Mathematics* (1927)
B.A., M.A., University of Manitoba (Canada); Ph.D., University of Chicago, 1929.

EDWIN SERNOFF, *Instructor in Art* (1967)
B.F.A., M.F.A., University of Pennsylvania, 1962.

THOMAS W. SHARKEY, *Professor of Business Administration* (1954)
B.S.C., Ohio University; M.B.A., D.B.A., Indiana University, 1963.

H. V. SHARP, *Adjunct Professor of Anatomy in the Department of Biology* (1966)
M.D., The Ohio State University, 1928; M.S., University of Pennsylvania, 1932 (Chief of Surgery, Akron City Hospital).

JOHN E. H. SHERRY, *Assistant Professor of Law* (1967)
B.A., Yale University; L.L.B., Columbia University; LL.M., New York University, 1967.

MRS. ANITA K. SHEW, *Assistant Law Librarian and Cataloger and Instructor in Bibliography* (1967)
B.A., College of Wooster; M.L.S., Western Reserve University, 1967.

KARL A. SHILLIFF, *Assistant Professor of Management* (1967)
B.S.Ch.E., Pennsylvania State University; M.B.A., The University of Akron, 1962.

RICHARD SHIREY, *Lecturer in Music* (1967)
B.M., Oberlin College; M.M., University of Illinois, 1965.

KENNETH F. SIBILA, *Professor of Electrical Engineering and Director of Electronic Systems Engineering* (February 1940)
B.S.E.E., M.S.E.E., Case Institute of Technology, 1937; P.E., Ohio.

MARY ELLEN SIBILA, *Computer Specialist in the Computer Center* (July 1967)
B.A., College of Mount St. Joseph, 1958.

PAUL SILVER, *Assistant Professor of History* (1966)
B.A., Oberlin College; M.A., Ph.D., University of Pennsylvania, 1964.

ANDREW L. SIMON, *Professor of Civil Engineering* (1965)
C.E. Diploma, Technical University of Budapest; Ph.D., Purdue University, 1962; P.E., Ohio, West Virginia, Indiana.

FRANK SIMONETTI, *Professor of Management* (February 1942)
B.S., The University of Akron; M.B.A., Boston University; D.B.A., Indiana University, 1954.

†FRANK SLABY, JR., *Instructor in Business Administration* (1965)
B.S., M.B.A., Indiana University, 1963.

HOWARD K. SLAUGHTER, *Assistant Professor of Speech* (1967)
B.A., University of California; M.A., University of Hawaii; Ph.D., University of Pittsburgh, 1966.

MARY VERNON SLUSHER, *Associate Professor of Accounting* (1947) (1954)
B.S., M.S., Virginia Polytechnic Institute, 1931; C.P.A., Virginia.

HENRY P. SMITH, *Associate Professor of Music* (1947)
B.M., Illinois Wesleyan; M.A., Carnegie Institute of Technology; Ed.D., Columbia University, Teachers College, 1949.

HERBERT W. SMITH, JR., *Associate Professor of Modern Languages* (1956)
B.A., Brigham Young University; M.A., Ph.D., University of Wisconsin, 1956.

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†Leave of Absence, 1967-68.

JOSHUA I. SMITH, *Supervisor, Referral Service Network Office* (May 1965)
B.S., Central State College, 1963.

JANE M. STEINER, *Assistant Professor in the Community and Technical College* (1968)
B.A., The University of Akron; M.A., Western Reserve University, 1945.

WILBUR E. STEINER, *Instructor in Art* (1967)
B.F.A., Rochester Institute of Technology; M.F.A., Cranbrook Academy of Art (Michigan), 1962.

HOWARD STEPHENS, *Associate Professor of Chemistry, Associate Professor of Polymer Science and Manager of Applied Research in the Institute of Polymer Science* (1950)
B.S., M.S., Ph.D., The University of Akron, 1960.

WALLACE STERLING, *Assistant Professor of Speech* (1966)
B.A., M.A., University of Florida; Ph.D., Southern Illinois University, 1966.

MRS. EVELYN STEVENS, *Instructor in Political Science* (1968)
B.A., M.A., University of California (Berkeley), 1963.

WILLIAM J. STEVENS, *Associate Professor of English* (1950)
B.A., M.A., Dalhousie University (Halifax, N.S.); Ph.D., Western Reserve University, 1959.

DAVID E. STOFFER, *Assistant Director of Admissions* (August 1964)
B.S.Ed., Ohio Northern, 1960.

MRS. EUGENIA STONER, *Lecturer in English* (1967)
B.A., Clarke College, 1964; The University of Maryland.

WILLIAM STONER, *Instructor in English* (1966)
B.A., Bethany College; M.A., University of Maryland, 1966.

WARREN P. STOUTAMIRE, *Associate Professor of Biology* (1966)
B.S., Roanoke College; M.S., University of Oregon; Ph.D., Indiana University, 1954.

ANN STROUP, *Instructor in Home Economics* (1967)
B.S., Hiram College; M.S., Cornell University, 1967.

PHILLIP STUYVESANT, *Instructor in Modern Languages* (1966)
B.A., Thiel College; M.A., Western Reserve University, 1964.

MRS. JOYCE A. SULLIVAN, *Associate Professor of Home Economics* (January 1968)
B.S., M.A., Kent State University; The Ohio State University.

THOMAS SUMNER, *Dean of the General College and Professor of Chemistry* (1950)
B.S., Ph.D., Yale University, 1951.

LEONARD SWEET, *Assistant Professor of Mathematics* (1959)
B.A.Ed., The University of Akron; M.Ed., Kent State University, 1954; Western Reserve University.

ROBERT H. SWEITZER, II, *Instructor in English* (1966)
B.A., Kent State University; M.A., Ohio State University, 1966.

JAMES D. SWITZER, *Instructor in the Community and Technical College* (1965)
B.A., College of Wooster; M.A., Kent State University, 1965.

GEORGE L. SZOKE, *Assistant Professor of Mathematics* (1963)
B.S.M.E., Polytechnical University of Budapest; M.S.E., The University of Akron, 1963.

MRS. CATHRYN TALIAFERRO, *Assistant Professor of English* (October 1961)
B.A., The University of Akron; M.A., Radcliffe College, 1940.

FRANK J. TASCONE, JR., *Accountant* (July 1966)
B.S., Gannon College, 1961.

E. BARBARA TAUCCI, *Associate Professor of Mathematics* (1967)
B.A., The University of Akron; M.S., Iowa State University; Ph.D., Yale University, 1966.

HOWARD L. TAYLOR, *Associate Professor of Business Administration* (1963)
B.S., The University of Akron; M.S., Ph.D., Iowa State College, 1958.

MRS. PATRICIA TAYLOR, *Instructor in Physical Education* (1962)
B.S.Ed., The University of Akron, 1963.

RONALD TAYLOR, *Assistant Professor of Art* (1964)
B.F.A., M.A., The Ohio State University, 1963.

†DONALD E. TEBBS, *Evening College Counselor* (1966)
B.S.Ed., Malone College, 1965.

---

† Leave of Absence, 1967-68.

JAMES W. TEETER, *Assistant Professor of Geology* (1965)
B.S., M.S., McMaster University; Ph.D., Rice University, 1966.

JOHN W. TELESCA, *Research Associate in the Center for Urban Studies* (1961) (1966)
B.A., Mount Union College, 1958.

STUART M. TERRASS, *Registrar* (December 1957)
B.A., B.S., M.A., The University of Akron, 1965.

MRS. HELEN S. THACKABERRY, *Assistant Professor of English* (February 1940)
B.A., M.A., State University of Iowa, 1937.

ROBERT E. THACKABERRY, *Professor of English* (1938)
B.A., M.A., Ph.D., State University of Iowa, 1937.

ERNEST R. THACKERAY, *Distinguished Professor of Physics* (1949)
B.A., M.A., University of Saskatchewan (Canada); Ph.D., University of Wisconsin, 1948.

DAVID THEUSCH, *Instructor in the Community and Technical College* (1966)
B.S., Minot State College; M.S., University of North Dakota, 1966.

DOUNALD W. THOMAS, *Instructor in Art* (1968)
B.A., M.A., San Diego State College, 1967. Columbia University.

LINDON C. THOMAS, *Assistant Professor of Mechanical Engineering* (1967)
B.S.M.E., Tulsa University; Ph.D., Kansas State University, 1967.

DONALD THORN, *Professor of Electrical Engineering* (1967)
B.S.E.E., Texas A & M College; M.S.E.E., Ph.D., The University of Texas, 1958.

MRS. HELEN THORNBERG, *Assistant Professor of Bibliography and Head of Library Acquisitions* (1959)
B.A., College of William and Mary; M.S.L.S., Western Reserve University, 1959.

RUDOLPH J. TICHY, *University Architect* (May 1967)
B.S. in Architecture, Western Reserve University, 1943.

DAVID H. TIMMERMAN, *Assistant Professor of Civil Engineering* (1962) (1967)
B.S.C.E., M.S., Ohio University, 1962. Michigan State University.

GEORGE V. TOMASHEVICH, *Associate Professor of Anthropology* (1965)
B.A., Roosevelt University; M.A., Ph.D., University of Chicago, 1957.

EVELYN M. TOVEY, *Associate Professor of Nursing* (1950)
B.S.N., M.S.N., Western Reserve University, 1950; R.N.

WILEY TRIVETT, *Adjunct Professor of Anatomy* (1967)
Chief of Surgery, Akron General Hospital.

MRS. AUDRA TENNEY TUCKER, *Associate Professor of Secretarial Science* (1926)
B.A., The University of Akron; M.A., New York University, 1936.

PAUL E. TWINING, *Professor of Psychology* (November 1941)
B.S., Ottawa University; M.A., University of Kansas; Ph.D., University of Chicago, 1938.

MICHAELE TYNER, *Instructor in Art* (1967)
B.S., University of Michigan; M.F.A., Cranbrook Academy of Art, 1966.

DONALD S. VARIAN, *Associate Professor of Speech* (1934)
B.A., M.A., University of Wisconsin, 1934.

MRS. KATHRYN VEGSO, *Adviser of Women and Director of Women's Activities* (February 1959)
B.S., University of Illinois; M.S.Ed., The University of Akron, 1963.

EDWIN E. WAGNER, *Professor of Psychology* (1959)
B.A., M.A., Ph.D., Temple University, 1959.

MRS. JANET WAISBROT, *Instructor in Modern Languages* (1965)
B.A., Western Reserve University; M.A., Kent State University, 1966.

MILTON A. WALES, *Instructor in Community and Technical College* (1966)
B.S., Louisiana State University; M.A.Ed., Pennsylvania State University, 1966.

JOAN E. WARNER, *Assistant Professor of Secretarial Science* (January 1964)
B.S., M.S.Ed., The University of Akron, 1966.

†NORMAN F. WASHBURNE, *Professor of Sociology* (1960)
B.A., University of Missouri; M.A., New School of Social Research; Ph.D., Washington University, 1953.

MRS. VIRGINIA J. WATKINS, *Assistant Professor in the Community and Technical College* (1967)
B.A.Ed., M.A.Ed., Arizona State University, 1963.

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†Leave of Absence, 1967-68.

JOHN STEWART WATT, *Associate Dean of the College of Education and Professor of Education* (1956)
B.A., The University of Akron; M.A., Ph.D., University of Chicago, 1950.

HENRY WATTS, *Associate Professor of Sociology* (1968)
B.A., M.A., University of Buffalo; Ph.D., Michigan State University, 1962.

WYATT M. WEBB, *Assistant Professor of 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.

BERNARD M. WEINER, *Associate Professor of Art* (1953)
B.S., Cleveland Institute of Art and Western Reserve University; M.A., Western Reserve University, 1951.

DAVID M. WEIS, *Assistant Professor of Education* (1967)
B.A., Loras College; M.Ed., Ohio University; Ph.D., The Ohio State University, 1967.

MRS. MARY C. WELTY, *Lecturer in English* (1967)
B.A., M.A., The University of Akron, 1967.

FRANCIS J. WERNER, *Instructor in Psychology and Counselor in Testing and Counseling Bureau* (August 1950)
B.A., M.A., The University of Akron, 1952.

ROBERT C. WEYRICK, *Associate Professor in the Community and Technical College* (1964)
B.E.E., The University of Akron; M.S., Case Institute of Technology, 1964.

MRS. MARJORIE A. WHITE, *Assistant Professor of Nursing* (1967)
B.S.N.Ed., University of Minnesota; M.S.N.Ed., University of Rochester, 1960; R.N.

JOHN WIANDT, *Accountant* (July 1967)
B.S.Bus.Ed., Kent State University, 1965.

JAMES B. WILBUR, III, *Professor of Philosophy* (1964)
B.A., University of Kentucky; M.A., Ph.D., Columbia University, 1954.

ROBERT J. WILLEY, *Associate Professor of Law* (1966)
B.A., LL.B., University of Nebraska; LL.M., New York University, 1966.

MAURICE G. WILLIAMS, *Associate Professor of Education* (1966)
B.A., The University of Akron; M.E., Kent State University; Ed.D., Western Reserve University, 1962.

MAX S. WILLIS, JR., *Associate Professor of Chemical Engineering* (1968)
B.S., Pennsylvania State University; M.S., Ph.D., Iowa State University of Science and Technology, 1962.

