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Calendar 1992-93

Fall Semester 1992
Day and Evening Classes Begin Mon., Aug. 31
Labor Day Mon., Sept. 7
Veterans Day (staff holiday) Wed., Nov. 11
*Thanksgiving Break Thurs-Sat., Nov. 26-28
Classes Resume Mon., Nov. 30
Final Instructional Day Sat., Dec. 12
Final Examination Period Mon.-Sat., Dec. 14-19
Commencement Sat., Dec. 19
Spring Intercession Mon.-Fri., Jan. 4-15

Spring Semester 1993
* Martin Luther King Day Mon., Jan. 18
Day and Evening Classes Tues., Jan. 19
* Presidents’ Day Mon., Feb. 15
Spring Break Mon.-Sat., March 22-27
*** May Day Fri., May 7
Final Instructional Day Sat., May 8
Final Examination Period Mon.-Sat., May 10-15
Commencement Sat., May 15
Summer Intercession Mon.-Fri., May 17-June 11
Commencement for Law School Sat., May 22

Summer Session I 1993
First 5- and 8-Week Sessions Begin Mon., June 14
* Independence Day Mon., July 5
First 5-Week Session Ends Fri., July 16

Summer Session II 1993
Second 5-Week Session Begins Mon., July 19
Eight-Week Session Ends Fri., Aug. 6
Second 5-Week Session Ends Fri., Aug. 20

Fall Semester 1993
Classes Begin Mon., Aug. 30

*Classes cancelled
**Classes cancelled from Wednesday, November 25 at 5 p.m. until Monday, November 30 at 7 a.m.
***Classes cancelled from noon to 5 p.m.

The Graduate Bulletin is a supplement to The University of Akron General Bulletin. The General Bulletin contains information on undergraduate degree programs, non-degree continuing education programs, and additional information on the policies of The University of Akron.

For a copy of the General Bulletin contact the Office of Admissions, 166 Fire Hill, Akron, OH 44325, (216) 972-7100.

Inquiries
Address inquiries concerning:
Graduate study to the Graduate School, Fire Hill Center, (216) 972-7663.
Admissions information, campus tours, and housing, transfer of credits to the Office of Admissions, 166 Fire Hill (216) 972-7100.
Financial aid, scholarships, loans, and student employment to the Office of Student Financial Aid and Employment, Spicer Hall (216) 972-7032.
Athletics to the Athletic Director, James A. Rhodes Health and Physical Education Building, (216) 972-7080.
Registration, scheduling, residency requirements, and veteran’s affairs to the Office of the Registrar, Spicer Hall, (216) 972-7344.
Continuing education and noncredit programs to Buckingham Center for Continuing Education, (216) 972-7171.
The University switchboard number is (216) 972-7111.
The University of Akron
Akron, OH 44325
Background

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

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

And changes within the Municipal University’s curriculum reflected the strong interrelationship of town and gown. In 1914 a College of Engineering began instruction, and other professional schools followed: education (1921), business administration (1953), law (1959), the Community and Technical College (1964), fine and applied arts (1967), and nursing (1967).

Considering the institution’s location in the heart of the burgeoning rubber industry, it seemed only appropriate that the world’s first courses in rubber chemistry would be offered at Buchtel College in 1909. From those first classes in Professor Charles W. Knight’s laboratory would evolve the prestigious College of Polymer Science and Polymer Engineering (1988), a world leader in polymer research. In the 1930s and 1940s, with the establishment in Akron of the Guggenheim Airship Institute, UA scientists studied the structure and design of zeppelins, and during World War II University of Akron researchers helped fill a critical need in the U.S. war effort by contributing to the development of synthetic rubber.

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

And the University has maintained an openness to innovation in other ways. As early as the 1980s Buchtel College was liberalizing its curriculum by allowing students to choose free electives within their courses of study. The University later adopted and developed the general education concept, which represents an attempt to prepare students for both their personal and their professional lives by providing a balance between courses that teach them how to make a living and courses that teach them about life as we know it in Western civilization.

The University’s first doctoral degree was, appropriately enough, awarded in polymer chemistry in 1959, but master’s degrees were granted as early as 1982. Doctoral work has now expanded to programs leading to the highest academic degree in 18 different fields of study.

In 1963 the receipt of state tax monies made UA a state-assisted municipal university, and on July 1, 1967, The University of Akron officially became a state university. Today nearly 29,000 students from 43 states and 83 foreign countries are enrolled in its 10 colleges, making it the third largest university in Ohio, and 46th largest in the nation. Its 80,000 alumni are worldwide. The 169-acre main campus with its 79 modern buildings is within walking distance of downtown Akron and its shopping, restaurants, entertainment, and cultural centers. The Northeast Ohio metropolitan area, with its 1.5 million population, provides numerous opportunities in recreation, major collegiate, amateur and professional sports, concerts, cultural events, and commerce, all within easy driving distance and many accessible via public transportation.

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

During recent years, the University campus has undergone many major changes. In 1951, the University's 169 acres encompassed only 10 buildings. Currently, the main campus covers 169 acres, and includes 79 buildings, with plans to renovate and build additional academic, recreational, and parking facilities. The campus is illuminated at night and security personnel patrol the area hourly.

**LOCATION**

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

**BUILDINGS**

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

**Admissions Building.** This office is located at 381 Buchtel Common. The Office of Admissions assists students with applications, requirements, and procedures for undergraduate, postbaccalaureate, graduate