CHARLES 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.

MARY H. WILSON, *Assistant Professor of Home Economics* (April 1943)
B.S., Iowa State College, 1932.

MRS. SHERRY L. WILT, *Schedule Coordinator, Office of the Registrar* (June 1967)
B.A.Ed., The University of Akron, 1966.

PAUL WINGARD, *Associate Dean of Buchtel College of Liberal Arts and Professor of Geology* (February 1966)
B.A., M.S., Miami University; Ph.D., University of Illinois, 1960.

DARREL E. WITTERS, *Assistant Professor of Music* (1941)
B.S.Ed., Bowling Green State University; M.S.Ed., The University of Akron, 1958.

NEAL WOLFE, *Assistant Registrar* (July 1966)
B.S., The University of Akron, 1965.

CHARLES L. WOOD, *Assistant Professor of Education* (1966)
B.A., Simpson College; M.A., Ph.D., University of Iowa, 1966.

PAUL W. WOOD, *Instructor in Modern Languages* (1967)
B.A., Athenaeum of Ohio; M.A., University of Cincinnati, 1960. Northwestern.

W. RICHARD WRIGHT, *Special Assistant for Development* (June 1967)
B.A., The University of Akron, 1937.

ROBERT E. YEAKLEY, *Adjunct Professor of Anatomy in the Department of Biology* (1966)
B.A., College of Wooster; M.D., Western Reserve University, 1945 (St. Thomas Hospital).

KAREN YINGER, *Instructor in Sociology* (1967)
B.A., Baldwin-Wallace College; M.A., Indiana University, 1967.
ROBERT W. YOUNG, *Instructor in Bibliography and Head of Science Technology Library* (June 1967)
B.S.Ed., Kent State University; M.A.L.S., University of Denver, 1967.
HANS ZBINDEN, *Instructor in Modern Languages* (1965)
B.A., Wittenberg University; M.A., University of Pennsylvania, 1955.
ANNE ZSILLI, *Lecturer in Modern Languages* (1968)
B.A., The University of Akron, 1964. Middlebury College.

*Part-Time Faculty**

(Credit Courses)

LOUIS W. ABES, *Lecturer in Associate Programs*
B.A., Salem College, 1965.

STANLEY W. AKERS, *Lecturer in Education*
B.S.Ed., The University of Akron, 1967.

MRS. SNJEZNA AKPINAR, *Lecturer in General Studies*
B.A., M.A., The University of Belgrade, Ph.D., University of Istanbul, 1966.

A. W. ALMGREN, *Lecturer in Sociology*
B.A., Bowling Green College; B.D., S.T.M., Oberlin College; Ph.D., The Ohio State University, 1964.

EDWARD ANDERSON, *Special Instructor in Trombone*
The University of Akron.

JOHN R. ANTON, *Lecturer in Geography*
M.A., Ph.D., University of Vienna, 1949.

RICHARD T. BECKER, *Lecturer in Data Processing*
B.A., Miami University (Ohio), 1951.

MRS. PATRICIA BERNOFSKY, *Special Instructor in Music*
B.M., The University of Akron, 1968.

VINCENT J. BIONDO, *Lecturer in Education*
B.A., M.A., The University of Akron, 1955.

MRS. MIRIAM BORTHWICK, *Lecturer in Associate Programs*
B.S.Ed., Ohio University; M.S., Kent State University, 1964.

JOHN BOWYER, *Lecturer in Electrical Engineering*
B.S.E.E., M.S.E.E., The University of Akron, 1965.

EMANUEL H. BRONSTEIN, *Lecturer in Chemistry*
B.S., University of Missouri, B.A.Ed., The University of Akron, 1964.

BERNARD HERBERT BURZLAFF, *Lecturer in Physics*
B.A., Mankato State College; M.S., The University of Wisconsin, 1960.

LAWRENCE S. CANTER, *Lecturer in Marketing*
B.A., University of Michigan; M.B.A., Columbia University, 1964.

NATHAN F. CARDARELLI, *Lecturer in Physics*
B.S., B.A., M.S., The University of Akron, 1958.

DAVID A. CARTER, *Lecturer in General Studies*
B.A., The University of Akron, 1965.

JOHN D. CHAPMAN, *Lecturer in Marketing*
B.A., Yale University, 1947.

GLEN C. CHILDS, *Lecturer in Education*
B.S., United States Military Academy; M.S., University of Akron, 1962.

ROBERT B. COLE, *Special Instructor in Clarinet*
B.S.Ed., The University of Akron, 1938.

NEAL J. COLLINS, *Lecturer in General Studies*
B.S.Ed., M.A., The University of Akron, 1964.

MRS. BEATRICE CONNELLY, *Lecturer in Education*
B.S.Ed., The University of Akron; M.Ed., Kent State University, 1959.

JAMES COSGAREA, *Lecturer in General Studies*
B.A., Mount Union College; M.A., Ohio University, 1962.

ROGER A. CRAWFORD, *Lecturer in Chemistry*
B.S., University of Illinois; M.S., Ph.D., Oregon State University, 1959.

DANILE CROGHAN, *Lecturer in Economics*
B.A., Kent State University; M.A., The University of Akron, 1968.

JOHN A. DAILY, *Lecturer in Associate Programs*
B.S., LL.B., The University of Akron; M.B.A., University of Pennsylvania, 1964.

SHARON H. DARMOFALL, *Lecturer in Sociology*
B.A., M.A., The University of Akron, 1967.

*On record March, 1968.

GABRIEL JOHN DESANTIS, *Lecturer in Physical Education*
B.S., Ohio State University, 1958.

CHARLES S. DICKEY, *Lecturer in Chemistry*
B.S., Case Institute of Technology, 1966.

JOSEPH DILAURO, *Lecturer in Accounting*
B.S., The University of Akron, 1955.

IRENE DILLON, *Lecturer in Speech*
The University of Akron.

PAUL H. DUNHAM, *Lecturer in Industrial Management*
B.A., Western Reserve University; M.B.A., Kent State University, 1960.

HUGH DURKIN, *Lecturer in Accounting*
B.S., The University of Akron, 1963.

OTTO C. ELMER, *Lecturer in Chemistry*
B.A., Bluffton College; Ph.D., University of Minnesota, 1948.

BART JACOB EPSTEIN, *Lecturer in Marketing*
B.S., Cornell University; M.A., The George Washington University; Ph.D., Clark University, 1956.

DOUGLAS L. EWING, *Lecturer in Physics*
B.M.E., The University of Akron, 1954.

MRS. ANITA EXLINE, *Special Instructor in Flute*
B.A., The University of Akron, 1942.

RAYMOND L. FALCIONE, *Lecturer in Speech*
B.A., The University of Akron, 1965.

JOANNE B. FARKAS, *Lecturer in Education*
B.S.Ed., M.S.Ed., The University of Akron, 1957.

RICHARD D. FEATHERINGHAM, *Lecturer in Associate Programs*
B.S., M.S.Ed., Kent State University; Ed.D., University of North Dakota, 1965.

NICHOLAS FIGETAKIS, *Lecturer in Psychology*

GLEN FINCHER, *Lecturer in General Studies*

JUDITH A. FLASCO, *Lecturer in General Studies*
B.A.Ed., The University of Akron, 1962.

WILLIAM J. FLYNN, *Assistant Professor of Psychology*
A. B., Fenn College; M.A., Wayne University; Ph.D., Western Reserve University, 1954.

J. WILLIAM FREEMAN, *Lecturer in Law*
B.S.M.E., Case Institute of Technology; LL.B., Western Reserve University, 1945.

HALLECK D. FRY, JR., *Lecturer in Journalism*
B.A., University of Michigan, 1940.

WILLIAM E. GALLEHER, *Lecturer in Management*
The University of Akron.

DAVID GELLATLY, *Lecturer in General Studies*
B.A., The University of Akron, 1967.

MRS. NADINE W. GENTRY, *Lecturer in Biology*

CLARENCE J. GILHAM, *Lecturer in History*
Ph.D., Western Reserve University, 1946.

PAUL A. GILMORE, *Lecturer in Mathematics*
B.S., Loyola University (Baltimore); M.A., The University of Akron, 1965.

SAMUEL GOLDMAN, *Lecturer in Law*
B.A., Miami University; LL.B., Harvard University, 1948.

MICHAEL P. GRANIERI, *Lecturer in Associate Programs*
B.S., B.A., The University of Akron, 1950.

NEIL B. GREENE, *Lecturer in Accounting*
B.B.A., Western Reserve University; LL.B., The University of Akron, 1964.

MRS. CECELIA GROSS, *Lecturer in General Studies*
M.A., The University of Akron, 1962.

ROBERT L. GULIAN, *Lecturer in Art*
B.A., The University of Akron, 1961.

EDWARD J. HACKIM, *Lecturer in Management*
B.S.I.M., M.B.A., The University of Akron, 1966.

MRS. CHARLOTTE HANTEN, *Lecturer in Art*
B.A., Earlham College; M.Ed., Pennsylvania State University, 1954. Carnegie Institute of Technology.

PAUL EDWARD HARBOK, *Lecturer in Technical Drawing*
B.S.Ed., Kent State University, 1951.

CHARLES C. HARGIS, JR., *Lecturer in Associate Programs*
B.A., Eastern Michigan University; M.A., Wayne State University, 1961.

R. BARDWELL HEAVENS, *Lecturer in Marketing*
B.A., Bowdoin College; M.B.A., Babson Institute, 1959.

WILLIAM HEBERT, *Special Instructor in Flute*
Juilliard School of Music, 1947.

IRMA HEINTZ, *Lecturer in Associate Studies*

MRS. AGNES M. HELMS, *Lecturer in General Studies*
B.A.Ed., The University of Akron, 1953.

JOHN HETRICK, *Lecturer in Electrical Engineering*
B.S.E.E., Pennsylvania State University; M.S.E.E., Northeastern University, 1967.

FRED HEYBURN, *Special Instructor in Oboe*
B.S., The University of Akron, 1966.

MRS. KATHERINE K. HILTABIDLE, *Lecturer in Biology.*
B.S., The Ohio State University, 1936.

MRS. BARBARA HINEY, *Lecturer in General Studies*
B.A., M.A., The University of Akron, 1963.

JAMES R. HODGE, *Lecturer in Psychology*
B.S., Franklin and Marshall College; M.D., Jefferson Medical College of Philadelphia, 1950.

HAROLD J. HOLSHUH, *Lecturer in Law*
B.A., J.D., The University of Michigan, 1942.

GEORGE M. HOMER, *Lecturer in Chemistry*
B.A., The Ohio State University; M.S., University of Colorado; Ph.D., The Ohio State University, 1958.

EUGENE M. HOOD, *Lecturer in Philosophy*
B.A., The University of Akron, 1963.

RICHARD W. INGOLD, *Lecturer in Associate Programs*
B.S., Kent State University, 1953.

MRS. SYS INMAN, *Lecturer in Modern Languages*
B.A., Baldwin Wallace College, 1966.

MRS. ROSALIND IRISH, *Lecturer in English*
B.S., B.A., The University of Akron; M.A., Columbia University, 1924.

RALPH F. IULA, *Lecturer in Journalism*
B.S., Butler University, 1947.

ALBERT E. JABS, *Lecturer in General Studies*
B.S., Valparaiso University; M.A., Ball State University, 1960.

ELSA JOHNSON, *Lecturer in General Studies*
B.A., Kent State University, 1965.

JOHN E. JOHNSON, *Lecturer in Speech*
B.A., Heidelberg College, 1959.

MORRIS KALMON, *Lecturer in Speech*
B.S., The University of Akron; M.D., The Ohio State University, 1931.

JAMES KALAL, *Special Instructor in Classical Guitar*
The University of Akron.

WILLIAM KANNELL, *Lecturer in Sociology*
B.S., The University of Akron; LL.B., Akron Law School, 1952.

MRS. MARY J. KAUFMAN, *Lecturer in General Studies*
B.A., The University of Akron, 1964.

JOHN M. KELLY, *Lecturer in Law*
B.A., LL.B., University of Notre Dame, 1946.

MRS. BEATRICE LAATSCH, *Lecturer in Associate Programs*
B.S.Ed., The University of Akron, 1938.

JAMES LARIA, *Lecturer in Physical Education*

THOMAS E. LAVRICH, *Lecturer in Modern Languages*
B.S., M.Ed., Kent State University, 1958.

DAVID JOHN LEHMICKE, *Lecturer in Associate Programs*
B.S., California Institute of Technology; Ph.D., University of Minnesota, 1945.

CLARENZ LIGHTFRITZ, *Special Instructor in Piano*
Bowling Green State University; private instruction with Ernest White and Miss Rena Wills.

WALTER C. LIPPS, *Lecturer in Physical Education*
B.E., The University of Akron, 1928.

DAVID K. LONG, *Lecturer in General Studies*
B.A.Ed., University of Akron, 1965.

WILLIAM LONG, *Special Instructor in Percussion Instruments*
B.M., Oberlin College, 1948.

RONALD W. LOTZ, *Lecturer in Sociology*
B.A., M.A., Kent State University, 1963.

JAMES LUKACEVICH, *Lecturer in General Studies*
B.A., The University of Akron, 1966.

THOMAS L. LYTTLE, *Lecturer in General Studies*
B.A., The University of Akron, 1963.

CATHERINE M. MANGOLD, *Lecturer in Art*
B.S.Ed., The University of Akron, 1963.

ROBERT VINCENT MANSON, *Lecturer in Business Administration*
B.S., M.B.A., Boston University, 1954.

MRS. NANCY MARANO, *Lecturer in Associate Programs*
B.B.A., Westminster College; M.A.Ed., The University of Akron, 1967.

KENNETH MAST, *Lecturer in Marketing*
B.A., M.B.A., The Ohio State University, 1960.

MRS. ARMOLENE MAXEY, *Lecturer in Sociology*
B.Sc., University of Nebraska; M.A., Kent State University, 1966.

JAMES B. MCCLUSKEY, *Lecturer in Finance*
B.S.L.B.A., M.B.A., Miami University, 1964.

DON L. MCHUGH, *Lecturer in Marketing*
B.S., Carnegie Institute of Technology, 1956.

BRUCE H. MCINTYRE, *Lecturer in Journalism*
B.A., Kent State University, 1957.

WILLIAM MCKAY, *Lecturer in Journalism*
B.A., Kent State University, 1956.

JAMES R. MCKEE, *Lecturer in History*
B.A., Wheeling College, 1965.

MRS. CLAIRE S. MERRIX, *Lecturer in General Studies*
B.A., Wittenberg University, 1961.

GARY H. MIESSE, *Lecturer in Economics*
B.S., Capital University; M.A., Kent State University, 1967.

ANTHONY MORRONE, *Lecturer in Civil Engineering*
B.S.C.E., Ohio University; M.S., The University of Akron, 1965.

MARY MOSTENIC, *Lecturer in General Studies*
B.A., B.E., M.A., The University of Akron, 1951.

MILTON NELSON, *Special Instructor in Trumpet*
B.S.Ed., The University of Akron, 1949.

HOWARD A. I. NEWMAN, *Visiting Associate Professor of Biology* (1967)
B.S., M.S., Ph.D., The University of Illinois, 1958.

MICHAEL J. NOON, *Lecturer in General Studies*
B.A., The University of Akron, 1965.

MRS. RUTH NURMI, *Special Instructor in Harpsichord*
B.S., M.A., University of Minnesota, 1960.

MRS. BETTY J. OBLISK, *Lecturer in Associate Programs*
B.S., The University of Akron, 1947.

VERNON L. ODOM, *Lecturer in Sociology*
B.A., Morehouse College; M.S.W., Atlanta University, 1950.

MRS. JANET OSTROV, *Lecturer in Art*
B.S., The University of Akron, 1951.

MRS. MARY PAOLUCCI, *Lecturer in General Studies*
B.A., The University of Akron, 1964.

ROBERT PAOLUCCI, *Special Instructor in Brass Instruments*
Juilliard School of Music.

CHARLES D. PARKE, *Lecturer in Law*
B.A., Harvard University; LL.B., The Ohio State University College of Law, 1956.

W. STUVER PARRY, *Lecturer in Education*
B.S.B.A., The University of Akron, 1956.

SIDDHARTH M. PATEL, *Lecturer in Chemistry*
B.Sc., M.Sc., The University of Bombay; Ph.D., The Ohio State University, 1966.

MRS. ROCHELLE A. PENNELL, *Lecturer in Education*
B.S., M.S., The University of Akron, 1967.

GEORGE PESCAN, *Lecturer in Associate Programs*
B.S.M.E., The University of Akron, 1951.

MRS. BETTY O. PETERS, *Lecturer in Education*
B.S.Ed., Kent State University; M.S.Ed., The University of Akron, 1967.

MRS. CATHERINE E. PIDORENKO, *Lecturer in Special Programs*
A.S., Point Park College, 1963.

MRS. SUZANNE PIERCE, *Lecturer in General Studies*
B.S., Miami University, 1961.

ALFRED EUGENE POCOCK, *Lecturer in General Studies*
B.A., The University of Akron, 1963.

JOSEPH L. POTTER, *Lecturer in Biology*
B.S., Boston University; Ph.D., University of Rochester; M.D., Western Reserve University, 1962.

ERROL S. PRINGLE, *Lecturer in Marketing*
B.S., The University of Akron; M.B.A., Kent State University, C.D.P., 1964.

MADELINE PRINGLE, *Lecturer in Modern Languages*

MRS. RUTH PUTMAN, *Assistant Professor Emeritus of English*
B.A., Howard College; M.A., Western Reserve University, 1938.

NUFF REY, *Special Instructor in Guitar*

DIANE C. REYMANN, *Lecturer in Associate Programs*
B.S.Ed., The University of Akron, 1966.

MRS. ELIZABETH RICKETTS, *Lecturer in Education*

DAVID J. ROBINSON, *Lecturer in Associate Programs*
B.S.E.E., The University of Akron; M.S.E., Case Institute of Technology, 1967.

REBA ROBINSON, *Lecturer in Education*
B.S.Ed., Ashland College; M.A., The Ohio State University, 1949.

ROBERT B. ROMWEBER, *Lecturer in Law*
B.A., The University of Akron; LL.B., University of Michigan, 1931.

MRS. JULIET SALTMAN, *Lecturer in Sociology*
B.A., Rutgers University; M.A., University of Chicago, 1948.

LAWRENCE SCARPITTI, *Special Instructor in Violin*
B.S.Ed., The University of Akron, 1954.

MRS. GRACE REGINALD SCOTT, *Special Instructor in Voice*
B.S. in Music, Eastman School of Music, University of Rochester, 1949.

EMMETT SHELLENBERGER, *Lecturer in Biology*
B.S., The University of Akron, 1950.

LARRY SHIRER, *Lecturer in Business Administration*
B.B.A., Ohio University; M.B.A., Harvard Graduate School of Business, 1966.

EDWARD SHOTTS, *Lecturer in Associate Programs*

ROBERT SIMMONS, *Lecturer in Accounting*
B.S.Ed., The University of Akron; M.S.Ed., Kent State Unviersity, 1953.

DIANNA SMITH, *Lecturer in Biology*
B.S., The University of Akron, 1966.

MRS. LULA HENRIETTA SMITH, *Lecturer in General Studies*
B.A., M.A.Ed., The University of Akron, 1926.

ROBERT L. SMITH, *Lecturer in Economics*
B.A., M.A., Oberlin College, 1934.

RONALD G. SNIDER, *Lecturer in English*
B.A., M.A., The University of Akron, 1954.

BETTY SPENCER, *Lecturer in General Studies*
B.A., M.A., The University of Akron, 1966.

JOHN W. STEINHOUER, *Lecturer in Education*
B.S.Ed., Miami University (Ohio); M.A., The Ohio State University, 1937.

GERALD EUGENE THORNE, *Lecturer in Associate Programs*
B.A., Barrington College, 1957.

RALPH VITT, *Special Instructor in Percussion Instruments*
B.S., M.S.Ed., The University of Akron, 1967.

CARL W. VOBBE, *Lecturer in Industrial Management*
B.B.A., University of Toledo, 1932.

LOWELL A. WATKINS, *Lecturer in Associate Programs*
B.A.Ed., Illinois State University; M.B.A., University of Denver, 1947. University of California in Los Angeles.

MRS. CHARLENE WEBER, *Lecturer in Education*
B.S., The University of Akron, 1953.

MRS. EDITH KATZ WEINSTEIN, *Lecturer in General Studies* (1966)
B.A., The University of Akron, 1951.

MRS. ILSE H. WHITE, *Lecturer in Modern Languages*
Diploma in French, University of Berlin; B.E., The University of Akron, 1966.

WILLIAM E. WILLIAMS, *Lecturer in Transportation*
Rate Analyst for Pyramid Rubber Co.

BERNARD S. WINICK, *Lecturer in Marketing*
B.S., The Ohio State University; LL.B., The University of Akron, 1964.

ROBERT L. WISE, *Lecturer in Education*
B.A., B.S.Ed., The University of Akron; M.Ed., Kent State University, 1956.

JAMES C. WORTHAM, *Lecturer in Mathematics*
B.A., The University of Akron, 1957.

B. DONALD YOUNG, *Lecturer in General Studies*
B.S., M.S.Ed., The University of Akron, 1967.

A. WILLIAM ZAVARELLO, *Lecturer in Associate Programs*
B.A., LL.B., The University of Akron, 1964.

ROBERT F. ZIMMERMAN, *Lecturer in General Studies*
B.A., The University of Akron; M.A., The American University, 1966.

Teaching Faculty by Departments

ACCOUNTING

Head: Professor Dennis Gordon; *Professor:* Charles F. Nagy; *Associate Professors:* Orville R. Keister, Jr., Richard C. Roberts, Mary Vernon Slusher; *Assistant Professors:* Frances Clark, Mrs. Virginia H. Catlin, Denney D. Rotramel; *Lecturers:* Joseph DiLauro, Hugh Durkin, Neil B. Greene, Errol S. Pringle, William E. Copeland, Robert Simmons.

ART

Head: Professor Emily Davis; *Associate Professors:* Irving Achorn, Malcolm J. Dashiell, Bernard M. Weiner; *Assistant Professor:* Ronald Taylor; *Instructors:* Earl L. Ertman, Edwin Sernoff, Wilbur Steiner, Dounald W. Thomas, Michaele Tyner; *Lecturers:* Mrs. Charlotte Hanten, Mrs. Catherine M. Mangold, Mrs. Janet Ostrov.

ASSOCIATE PROGRAMS

Head: Professor Aloysius E. Misko; *Associate Professors:* Michael Bezbatchenko, Blin B. Scatter-

day, Mrs. Audra Tenney Tucker, Robert C. Weyrick; *Assistant Professors:* Charles V. Blair, Marko Brdar, Robert E. Collins, David T. Dolan, Milan F. Dubravcic, Harold L. Edwards, William Fleming, William M. Glazier, Richard Henry, Richard B. Hoskin, Lowell Hoyt, Mary Jean Johnston, Herbert S. Kennedy, Robert S. Kline, Joseph Latona, John Pizor, Max M. Rule, Jane M. Steiner, Joan E. Warner, Mrs. Virginia J. Watkins; *Instructors:* Richard A. Calkins, Donald M. Davis, Frank Joseph Gruccio, Jr., Robert S. Hathaway, Thomas Herbert, James E. Inman, Mrs. Janice Jensen, Mrs. Mary Keith, Mrs. Lillian King, J. F. Mercer, Sylvia V. Meyers, John B. Monroe, Fred L. Mullen, Arthur R. Pollock, Jr., Charles T. Salem, James D. Switzer, David Theusch, Milton A. Wales; *Lecturers:* Louis W. Abes, Richard T. Becker, Mrs. Miriam Borthwick, John A. Daily, Richard D. Featheringham, Mrs. Barbara Gsellman, Paul E. Harbok, Charles C. Hargis, Jr., Richard W. Ingold, Mrs. Beatrice Laatsch, David J. Lehmicke, Elaine Mysock, Mrs. Betty J. Oblisk, George Pescan, Mrs. Minnie C. Pritchard, Mrs. Catherine E. Pidorenko, Diane C. Reymann, David J. Robinson, Mrs. Linda C. Rodda, James Scobie, Edward Shotts, Jack Thompson, Gerald E. Thorne, Lowell A. Watkins, William E. Williams, William A. Zavarello, John H. Zimmerman.

BIOLOGY

Acting Head: Associate Professor Dale L. Jackson; *Professor:* Roger F. Keller; *Associate Professors:* Eugene Flaumenhaft, Dorothy Nunn, Warren P. Stoutamire; *Assistant Professors:* Donald Goldstrohm, Irene Horning, Lazarus W. Macior, Richard F. Nokes; *Instructors:* Scott D. Hagen, Richard Mustardi; *Lecturers:* Mrs. Nadine Gentry, Katherine K. Hiltabidle, Joseph L. Potter, Mrs. Dianna Smith; *Adjunct Professors of Anatomy:* R. R. Pliskin (M.D.), H. V. Sharp (M.D.), Wiley Trivett (M.D.), Robert E. Yeakley (M.D.); *Visiting Associate Professor:* Howard A. I. Newman.

CHEMISTRY

Head: Professor John Bachmann; *Professors:* Vaughn W. Floutz, Paul D. Garn, Ian R. MacGregor, Donald McIntyre, Maurice Morton, Thomas Sumner; *Associate Professors:* Gerald Corsaro, H. James Harwood, Alan F. Krivis, Howard Stephens; *Assistant Professors:* Michael F. Farona, Lewis Fetters, John E. Frederick, Nicholas C. Hilyard, John J. Houser, William G. Kofron, Henry A. Kuska, William D. Lyon, Brian G. Ramsey; *Instructor:* Mrs. Alice Mayor; *Lecturers:* Emanuel H. Bronstein, Roger A. Crawford, Charles S. Dickey, Otto C. Elmer, George M. Homer, H. A. I. Newman, Siddharth M. Patel, Joseph Potter.

CLASSICS

Head: Professor Theodore Duke; *Assistant Professor:* Robert C. McNeil; *Lecturer:* Mrs. Jacqueline Hegbar.

ECONOMICS

Head: Professor Emile Grunberg; *Associate Professors:* Robert R. Black, Ali Fatemi; *Assistant Professors:* James McLain, Efthimios Pournarakis, Mrs. Annette K. Seery; *Instructor:* Lascelles F. Anderson; *Lecturers:* Danile Crogham, Robert L. Smith.

EDUCATION—ADMINISTRATION AND STUDENT PERSONNEL SERVICES

Head: Distinguished Professor Mabel Riedinger; *Associate Professors:* Ralph O. Blackwood, James E. Doverspike, Paul C. Hayes, Kenneth C. Hoedt, Sarah Orlinoff; *Assistant Professors:* William J. Arn, Robert H. Myers, David M. Weis; *Instructor:* Thomas O. Brown.

EDUCATION—ELEMENTARY

Head: Associate Professor Robert E. Ferguson; *Associate Professors:* William H. Beisel, Jr., Jerrold W. Maben, Maurice G. Williams; *Assistant Professors:* David G. Barr, Caesar A. Carrino, LaVerne J. Meconi, Joan G. Seifert; *Instructor:* Mrs. Gertrude Badger; *Lecturers:* Mrs. Beatrice Connelly, Joanna Farkas, Betty Peters, Mrs. Charlene Weber.

EDUCATION—PHYSICAL

Head: Professor Kenneth Cochrane; *Associate Professors:* James R. Ewers, Gordon Larson; *Assistant Professors:* Thomas W. Evans, Anthony S. Laterza, Andrew Maluke, Wilma Ruman, Wyatt M. Webb; *Instructors:* James L. Dennison, James Herbstreit, Mrs. Gay L. Nokes, Mrs. Patricia Taylor; *Lecturers:* Gabriel J. DeSantis, Ray Dorr, John A. Lahoski, James Lario, Walter C. Lipps, W. Stuver Parry.

EDUCATION—SECONDARY

Head: Professor John S. Watt; *Professor:* H. Kenneth Barker; *Associate Professors:* Alfred H. Johnson, Richard N. Pratte, Dick I. Rich, William A. Rogers; *Assistant Professors:* Mrs. Joy S. Lindbeck, William Mavrides, Oliver Ocasek, Mrs. Isabel L. Pfeiffer, Charles L. Wood; *Instructor:* C. Robert Blankenship, *Lecturers:* Vincent J. Biondo, Glen Childs.

ENGINEERING—CHEMICAL

Head: Professor Coleman J. Major; *Professor:* Michael J. Rzasa; *Associate Professors:* Robert W. Roberts, Max S. Willis, Jr.; *Assistant Professors:* Glenn A. Atwood, Lawrence G. Focht, Howard L. Greene.

ENGINEERING—CIVIL

Head: Professor Andrew L. Simon; *Professor:* D. G. Fertis; *Associate Professor:* Alvin M. Richards, Jr.; *Assistant Professors:* Romeo E. Cartier, Jr., Joseph F. Lestingi, George P. Manos, Simsek Sarikelle, David H. Timmerman; *Lecturer:* Anthony Morrone.

ENGINEERING—ELECTRICAL

Head: Professor Donald C. Thorn; *Professors:* Paul O. Huss, Kenneth F. Sibila; *Associate Professors:* Donald R. Burrowbridge, Joseph A. Edminister, Robert Grumbach, S. Milton L. Kult; *Assistant Professors:* Chun-Fu Chen, Demos P. Gelopulos.

ENGINEERING—MECHANICAL

Head: Professor Robert N. Collins; *Professor:* W. M. Petry; *Associate Professors:* Walter S. Chimielewski, Robert G. Dubensky, Gerald S. Healey; *Assistant Professors:* Thomas M. Brittain, Mamerto L. Chu, Jr., Richard J. Gross, Eberhard A. Meinecke, Lindon Thomas.

ENGLISH

Acting Head: Professor Frank T. Phipps; *Professors:* Don A. Keister, Robert E. Thackaberry; *Associate Professors:* David L. Jones, Gerald H. Levin, John S. Phillipson, William J. Stevens; *Assistant Professors:* Robert L. Dial, Dale Doepke, John Hull, Mrs. Julia Hull, Sally Kennedy, Robert Merrix, Edward A. Paul, Mrs. Cathryn Taliaferro, Mrs. Helen S. Thackaberry; *Instructors:* Mrs. Sue Beckham, Peter Desy, William A. C. Francis, Mrs. Marlene Hathaway, R. Bruce Holland, Martha Hosfelt, Walter D. Lehrman, Mrs. D'Orsay Pearson, Mrs. Elizabeth Runyan, William Stoner, Robert H. Sweitzer, II; *Lecturers:* Mrs. Jutta T. Bendremer, Halleck D. Fry, Jr., Ralph Iula, Mrs. Ruth Messenger, Kenneth Pramuk, Mrs. Eugenia Stoner, Mrs. Mary C. Welty.

FINANCE

Acting Head: Professor James W. Dunlap; *Professors:* Wilbur Earle Benson, Charles F. Poston; *Associate Professors:* A. Frederic Banda, Louis F. Hampel; *Assistant Professors:* Raymond S. Bernhardt, David R. Durst, Donald M. Jenkins; *Lecturers:* John D. Chapman, James B. McClusky, Don L. McHugh, Bernard S. Winick.

GEOGRAPHY AND GEOLOGY

Head: Associate Professor Allen G. Noble; *Professors:* Arthur Burford, Paul S. Wingard; *Visiting Associate Professor:* Bernard Panditharatna; *Associate Professor:* Edward Hanten; *Assistant Professors:* Ashok Dutt, Albert Korsok, Thomas Nash, Grace L. Powell, James W. Teeter; *Instructors:* Jim Jackson, John Mulhauser; *Lecturers:* John R. Anton, John F. Simpson.

GENERAL STUDIES

Acting Head: Associate Professor David C. Riede; *Course Directors:* John T. Auston, Lester J. Bilsky, James F. Dunlap, Scott D. Hagen, Gerald H. Levin, John Lindquist, Andrew Maluke, Sarah Orlinoff.

HISTORY

Head: Professor Warren F. Kuehl; *Professor:* George W. Knepper; *Associate Professors:* Boris Blick, Don R. Gerlach, Sheldon B. Liss, Howard Reinmuth, Jr., James Richardson, David C. Riede; *Assistant Professors:* Jerome Mushkat, Paul Silver; *Instructors:* Lester J. Bilsky, William McGucken; *Lecturer:* Clarence J. Gilham.

HOME ECONOMICS

Acting Head: Associate Professor Mrs. Joyce Sullivan; *Associate Professor:* Dorothy Laubacher; *Assistant Professor:* Mary H. Wilson; *Instructors:* Mrs. Carol Beasley, Ann Stroup.

LAW

Dean: Professor Stanley A. Samad; *Professor:* James G. France; *Associate Professors:* Thomas J. Holton, Robert Kovach, Marvin M. Moore, Robert J. Willey; *Assistant Professors:* Joan A. Baker, John P. Finan, Richard L. Grant, Mrs. Gertrude Johnson, Richard C. Marshall, Maurice S. Reisman, John E. H. Sherry; *Instructor:* Mrs. Anita Shew; *Lecturers:* Samuel Goldman, Harold J. Holshuh, John M. Kelly, Charles D. Parke, Robert B. Romweber.

MANAGEMENT

Head: Professor Frank Simonetti; *Professors:* Herbert C. Hayward, Thomas W. Sharkey; *Associate Professors:* Bernard A. Deitzer, Howard L. Taylor; *Assistant Professors:* Donald Becker, Karl A. Shilliff; *Instructor:* Frank Slaby, Jr.; *Lecturers:* Joachim F. Diedrich, Paul H. Dunham, William E. Galleher, Edward J. Hackim, James Haskins, Robert Vincent Manson, Gary H. Miesse, Carl W. Vobbe.

MARKETING

Acting Head: Professor Stephen S. Castle; *Professor:* Richard C. Reidenbach; *Associate Professor:* Frederick A. Manzara; *Assistant Professors:* Reginald A. Graham, Mrs. Margaret F. Rogler; *Lecturers:* Lawrence S. Canter, Bart Epstein, R. Bardwell Heavens, Kenneth E. Mast.

MATHEMATICS

Head: Distinguished Professor Samuel Selby; *Professor:* William H. Beyer; *Associate Professors:* Robert C. Carson, Louis D. Rodabaugh, Louis Ross, E. Barbara Taucci; *Assistant Professors:* Bernard J. Cohen, William W. Hokman, Ernest A. Kuehls, Leonard Sweet, George L. Szoke; *Instructors:* Barry J. Arnow, Mrs. Martha Lierhaus; *Lecturers:* Paul A. Gilmore, James C. Wortham.

MODERN LANGUAGES

Head: Professor Arno K. Lepke; *Professor:* Claude Y. Meade; *Associate Professors:* Hugo Lijeron, Theodore Mackiw, Herbert W. Smith, Jr.; *Assistant Professor:* Mario E. Ruiz; *Instructors:* Jacques Bourgeacq, Stephen Faria, Jr., Reine Leduc, Peggy Kauffman, Janice Meikle, Guessler Normand, Helen Ryan, Phillip Stuyvesant, Mrs. Janet Waisbrot, Paul W. Wood, Hans Zbinden; *Lecturers:* Joseph J. Donatelli, Jr., Thomas Lavrich, Mrs. Kriemhilde Livingston, Bernard Ponette, Madeline Pringle, Ilse H. White, Anne Zsilli.

MUSIC

Acting Head: Associate Professor John A. MacDonald; *Professors:* Andrew Galos, Farley K. Hutchins; *Associate Professor:* Henry P. Smith; *Assistant Professors:* Frank Bradshaw, Mrs. Alice M. Flaksman, Burt K. Kageff, Mrs. Marian Lott, Eugene Mancini, Darrel E. Witters; *Instructors:* Richard Jackoboice, Mary Olson; *Special Instructors:* Mrs. Patricia Bernofsky, Robert B. Cole, Mrs. Anita Exline, William Hebert, Fred Heyburn, James Kalal, Clarenz Lightfritz, William Long, Milton Nelson, Mrs. Ruth Nurmi, Robert Paolucci, Nuff Rey, Lawrence Scarpitti, Mrs. Grace Reginald Scott, Ralph Vitt.

NURSING

Dean: Professor Estelle B. Naes; *Associate Professor:* Evelyn M. Tovey; *Assistant Professors:* Mrs. Eveline M. Brotzman, Edna P. Grist, Kathryn Homeier, Dorothy R. Hufler, Mrs. Marjorie A. White.

PHILOSOPHY

Acting Head: Dean Don A. Keister; *Professor:* James B. Wilbur, III; *Associate Professor:* Ervin Laszlo; *Assistant Professor:* Bernd Magnus; *Lecturer:* Eugene M. Hood.

PHYSICS

Head: Professor Charles W. Wilson, III; *Distinguished Professor:* Ernest R. Thackeray; *Professor:* Alan N. Gent; *Associate Professors:* Walter H. Heintz, Harry T. Pinnick, Ronald E. Schneider; *Assistant Professors:* C. Frank Griffin, Nicholas C. Hilyard; *Lecturers:* Bernard H. Burzlaff, Douglas L. Ewing.

POLITICAL SCIENCE

Head: Professor Paul A. Weidner; *Professor:* Norman P. Auburn; *Assistant Professors:* Yong H. Cho, Roger A. Kvam, Harold Molineu; *Instructors:* Vernon Cook, Carl Lieberman, Mrs. Evelyn Stevens.

POLYMER SCIENCE

Head: Professor Maurice Morton; *Professors:* Alan N. Gent, Donald McIntyre, Charles Wilson, III; *Associate Professors:* H. James Harwood, Howard Stephens; *Assistant Professors:* Lewis Fetters, J. E. Frederick, Nicholas C. Hilyard, Eberhard A. Meinecke, Mrs. Irja Piirma.

PSYCHOLOGY

Head: Professor John A. Popplestone; *Professors:* Alexis Anikeeff, Arthur K. Brintnall, Paul E. Twining, Edwin E. Wagner; *Associate Professors:* Alex Darbes, Peter J. Hampson; *Assistant Professors:* Richard H. Haude, Donald C. Ott, Henry Rosenquist; *Instructors:* Richard J. Schmeidler, Francis J. Werner; *Lecturers:* Mrs. Faye Dambrot, William J. Flynn, James R. Hodge (M.D.), Marion W. McPherson.

SOCIOLOGY

Head: Professor Edwin L. Lively; *Professor:* Norman F. Washburne; *Associate Professors:* Charles Barresi, John H. Lindquist, Lloyd B. Lueptow, Samuel C. Newman, Robert G. Schmidt, George V. Tomashevich, Henry Watts; *Assistant Professors:* Carl A. Bersani, Melvin D. Brownstein; *Instructors:* Donald J. Metzger, Karen Yinger; *Lecturers:* A. W. Almgren, Sharon H. Darmofall, Ronald W. Lotz, Mrs. Juliet Saltman.

SPEECH

Head: Professor Merrill T. Baker; *Professors:* James F. Dunlap, Elizabeth J. Tittle, Ray H. Sandefur; *Associate Professors:* John T. Auston, James V. Fee, Donald S. Varian; *Assistant Professors:* Evelyn Baer, Mrs. Phyllis Hardenstein, Ruth B. Lewis, Howard Slaughter, Wallace Sterling; *Instructors:* Mary Capotosto, Paul A. Daum, Robert L. Decker, Mrs. Charlotte Essner, Susannah Lane; *Lecturers:* David A. Carter, Irene Dillon, Judith Hunter, David C. Long, Thomas Lyttle, Michael Noom, Alfred E. Pocock, Betty Spencer.

URBAN STUDIES

Acting Head: Associate Professor Edward W. Hanten; *Associate Professors:* Lloyd B. Lueptow, James Richardson; *Assistant Professors:* Yong H. Cho, Ashok Dutt.

LIBRARY STAFF 1967-68

H. Paul Schrank, Jr., *University Librarian and Assistant Professor of Bibliography* (January 1965)
B.S., Ohio University; M.S., University of Illinois, 1963.

Mrs. Ann G. Allan, *Cataloger and Instructor in Bibliography* (January 1968)
B.A., University of Michigan, M.L.S., Simmons College, 1963.

Mrs. Helen Arnett, *Education Librarian and Associate Professor of Bibliography* (1953)
B.A., The University of Akron; B.S.L.S., Western Reserve University; M.A., San Jose State College (Cal.); Ph.D., Western Reserve University, 1965.

Mrs. Anna L. Chiang, *Cataloger* (August 1967)
B.A., Christian University (Chentu, China); M.A.L.S., George Peabody College (Tennessee) 1964.

Mrs. Barbara Clark, *Cataloger* (1948)
B.S., The University of Akron, 1950.

Mrs. Ruth Clinefelter, *Social Sciences Librarian and Assistant Professor of Bibliography* (June 1952)
B.A., M.A., The University of Akron; M.A.L.S., Kent State University, 1956.

Pauline Franks, *Associate University Librarian and Assistant Professor of Bibliography* (1950)
B.S.Ed., Kent State University; B.S.L.S., Western Reserve University, 1940.

Virginia Gardner, *Documents Librarian* (March 1961)
B.A., The University of Akron, 1953.

Dorothy Hamlen, *Director of University Archives, Rare Books Librarian and Professor of Bibliography* (February 1937)
B.A., The University of Akron; B.S.L.S., Western Reserve University, 1942.

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.*

MARY GRACE HARRINGTON, *Business Administration Librarian and Assistant Professor of Bibliography* (November 1960)
B.A., The University of Akron; B.A.L.S., University of Michigan, 1939.

NANCY A. KNIGHT, *Assistant General Reference Librarian and Instructor in Bibliography* (1967)
B.A., University of Idaho; M.S.L.S., Louisiana State University, 1960.

MRS. AGNES L. MARTIN, *Senior Library Cataloger and Assistant Professor of Bibliography* (1962)
B.A., Ohio Wesleyan University; B.S.L.S., University of Illinois, 1929.

JUDITH MOWERY, *Assistant Humanities Librarian* (May 1967)
B.A., Ohio University; M.S.L.S., Western Reserve University, 1965.

MRS. LOIS MYERS, *Humanities Librarian and Assistant Professor of Bibliography* (1946)
B.A., Wittenberg University; B.S.L.S., Carnegie Institute of Technology, 1939.

MRS. HELEN THORNBERG, *Head of Acquisitions and Assistant Professor of Bibliography* (1959)
B.A., College of William and Mary; M.S.L.S., Western Reserve University, 1959.

ROBERT W. YOUNG, *Head, Science-Technology Library and Instructor in Bibliography* (June 1967)
B.S.Ed., Kent State University; M.A.L.S., University of Denver, 1967.

RESERVE OFFICERS' TRAINING CORPS
Dr. William Rogers, *Dean of Administration, Civilian Coordinator*
1967-68

ARMY

JONAS A. VILHAUER, *Professor of Military Science* (August 1965)
B.A., University of South Dakota, 1938; Graduate of the Command and General Staff College, 1951; Officers Advance Course, Infantry School, 1948; Colonel Infantry.

JACKIE R. ALSOP, *Assistant Professor of Military Science* (1967)
B.S., University of Dayton, 1960; Major, Artillery.

NORMAN J. BLAIR, *Instructor in Military Science* (1967)
Staff Sergeant.

JOSEPH K. BROWN, *Assistant Professor of Military Sicence* (1966)
B.S.Eng., U.S. Military Academy, 1958; Major, Infantry.

BRUCE L. BURGER, *Instructor in Military Science* (1967)
Staff Sergeant.

ALLEN D. DAVIS, *Instructor in Military Science* (1967)
Sergeant First Class.

PAUL J. GOODING, *Administrative Clerk* (1966)
Staff Sergeant.

MICHAEL W. GRIFFITH, *Assistant Professor of Military Science* (1967)
B.S., U.S. Army Military Academy, 1964, Captain, Infantry.

LEON W. HALL, *Administrative NCOIC* (1966)
Sergeant First Class.

JAMES M. HALLINAN, JR., *Assistant Professor of Military Science* (August 1966)
B.S., John Carroll University, 1956; Major, Infantry.

SIDNEY L. LINVER, *Assistant Professor of Military Science* (1966)
B.S.B.A., Ohio State University, 1957, Major, Infantry.

ROY R. LONG, *Supply Sergeant* (1966)
Staff Sergeant.

ARLEN C. T. MILLER, *Assistant Professor of Military Science,* (1967)
B.S., U.S. Army Military Academy, 1961, Major, Infantry.

MELVIN B. OWENS, *Assistant Professor of Military Science* (1967)
B.S., Long Island University, 1962; Lieutenant Colonel, Quartermaster Corps.

EDWIN W. PIBURN, *Assistant Professor of Military Science* (1966)
B.A., University of Alabama, 1943; Major, Armor.

JEFFREY J. RYAN, *Supply Clerk* (1968)
SP4.

RODGER M. SANSOM, III, *Administrative Clerk* (1968)
SP4.

HAROLD L. SOLSETH, *Assistant Professor of Military Science* (1966)
B.S., Creighton University, 1956, Major, Armor.

AIR FORCE

LESLIE H. HENDRICKSON, JR., *Professor of Aerospace Studies* (August 1965)
B.S., United States Military Academy, West Point, 1944; Lieutenant Colonel, USAF.

JAMES H. BRENNAN, *Assistant Professor of Aerospace Studies* (June 1966)
B.S., University of Denver, 1954; Major, USAF.

HARRY A. COOLEY, *Assistant Professor of Aerospace Studies* (August 1967)
B.S., Tougaloo College, 1952; Major, USAF.

JAMES L. FAGAN, *Personnel Specialist* (May 1967)
Staff Sergeant, USAF.

PAUL S. HAMILTON, *Administrative Supervisor* (February 1964)
Technical Sergeant, USAF.

ROBERT G. HEISTAND, *Personnel Specialist* (July 1967)
Technical Sergeant, USAF.

MICHAEL J. KOLBAS, *Assistant Professor of Aerospace Studies* (June 1967)
B.S., 1958; Captain, USAF.

DAVID A. LEPARD, *Assistant Professor of Aerospace Studies* (June 1966)
B.A., University of Buffalo, 1959; Captain, USAF.

JERRY W. LIVINGSTON, *Administrative Specialist* (June 1966)
Sergeant, USAF.

FRANCIS J. MACALUSH, *Personnel Technician* (July 1965)
Technical Sergeant, USAF.

WAYNE G. MURRAY, *Assistant Professor of Aerospace Studies* (June 1965)
B.S., B.A., Indiana University, 1954; Major, USAF.

SAMUEL J. VENTURINO, *Administrative Specialist* (October 1966)
Staff Sergeant, USAF.

CENTER FOR INFORMATION SERVICES

PANOS KOKOROPOULOS, *Director* (1965)
B.S., University of Thessaloniki (Greece); M.S., University of Dayton, 1964.

EILEEN K. AMBELANG, *Literature Chemist* (October 1965)
B.S., University of Manitoba (Canada), 1941.

JOYCE E. BROWN, *Literature Chemist* (January 1966)
B.A., Bowling Green State University, 1964.

FORD L. COOLMAN, *Literature Chemist* (April 1967)
B.A., Wittenberg University, 1931.

EVELYN GAUSE, *Assistant Literature Chemist* (January 1968)
B.S., The University of Akron, 1967.

SEBASTIAN V. KANAKKANATT, *Senior Literature Chemist* (July 1965)
B.S., University of Madras (India); M.S., University of Akron, 1966.

JOAN KELLOGG, *Literature Chemist* (June 1967)
B.S., The Ohio State University, 1944.

MRS. MAGDA ABDEL LATIF, *Literature Chemist* (May 1966)
B.S., Alexandria University; M.S., Akron University, 1967.

DEANNA I. MORROW, *Literature Chemist-Editor* (April 1966)
B.A., University of Saskatchewan (Canada), 1962.

REFERRAL SERVICE NETWORK OFFICE

JOSHUA I. SMITH, *Supervisor* (May 1965)
B.A., Central State University, 1963.

INSTITUTE OF POLYMER SCIENCE
1967-68

MAURICE MORTON, *Director of the Institute of Polymer Science and Professor of Polymer Chemistry* (October 1948)
B.S., Ph.D., McGill University, 1945.

G. STAFFORD WHITBY, *Consultant on Rubber Research and Professor Emeritus of Rubber Chemistry* (1942)
A.R.C.Sc., B.S., University of London; M.S., Ph.D., D.Sc., McGill University; LL.D., Mount Allison University, New Brunswick; D.Sc., The University of Akron, 1958.

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, Assistant Professor of Polymer Science and Assistant Professor of Chemistry* (1967)
B.A., College of Wooster; Ph.D., The University of Akron, 1962.

JOHN E. FREDERICK, *Research Associate, Assistant Professor of Polymer Science and Assistant Professor of Chemistry* (1966)
B.S., Glenville State College; Ph.D., University of Wisconsin, 1964.

H. JAMES HARWOOD, *Research Associate, Associate Professor of Polymer Science and Associate Professor of Chemistry* (October 1959)
B.S., The University of Akron; Ph.D., Yale University, 1956.

NICHOLAS C. HILYARD, *Assistant Professor of Polymer Science and Assistant Professor of Chemistry* (October 1959)
B.S., The University of Akron; Ph.D., Yale University, 1956.

DONALD MCINTYRE, *Research Associate, Professor of Polymer Science and Professor of Chemistry* (1966)
B.A., Lafayette College; Ph.D., Cornell University, 1954.

EBERHARD A. MEINECKE, *Research Associate, Assistant Professor of Polymer Science and Assistant 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.

HOWARD L. STEPHENS, *Manager of Applied Research, Associate Professor of Polymer Science and Associate Professor of Chemistry* (1950)
B.S., M.S., Ph.D., The University of Akron, 1960.

CHARLES 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.

RICHARD AMBROSE, *Research Fellow* (1964)
B.S., Bowling Green State University, 1964.

RONALD BOCKRATH, *Firestone Fellow* (1966)
B.S., Bowling Green State University, 1966.

JEAN-MICHEL CHARRIER, *Research Fellow* (1965)
Diplome d'Ingenieur, Ecole Nationale Superieure d'Ingenieurs Arts et Metiers (Paris), 1965.

ALFREDO G. CAUSA, *Research Fellow* (1964)
B.S., School of Chemistry, Montevideo; M.S., Case Institute of Technology (1962).

PHILIP L. COLCLOUGH, *Research Chemist* (1967)
B.Sc., Liverpool University, 1965.

RONALD L. DENECOUR, *Cabot Fellow* (1966)
B.S.Ch.E., Lawrence Institute of Technology; M.S., The University of Akron, 1966.

CHARLES S. DICKEY, *NSF Fellow* (1967)
B.S., Case Institute of Technology, 1966.

LOUIS A. FALVO, *Research Fellow* (1967)
B.S., Massachusetts Institute of Technology, M.S.Ch.E., Massachusetts Institute of Technology, 1964.

LAWRENCE J. GUILBAULT, *Sohio Fellow* (1966)
B.S., Kansas State University, 1964.

JIHEI INOMATA, *Visiting Foreign Scientist* (1968)
M.S., Tokyo University (Japan), 1959.

BOHUMIL JADRNICEK, *Postdoctoral Fellow* (1968)
Ph.D., Institute of Macromolecular Chemistry (Prague), 1963.

NORMAN JOHNSTON, *Res. Fellow* (1964)
B.S., Clarion State College, 1964.

PETER C. JULIANO, *Research Chemist* (1965)
B.S., St. Vincent College; M.S., West Virginia University, 1965.

VASANTH R. KAMATH, *Research Chemist* (1966)
B.Sc. St. Xavier's (Bombay), B.Sc. Tech., St. Xavier's (Bombay), M.S., The University of Akron, 1968.

RUDOLF F. KAMMERECK, *Phillips Fellow* (1967)
Degree of Textil-Chemiker-Ingenieur, Institute für Textil Chemie (Hohenstein, Württ Germany), M.S., North Carolina State University, 1967.

SEBASTIAN V. KANAKKANATT, *Research Chemist* (1964)
B.Sc., University of Madras; M.S., The University of Akron, 1966.

JAMES F. KINSTLE, *NDEA Fellow* (1967)
B.S., Bowling Green State University, M.A., Bowling Green State University, 1967.

SUBRAMANIAN KRISHNAMURTHY, *Research Fellow* (1967)
B.Ch.E., University of Bombay, M.S.Ch.E., Johns Hopkins University, 1967.

DEVENDRA V. MEHTA, *Research Fellow* (1965)
M.Sc.Ch., LL.B., University of Gujarat, India, B.S., M.S. Ch.Eng., University of Missouri at Rolla (1965)

BERNARD H. MEYER, *Research Fellow* (1966)
B.S.Ch.E., University of Cincinnati, 1964.

PRANAB K. MOOKERJEE, *Research Fellow* (1968)
B.S.Ch.E., Jadavpur University (Calcutta); M.S.Ch.E., Wayne State University, 1966.

RICHARD J. MURPHY, *Research Chemist* (1966)
Associateship, National College of Rubber Technology (London), 1966.

MARK E. MYERS, JR., *Research Fellow* (1967)
B.A., Bridgewater College, 1964.

DANIEL L. NEUMANN, *Union Carbide Fellow* (1966)
B.S., Purdue University, 1966.

ROBERT P. PETRICH, *Research Fellow* (1966)
B.S., M.S., Massachusetts Institute of Technology (1964).

THOMAS F. REED, *Research Chemist* (1966)
B.S.Ch.E., State University of Iowa, M.S., The University of Akron, 1965.

NICHOLAS A. ROUNDS, *NSF Fellow* (1966)
B.Ch.E., University of Cincinnati, 1966.

MASAO MURANO, *Postdoctoral Fellow* (1968)
Ph.D., Kyoto University, 1968.

NANCY L. RUSSELL, *Research Chemist* (1966)
B.S., University of Wisconsin, 1960.

RONALD D. SANDERSON, *General Tire Fellow* (1966)
B.Sc. (Hons), University of Cape Town (South Africa), 1965.

RYOZO SAKATA, *Visiting Foreign Scientist* (1966)
B.Tech., M.Tech., Kyoto University, 1960.

ANTHONY SCHEIBELHOFFER, *DuPont Fellow* (1966)
B.S., Ohio University, 1962.

FREDERICK C. SCHWAB, *Research Chemist* (1966)
B.S.Ch.E. Fenn College; M.S., Union College (Schenectady), 1966.

JURGEN SCHWARZ, *Postdoctoral Fellow* (1968)
Ph.D., Technical University of Clausthal (Germany), 1967.

CHARLES P. SHANK, *Research Fellow* (1965)
B.S., M.S., University of Dayton, 1965.
CARL R. STRAUSS, *Research Chemist* (1967)
B.S.Ch.E., University of Illinois; M.S., The University of Akron, 1963.
EDWIN THALL, *General Electric Fellow* (1967)
B.S., Pratt Institute; M.S., New Mexico Institute of Mining and Technology, 1967.
DALE A. TOMPKINS, *Research Fellow* (1966)
B.S.M.E., Pennsylvania State University; M.S.E., The University of Akron, 1965.
JIN-LIANG WANG, *Research Chemist* (1967)
B.S., Taipei Institute of Technology; M.S., Kent State University, 1966.
JAMES C. WEST, *Research Fellow* (1966)
B.S., Marietta College, 1960; The University of Akron, 1966.
JOSEPH ZYMONAS, *Goodyear Fellow* (1967)
B.S., Loyola University (Chicago), 1965; M.S., St. Joseph's College, 1967.

INSTITUTE FOR CIVIC EDUCATION

CHARLES V. BLAIR, *Director of the Institute for Civic Education, Acting Dean of the Evening College and Assistant Professor in the Community and Technical College* (April 1959)
B.A., M.A., The University of Akron, 1963.
JOHN G. HEDRICK, *Associate Director of the Institute for Civic Education and Assistant Dean of the Evening College* (July 1967)
B.S.Ed., Kent State University; M.A., University of Notre Dame, 1958.
MRS. MARY ELIZABETH CHESROWN, *Assistant to the Director of the Institute for Civic Education and Assistant to the Dean of the Evening College* (May 1965)
B.A., The University of Akron, 1949.

CENTER FOR URBAN STUDIES

EDWARD W. HANTEN, *Director of the Center for Urban Studies, Associate Professor of Urban Studies and Associate Professor of Geography* (1963)
B.A., Earlham College; M.A., Ph.D., University of Pittsburgh, 1962.
YONG H. CHO, *Assistant Director of the Center for Urban Studies, Assistant Professor of Urban Studies and Assistant Professor of Political Science* (1967)
B.A., Seoul National University (Korea); M.P.A., Ph.D., Syracuse University, 1965.
ASHOK DUTT, *Assistant Director of the Center for Urban Studies, Assistant Professor of Urban Studies and Assistant Professor of Geography* (1968)
B.A., M.A., Ph.D., Patna University (India), 1961.
LLOYD B. LUEPTOW, *Assistant Director of the Center for Urban Studies, Associate Professor of Urban Studies and Associate Professor of Sociology* (1967)
B.S., M.S., Ph.D., University of Wisconsin, 1964.
JOHN W. TELESCA, *Research Associate* (August 1966)
B.S., Mount Union College, 1958.

SPEECH AND HEARING CLINIC

ELIZABETH J. HITTLE, *Director of the Speech and Hearing Clinic and Professor of Speech* (1950)
B.S.Ed., The University of Akron; M.A., Kent State University, 1949; Ed.D., Western Reserve University, 1963.
EVELYN BAER, *Coordinator of Services and Assistant Professor of Speech* (1966)
B.A., University of Chicago; M.A., The University of Akron, 1948.
MARY CAPOTOSTO, *Instructor in Speech* (1968)
B.A., The University of Akron; M.A., DePaul University, 1967.
ROBERT L. DECKER, *Chief Audiologist and Instructor in Speech* (1967)
B.A., Univeristy of Miami; M.A., Western Reserve University, 1956.
MRS. CHARLOTTE ESSNER, *Instructor in Speech* (1965)
B.A., Hunter College; M.A., The University of Akron, 1964.
JAMES V. FEE, *Associate Professor of Speech* (1967)
B.S.Ed., M.A., Kent State University; Ed.D., Western Reserve University, 1965.
MORRIS KALMAN, M.D., *Speech Consultant*
B.S., The University of Akron; M.D., The Ohio State University, 1931.

RAY H. SANDEFUR, *Dean of the College of Fine and Applied Arts and Professor of Speech* (1950)
B.A., B.S.Ed., Emporia State Teachers College; M.A., University of Colorado; Ph.D., State University of Iowa, 1950.

TESTING AND COUNSELING BUREAU

PETER J. HAMPTON, *Director-Counselor and Associate Professor of Psychology* (August 1954)
B.A., M.A., University of Manitoba; Ph.D., Western Reserve University, 1950.

THOMAS O. BROWN, *Assistant Director–Counselor and Instructor in Education* (July 1964)
B.S., M.Ed., Mississippi State University; University of Missouri, 1958.

KENNETH T. MORRIS, *Counselor* (June 1967)
B.A., Lewis College; M.A., Bradley University, 1965; Purdue University.

MRS. PHYLLIS PAUL, *Counselor* (July 1955)
B.A., The University of Akron; M.A., Western Reserve University, 1937.

FRANCIS J. WERNER, *Counselor and Instructor in Psychology* (August 1950)
B.A., M.A., The University of Akron, 1952.

UNIVERSITY HEALTH SERVICE

†RAYMOND S. FEDERMAN, M.D., *Senior University Physician* (1963)
B.S., The University of Akron; M.D., The Ohio State University, 1959.

GENEVIEVE DREWS, M.D., *Acting Senior University Physician* (1966)
University of Colorado Medical School, 1961.

ESTANISLAO A. MATOS, M.D., *University Physician* (1967)
M.D., University of Colorado Medical School, 1961.

JOHN F. WILLIAMSON, M.D., *University Physician* (1967)
M.D., University of Michigan, 1960.

MRS. EMMA HENRY, R.N., *Head University Nurse* (1935) (1950) (1959)
Akron City Hospital, 1931.

MRS. EVELYN GANNON, R.N., *University Nurse* (1968)
St. Mary's School of Nursing, 1942.

MRS. ELLEN MILLER, R.N., *University Nurse* (1967)
Maine Medical Center School of Nursing, 1961.

MRS. MARGUERITE MYERS, R.N., *University Nurse* (1966)
Akron City Hospital, 1935.

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-

DEANS OF THE COLLEGES OF THE UNIVERSITY OF AKRON

THE BUCHTEL COLLEGE OF LIBERAL ARTS

*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 Summer, Ph.D.	1960-1962
George Knepper, Ph.D.	1962-1967
Don A. Keister, Ph.D.	1967-

†Leave of Absence, Sept. 1967-1969.
*Deceased

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, B.S.M.E., M.S.M.E. (acting)	1963-1964
Michael J. Rzasa, B.E., M.S., Ph.D.	1964-

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. (acting)	1958-1959
Chester T. McNerney, Ph.D.	1959-1966
H. Kenneth Barker, Ph.D.	1966-

THE COLLEGE OF BUSINESS ADMINISTRATION

Warren W. Leigh, Ph.D.	1953-1962
Richard C. Reidenbach, Ph.D.	1962-1967
Arthur Brintnall, Ph.D. (acting)	1967-1968
Wilbur Earle Benson, Ph.D.	1968-

THE COLLEGE OF LAW

Stanley A. Samad, LL.M.	1959-

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 Brintnall, Ph.D. (Dean of Graduate Studies and Research)	1967-1968
Edwin L. Lively, Ph.D.	1968-

THE GENERAL COLLEGE

D. J. Guzzetta, Ed.D.	1959-1962
Thomas Summer, Ph.D.	1962-

THE EVENING COLLEGE

L. L. Holmes, M.A. (Director)	1932-1934
Leslie P. Hardy, M.S.Ed. (Director)	1934-1953
E. D. Duryea, Ed.D. (Dean)	1953-1956
D. J. Guzzetta, Ed.D. (Dean)	1956-1959
William A. Rogers, Ed.D. (Dean)	1959-1967
Charles V. Blair, M.A. (Acting Dean)	1967-

THE COMMUNITY AND TECHNICAL COLLEGE

W. M. Petry, B.S.M.E., M.S.M.E.	1964-

THE COLLEGE OF FINE AND APPLIED ARTS

Ray H. Sandefur, Ph.D.	1967-

THE COLLEGE OF NURSING

Estelle Naes, Ph.D.	1967-

** Graduate Division renamed "Graduate School" 1967.

Current Members of College Advisory Committee 1968

THE BUCHTEL COLLEGE OF LIBERAL ARTS

Mr. David B. Albright, Mrs. Richard Corns, Mrs. Sam DuPree, Dr. William H. Falor, Mr. Arden E. Firestone, Mrs. Lincoln Gries, Mrs. Curtis Harwick, Mr. Alfred Herberich, Mr. Perth Killinger, Mr. Frank Knowlton, Mr. Sam McKeel, Mr. Clinton Miller, Mrs. Richard Miller, Mr. Vern Odom, Mr. Forest Selvig.

THE COLLEGE OF ENGINEERING

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THE COLLEGE OF EDUCATION

Dr. Sarah Caldwell, Mr. T. D. Calvin, Miss Ruth Courtney, Mr. Clarence W. Cox, Mr. Bernard L. Dunnam, Mr. Donald R. Fair, Mr. Ralph Gillman, Mr. Charles Hazlett, Mr. Allen E. Howland, Mrs. Donald Minnig, Mr. Conrad Ott, Mr. W. S. Parry, Mrs. George Seeley, Mr. R. E. Wilkins, Dr. Harold Wilson.

THE COLLEGE OF BUSINESS ADMINISTRATION

Mr. F. J. Carter, Mr. Weldon Case, Mr. David C. Corbin, Mr. George Daverio, Mr. John L. Feudner, Jr., Mr. Kimball Firestone, Mr. Don K. Good, Mr. John N. Hart, Mr. Robert E. Hunter, Mr. J. W. Keener, Jr., Mr. Clarence Kelley, Mr. Joseph A. Meek, Mr. Harland E. Paige, Mr. W. S. Richardson, Mr. William M. Williams, Jr.

THE COLLEGE OF FINE AND APPLIED ARTS

Mrs. Fred I. Albrecht, Mr. Garth W. Andrew, 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, Mrs. George Oenslager, Mrs. J. G. Robertson, Mrs. Sol Sacks, Mrs. Guido Stempel.

THE COLLEGE OF NURSING

Sister Mary Brigid, Mr. Julius Darsky, Mrs. William Falor, Mr. Thomas Ferns, Mr. Harold Funk, Miss Mary Knapp, Dr. Joseph Lichty, Dr. L. V. Phillips, Mr. Earl Raymer, Mr. Roger Sherman, Mr. Dave Towell, Judge William Victor, Dr. J. T. Villani, Mrs. Jason Wade, Dr. Evangeline Witzeman.

THE COLLEGE OF LAW

The University of Akron College of Law Committee of the Akron Bar Association serves as the Advisory Committee to the College of Law. Members are Mr. Allen B. Diefenbach, Chairman; Mr. Bruce W. Bierce, Mr. Sam D. Bartlo, Mr. Lisle M. Buckingham, Mr. Richard A. Chenoweth, Mr. Paul K. Christoff, Mr. Raymond Elliott, Mr. W. Howard Fort, Mr. Oscar A. Hunsicker, Jr., Mr. Donald Jenkins, Mr. Robert W. Laundrie, Mr. D. Don Lowers, Mr. John J. Lynett, Mr. C. Blake McDowell, Sr., Mr. Donald B. McFadden, Mr. Louis L. Manes, Mr. Robert H. Maxson, Jr., Mrs. Cathleen Meade, Judge Theodore R. Price, Judge J. P. Riddle, *Ex Officio:* Mr. Bernard I. Rosen, Mr. Charles Sacks, Mr. Gordon B. Seward, Mr. R. W. Shaffer, Mr. Joseph Thomas.

THE GRADUATE SCHOOL

Dr. Glen Alliger, Dr. Karl Arnstein, Mr. E. A. Brittenham, Mr. Raymond Brown, Dr. James D'Ianni, Dr. John E. Hartzler, Mr. Burton D. Morgan, Dr. John Morley, Mr. H. H. Poor, Mr. George Ruggles, Mr. William Scull, Mr. Frank Steere, Jr., Dr. Guido H. Stempel, Dr. Franklin Strain, Dr. Rex H. Wilson.

THE EVENING COLLEGE

Mr. E. S. Babcox, Mr. Roy Blasiola, Mr. Stanton H. Brightman, Mr. Ray Campbell, Mr. Chester Conner, Mr. Robert Crane, Mr. Ralph L. Hanna, Mr. K. A. Johns, Mrs. George Leonard, Mr. Kenneth Nichols, Mrs. Fred Nimmer, Mrs. Z. C. Oseland, Jr., Judge Thomas Powers, Mr. John Scherba, Mr. Phillip Young.

THE COMMUNITY AND TECHNICAL COLLEGE

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William J. Boliantz, M.E. ..... *Local Superintendent, Nordonia Hills*
R. C. Schlott, M.A. ..... *Local Superintendent, Norton*
Charles L. Rieger, M.A. ..... *Local Superintendent, Springfield*
William S. Mercer, M.A. ..... *Local Superintendent, Twinsburg*

SUPERVISING TEACHERS

Summer and Fall, 1967, and Spring, 1968

Frances Abbott (Kent), Geraldine Abbott (Norton H.S.), Winifred Adkins (Windemere), Betty Agden (Springfield H.S.), Bernard Alleman (Case), Laura Allen (Erie Island), Roger Andrews (Kenmore), David Appleby (Buchtel), Kay Archer (Woodridge), Norma Aris (Jennings), Helen Armitage (King), DeWitt Asher (Kent), Grace Bacher (Hatten), Helen Baker (Spicer), Ernest Bako (Springfield H.S.), John Banks (Goodrich), Richard Barcus (Ellet), Michael Barich (North and Central), Virginia Bariera (Firestone), Jean Barlett (North), Bruce Barnes (Ellet), Elizabeth Barrow (Goodyear), Elsie Bartlett (Portage Path), John Baumbach (West Jr. High), Marshall Bell (Goodrich), Kristine Bellios (Jennings Jr. High), Beverly Bennett (Barberton High School), Doreen Bernel (Schumacher), Robert Benson (Jennings), Viva Best (Garfield), Ruth Biondo (Perkins), Vincent Biondo (Firestone), Beatrice Birmingham (Barberton), Clara Mae Bittinger (Richardson), James Blackstock (Garfield), Bernice Blickle (Central), Drucilla Bodine (Windemere), Katherine Bond (Ellet), Twyla Book (Barberton), Jerorme Boone (North), Florence Bowsher (Jennings), Kathleen Brent (Woodford), Barbara Broughton (Johnson), Roselyn Brown (Green H.S.), Ruth Buehler (Henry), Helen Bunts (Case), Charlotte Burks (Voris), William Butke (Hyre), Jeanne Butler (Garfield), Ethel Cable (Jackson & McEbright), Robert Calder (North), Ernest Calhoun (West Jr. High), George Calich (Coventry H.S.), Doloris Cannavo (Rankin), Virginia Carmen

(Erie Island), Janice Carroll (Seiberling Jr. High), Emma Carson (Lane), Dominic Caruso (Garfield), Norma Cerveny (Schumacher), Joan Chase (Schnee), Mary Cindrich (Highland Park), Eloise Clark (Litchfield), Ruth Cochrane (North), Neal Collins (South), Mary Lou Conrad (Highland Park), Anna Conte (Central), Genevieve Cottrill (Barber), George Craig (Goodyear), Gertrude Cronin (Perkins), Patricia Cronin (Pfeiffer), Joan Cutrone (Kenmore), Margaret Dean (Barber), Pauline Deane (Rimer), James Dierker (Springfield), Prudence Dixon (Loyal Oak), Roma Dixon (Coventry H.S.), Anthony Donatelli (Garfield), Joye Douds (Voris), Jerry Drone (Howe), Sandra Drury (Grill), Jeannette Duncan (Arrowhead), Adelyn Dwyer (Robinson), Dorothy Edgar (Windemere), Jere Edwards (Manchester H.S.), Ira Eplin (Garfield), John Eshak (Garfield), Mary Estey (Erie Island), Evelyn Evans (Howe), Hilda Evans (Central), William Evans (Kent), Betty Farnsworth (Jackson), Jacquelin Farrell (Barber), Katherine Ferguson (Newberry), Betty Fesler (Betty Jane), Grace Fleming (Mogadore H.S.), Lynette Flick (Mason), Margaret Fraizier (Eastview), Dorothy Freyman (Rimer), Ione Friess (Portage Path), Elaine Fry (North), Mary Gallagher (West), Patricia Garris (Arrowhead), Twana George (Innes), Dick Gillespie (Hyre), Mildred Glocar (Mason), Elaine Glossner (Richardson), Margaret Goldwood (Schumacher), Myra Good (Norton H.S.), Robert Goodney (Kent), Dorothy Gordon (Erie & Smith), Robert Gordon (Seiberling), Myra Graham (Guinther), Sandra Gregg (Guinther), William Grenus (Kent), Betty Gussman (Mason), Stanley Gustely (Perkins), Bradley Guy (Central), Charles Hale (Kenmore), Emmajean Halfhill (Seiberling), Richard Hammond (Goodyear), Jean Hanahan (Buchtel), Harold Hanna (Central), Kathryn Harkness (Firestone Park), Roy Harris (Goodyear), Betty Heepe(Schumacher), George Hellman (Green High), Neva Hembury (Fraunfelter), Sherman Hensal (West Jr. High), Mathilda Hermann (Ellet), Elizabeth Hershberger (Kenmore), Marian Heyl (Innes), Marian Hicks (Hotchkiss), Joann Hilligas (Robinson), Rudolf Hinderegger (Thornton), Mary Hoffman (Barber), Ruth Hoffmaster (North), Verba Horner (Barberton), Elizabeth Hosback (Arrowhead), Barbara Howell (Betty Jane), Ronald Howell (Kent), Jean Howes (East), Walter Hranlovich (Thornton), Mary Hunt (Hyre), Dale Huston (Coventry H.S.), James Isaac (West Jr. H.S.), Joyce Jackson (Crouse), Pat Jackson (Lincoln & Hatton), Chrysa Jameson (Kenmore), Elaine Jarvis (Betty Jane), Ann Johnson (East), Sandra Jebber (Herberich), Garnet Johnson (Mogadore), Howard Johnson (Coventry H.S.), Nancy Johnson (Somers), Richard Jones (Robinson), Ruth Jones (Mason), Virginia Jones (Herberich), Richard Kaiser (Erwine), John Kane (North), Maxine Karadin (Goodrich), Gilbert Katz (South), Karen Kearney (Cuyahoga Falls), David Keller (Innes), Betty Sue Kelley (Seiberling), Lois Kelly (Kenmore), Ruth Kennemuth (Windemere), James Kernan (Greenwood), E. Jayne Kidder (Garfield), Elizabeth Kime (Central), Hallie King (Portage Path), Evelyn Kirk (Firestone Park), Hurbert Kirkland (Leggett), Timothy Knabe (Newberry), Marilyn Knight (Hill), Preston Knight (Garfield), Carla Kodish (Case), Ronald Kruse (Coventry H.S.), Nancy Kulchar (Richardson), William Kurth (Barberton), Beatrice Laatsch (Firestone), Ellen Lammertse (Forest Hill), Thomas Lanning (Barberton), Joan Lastocy (Lakeview), Susan Laubach (Schnee), Rita Leake (Kent), Marjorie Lee (Memorial & Barberton), Adell Lewis (Robinson), Elizabeth Long (Pfeiffer), Juanita Lough (Margaret Park), Alice Loutsenhizer (Arnold), Mame Lowe (Windemere), Dorothy Lower (Windemere), Peter Lukacik (Betty Jane), Ladd Lukats (Barberton), George Lundstrom (Central), Ruth Lynch (Harris), Barbara Lynn (Windemere), Vincent Madamma (Buchtel), William Madigan (West Jr. High), Eugene Maple (Woodridge H.S.), Thomas Maglione (West), Linda Magnuson (Hyre), Vincent Malloy (Leggett), Madge Mapp (Howe), Kathleen Mangold (Goodyear), Joseph Marchese (Goodrich), Connie Marsh (Jennings), Theresa Martucci (Fairlawn), Kathryn Martin (Lane), Carl Mashek (Thomastown), Sam Masi (Barberton), Carolyn Maxson (North), Bertha Maxwell (Henry), Grace Mayes (Goodyear), Tom McChesney (Springfield H.S.), Ann McClanahan (Richardson), Beverly McCoy (Erwine), John McCuan (Oakdale), Edna McDonald (Fraunfelter), Marie McDougal (Erie Island), Nan McIntyre (Case), Edith McKinnon (Erie Island), Jack McKinney (Garfield), Linda McMuldren (Hatton), Joe Meckler (Fraunfelter), Gail Mercer (Lincoln), Kenneth Meyers (Springfield), Bessie Miller (Case), Dorothy Miller (Windemere), Rhea Miller (Erie Island), Richard Miller (Coventry H.S.), Daniel Millich (Ellet), Rosemary Mitchell (King), Mary Mobley (Woodford), Marian Mondl (Firestone), Sandro Mondozzi (Thornton), Anthony Morano (Central), Alex More (Kent), Jack Morgenstern (Memorial), Janet Morrow (Thomastown), Mary Jane Murdocco (Hotchkiss), Janet Murphy (Crosby), Dick Nelson (Buchtel), Sarah Nettles (Crosby), Mary Newsletter (Cuyahoga Falls H.S.), William Nicholson (Central), Ethel Oakmon (Firestone Park), Lydia Oberdeck (Buchtel), Andrew Oravecz (Kent), Miriam Oravecz (Thornton), Frederich Ost (Revere), Gordon Oster (Garfield), Edward Ostervich (Goodrich), Mary Lou Otremsky (Howe), Helen Otto (Hyre), Gloria Palmer

(Highland), Francis Paolino (Erwine), Rose Paolucci (East), Linda Parobek (Woodridge), Dorothy Pasher (Findley), John Pastuck (Hower), Dominic Patella (East), James Pearson (Litchfield), Anne Perkins (Jackson), Freda Perkins (Barberton & Memorial), Larry Petty (U. L. Light), JoAnn Pifer (Broad Elementary), Jean Pheasant (Case), Frank Phillips (Perkins), Mary Pittman (Robinson), Estella Plaster (Highland Park), Robert Pletzer (Woodridge H.S.), Mary Purkey (Oakdale), Robert Quirk (Sill Jr. High), Shirley Read (Spicer), Winifred Read (North), LaNora Reinhold (Betty Jane), Mary Repass (Henry), Marjorie Rhoades (Barber), Kathryn Rice (Crosby), Edith Richards (King & Erie Island) C. Richardson (Bolich Jr. High), James Riedinger (Central), Judith Rinella (Lane), Frances Robinson (Buchtel), Roy Robinson (Barberton H.S.), Annette Roman (Spicer), Ellen Rowe (East), Irene Rowe (Seiberling), Robert Rupp (Hyre), Elsa Sabol (Rankin), Vivian Saccone (Jennings), Patricia Salem (Mason), Dorothy Sanders (Henry), Lee Sanko (Betty Jane), Mary Sassano (Kenmore), Lawrence Scarpitti (Harris), Ernest Schmidt (Thornton), Norman Schmidt (Hyre), Ruth Scott (East), Joe Seigferth (Central), George Seigman (Ellet), Salvatore Semalia (Central), Nina Shaffer (Betty Jane), Nancy Shaffer (Boston Jr. High), Roger Shaffer (Lincoln), Alice Shambach (Hotchkiss), Doris Shank (Thornton), Geraldine Shank (Portage Path), Ralph Sharpnack (Cuyahoga Falls H.S.), Walter Sheffield (Thornton), Joan Sheplin (East), Sheldon Shimko (Eastview), J. Sigmund (Barberton H.S.), Mattie Sivert (Glover), Pauline Sloop (Broad), Richard Smetts (Central), Clyde Smith (Norton), Elizabeth Smith (Hyre), Nellie Smith (Glover), Richard Smith (Innes), Shirlee Smith (Crouse), Betty Spencer (Stow), Howard Spicer (Voris & Henry), Ruth Squires (Barber), Carl Stager (Central), Mildred Steese (Rankin), Dorothy Steinspring (Greenwood), Judy Stewart (Litchfield), Donald Stott (Goodyear), Nancy Stout (Grant), Emalene Straiko (Hazelwood), Freda Sullivan (Mason), Marvon Sullivan (Woolford), Bonnie Swan (Goodyear), Constance Szilacy (Case), Frances Szoke (Garfield), Phillys Tanner (Green H.S.), Arnold Thomas (Firestone), Ruth Thomas (Buchtel), Theresa Thompson (Heminger), Ida Thorn (Oakdale), Eloise Thorne (Schumacher), Rancie Titley (Barberton H.S.), Maria Todorovich (Firestone), Donald Toomer (McEbright), Anthony Topougis (Jennings), Dominic Trifero (Central and Ellet), Tommy Troxel (Innes), James Tucker (Hyre), William Vaill (Norton H.S.), Julia Van Court (Hower), James Van Deventer (Perkins), John Van Dever (Central), Neal Verity (Copley), Mary Villers (Fraunfelter), Eugene Vinciguerra (Ellet), Lillian Wade (Highland Park), Helen Wagner (Ellet), Marian Wagner (Portage Path), Clyde Walchuck (Firestone Park & Hemminger), Dorothy Walchuck (Hotchkiss), Dixie Walker (Kenmore), Lois Walker (Coventry), Robert Walker (Garfield), Esther Wandes (Jennings), Evelyn Weiss (Litchfield), Richard Weldon (Kent), Vera Westfall (Barberton), Robert White (North), William White (Erwine Jr. H.S.), Joyce Whitmer (Wadsworth Sr. High), Jerry Whitaker (Coventry), Parker Wilcox (North & Central), Molly Willey (Highland Park), Charles Williams (Hyre), Maxine Williams (Voris), Alicia Wilmoth (Voris), Jeanne Wilson (Grant), Elizabeth Witt (Thornton), Evelyn Woodall (Erwine), Deloris Woodliff (Kenmore), Nancy Yaussy (U. L. Light), Irene Yurko (Memorial), Donald Young (East), Harriet Zook (Rankin), Freda Zorn (Glover).

THE ALUMNI ASSOCIATION

An individual who has received a degree from this institution or has completed 32 credit hours is considered to be an Alumnus and is eligible for membership in The University of Akron Alumni Association. The Alumni Council, the members of which are elected by a national ballot mailed to more than 20,000 alumni, is the governing body of the Alumni Association. For the 1967-68 year, Association President William P. Kannel '42 will preside over the Association with administrative matters handled by the Alumni Relations office, which is located in Gardner Student Center on the campus.

The purpose of the Alumni Association is to promote the interests of The University of Akron and further the mutually beneficial relationships between the University and its Alumni. Among the activities and responsibilities of the Alumni Association are:

1. Sponsorship of four major events during each academic year—the Acme-Zip Game Party in September, Homecoming in October, Alumni Fun Night in January and Alumni Day in June—attracting more than 2,000 alumni and friends each year;

2. Promotion of the Akron U Fund which is used for scholarships, faculty salaries and special purposes at the discretion of The University of Akron Development Foundation (in 1966-67 $100,395 was raised);

3. Maintenance of accurate records of Alumni;

4. Publication of *The University of Akron Alumnus,* the quarterly magazine with news of campus developments and Alumni;

5. Hosting summer receptions at homes of Alumni honoring freshmen entering the University the following autumn;

6. Encouragement of Alumni-University participation through clubs which are now located in 33 geographic areas.

Locations and presidents of Alumni clubs currently operating are: Phoenix—Harry J. Shaffer; Tucson—Robert E. Ashley; Los Angeles—Richard M. Greenwald; San Diego—John E. Lucas; San Francisco—Anthony Simatovich; Denver—Don Carney; Washington, D.C.—Palmer W. Wardman; Miami—W. P. Shaughnessy; St. Petersburg, Fla.—Harris W. Holsinger; Chicago—Daniel J. Weinberger; Boston—Eugene J. O'Neil; Detroit—Ray K. Schieb; Grand Rapids—Henry Stoner; Minneapolis—William T. Farmer; St. Louis—William H. Ireland; New York City—Jerry G. Meyers; Buffalo—Norman E. Weiler; Columbus—Al Isner; Toledo—Wallace H. Johnson; Cleveland—Robert E. Sipes; Akron—William Kannel; Youngstown—Abe Cohen; Canton—Mervin L. Atwell; Cincinnati—J. D. Mussoud; Dayton—Paul G. Trecaso; Pittsburgh—Charles W. Hamilton; Erie—H. A. Roseman; Philadelphia—Maurice E. Long; Dallas—Harvey L. Davis; Houston—Herman K. Eckert; Kansas City—J. Neal Burke; Cape Kennedy—Mrs. Rockwell B. Wright; Atlanta—Glenn Bishop.

Officers of the Alumni Council for 1967-68 are: President—William A. Kannell '42; First Vice President—Harry P. Stitzlein '50; Second Vice President—A. William Zavarello '59; Recording Secretary—Mrs. Robert C. Berry '41; Treasurer—Carl Hall; Executive Secretary—K. D. Bushnell '54.

Members of the Alumni Council are: *(term ending June 1968)* Hon. John Ballard '43, Mrs. Robert Berry '41, William Ireland '38, William Kannel '42, Don Martell '67, Dr. Raymond McNamee '29, Dr. Donald Traul '29, Mrs. Richard Weber '53; *(term ending June 1969)* Paul Bagwell '37; Mrs. Evan Brewster '25, Stanton Brightman '61, Dr. George George '48, James Matz '25, Harry Stitzlein '50, William Zavarello '59; *(term ending June 1970)* Martin Chapman '47, Harvey L. Davis '37, Eugene Hollander '49, Mrs. William Palmer '40, Judge Dan Quillin '51, Marion Richardson '17, Mrs. Frank Wahl '60.

The Director of Alumni Relations, K.D. Bushnell '54, assumed his present position in 1960 and Al M. Boyer '42, Director of the Akron U Fund, joined the Alumni Office staff in November 1966.

Directory of STUDENT ORGANIZATIONS

HONORARY

Alpha Chi Sigma (N) Chemistry; Alpha Lambda Delta (N) Freshman Scholastic; Alpha Phi Gamma (N) Journalism; Alpha Sigma Lambda (N) Evening; A. E. Honorary Fraternity (L) Evening; Angel Flight (L); Army Sponsors (L); Arnold Air Society (N); Association of United States Army (N); Beta Alpha Psi (N) Accounting; Beta Gamma Sigma (N) Business Administration; Gamma Theta Upsilon (N) Geography; Kappa Delta Pi (N) Education; Lambda Pi (L) Modern Languages; Pierian Chapter Mortar Board (N) Senior Women; National Collegiate Players, Pi Epsilon Delta (N) Theater; Omicron Delta Kappa (N) Men's Activities; Omicron Delta Epsilon (N) Economics; Pershing Rifles (N) Basic Military; Phi Alpha Delta (N) Law; Phi Alpha Theta (N) History; Phi Delta Delta (N); Phi Delta Kappa (N) Men in Education; Phi Eta Sigma (N) Freshman Scholastic; Phi Sigma Alpha (L) Liberal Arts Scholastic; Phi Sigma Society (N) Biological; Phi Sigma Tau (N) Philosophy; Pi Kappa Delta (N) Forensic; Pi Omega Pi (N) Business Education; Pi Sigma Alpha (N) Political Science; Psi Chi (N) Psychology; Sabre Squadron (L) Basic Military; Scabbard and Blade (N); Sigma Tau (N) Engineering; Tau Kappa Phi (L) Home Economics.

STUDENT CLUBS

Accounting Club; Akron Economics Association; Amateur Radio Club; American Society of Civil Engineers; American Institute of Chemical Engineers; American Society of Mechanical Engineers; Association for Childhood Education; Biology Club; Bracton's Inn (College of Law Case Club); Campus Christian Fellowship; Channing Club; Christian Science Organization of The University of Akron; Collegiate Forum; Counterguerrillas; Future Secretaries of America; Eastern Orthodox Christian Fellowship; Geography Club; Hilltop Women in Education; Home Economics Club; Independent Student Organization; Institute of Electronic Electrical Engineers; International Students Club; Intervarsity Christian Fellowship; Johnson Club; Junior Class Organization; Kappa Phi Club; Le Cercle Francais; Lutheran Student Association; Marketing Club; Newman Club; Philosophy Club; Physical Education Club; Political Science Club; Psychology Club; Radio and Television Workshop; Residence Hall Government Association; Senior Class Organization; Slavic Studies Club; Student Bar Association; Tertulia Espanola; The University of Akron Collegiate Nursing Students; United World Federalists; University Theatre Guild; Valkyrie AFROTC Drill Team; Women's Recreation Association; WRHA Residence Hall Radio Station; Young Democrat Club; Young Republican Club; Young Women's Christian Association.

SORORITIES

Alpha Delta Pi (N) Chartered 1938; Alpha Kappa Alpha (N) Chartered 1961; Alpha Gamma Delta (N) Chartered 1922; Chi Omega (N) (1967); Delta Gamma (N) Chartered 1879; Delta Zeta (N) Chartered 1962; Gamma Beta (L) Evening Session, Chartered 1935; Kappa Kappa Gamma (N) Chartered 1877; Phi Mu (N) Chartered 1912; Sigma Delta Tau (1963); Theta Phi Alpha (N) Chartered 1931; Zeta Tau Alpha (N) Chartered 1929.

FRATERNITIES

Alpha Epsilon Pi (N) Chartered 1941; Alpha Phi Alpha (N) Chartered 1957; Lambda Chi Alpha (N) Chartered 1919; Phi Delta Theta (N) Chartered 1875; Phi Kappa Tau (N) Chartered 1938; Phi Sigma Kappa (N) Chartered 1942; Phi Kappa Psi (N) (1967); Pi Kappa Epsilon (Lone Star) (L) Chartered 1882; Sigma Pi (N) (1966); Tau Kappa Epsilon (N) Chartered 1948; Theta Chi (N) Chartered 1942; Chi Sigma Nu (N) (Evening Session) Chartered 1932.

(N) = National (L) = Local

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OFFICIAL UNIVERSITY CALENDAR 1968-69

FALL QUARTER, 1968 (48 teaching days)

September 30, Monday	Day and Evening Classes Begin
November 27, Wednesday, 5 p.m.	Thanksgiving Recess Begins
November 28, Thursday	Thanksgiving Day
December 2, Monday	Classes Resume
December 4, Wednesday, 9 p.m.	Grades for December Degree Candidates Due
December 9-14, Monday-Saturday	Examination Period
December 14, Saturday at noon	End of Quarter
December 15, Sunday	Commencement
December 25, Wednesday	Christmas Day
January 1, 1969, Wednesday	New Year's Day

WINTER QUARTER, 1969 (48 teaching days)

Janaury 6, Monday	Day and Evening Classes Begin
February 22, Saturday	Washington's Birthday
March 13, 14, 17-19, Thursday Friday, and Monday-Wednesday	Examination Period
March 19, Wednesday	End of Quarter

SPRING QUARTER, 1969 (48 teaching days)

March 31, Monday	Day and Evening Classes Begin
April 4, Friday	Good Friday, vacation
April 6, Sunday	Easter Sunday
April 7, Monday	Classes Resume
May 30, Friday	Memorial Day, holiday
June 4, Wednesday, 9 p.m.	Grades for June Degree Candidates Due
June 9-14, Monday-Saturday	Examination Period
June 14, Saturday at noon	End of Quarter
June 15, Sunday	Commencement

SUMMER SESSIONS, 1969 (24 teaching days each session)

June 23, Monday	First Summer Session, Day and Evening, Begins
July 4, Friday	Independence Day, holiday
July 25, Friday	Examination Day and End of First Summer Session
July 29, Tuesday	Second Summer Session, Day and Evening, Begins
August 29, Friday	Examination Day and End of Second Summer Session

TENTATIVE 1969-70 CALENDAR

FALL QUARTER, 1969

September 29, Monday	Day and Evening Classes Begin
November 26, Wednesday, 4 p.m.	Thanksgiving Recess Begins
December 1, Monday	All Classes Resume
December 3, Wednesday	Grades for December Degree Candidates Due
December 8-13, Monday-Saturday	Examination Period
December 13, Saturday	End of Fall Quarter
December 14, Sunday	Commencement
December 25, Thursday	Christmas Day, holiday
January 1, 1970, Thursday	New Year's Day, holiday

WINTER QUARTER, 1970

January 5, Monday	Day and Evening Classes Begin
February 22, Sunday	Washington's Birthday
March 12-18, Thursday-Wednesday	Examination Period
March 18, Wednesday	End of Winter Quarter

SPRING QUARTER, 1970

March 31, Tuesday	Day and Evening Classes Begin
May 29, Friday	Memorial Day, holiday
June 3, Wednesday	Grades for June Degree Candidates Due
June 8-13, Monday-Saturday	Examination Period
June 13, Saturday	End of Spring Quarter
June 14, Sunday	Commencement

SUMMER SESSIONS, 1970

June 22, Monday	First Summer Session, Day and Evening, Begins
July 4, Saturday	Independence Day
July 24, Friday	Examination Day and End of first Summer Session Day and Evening Classes
July 27, Monday	Second Session, Day and Evening, Begins
August 28, Friday	Examination Day and End of second Summer Session Day and Evening Classes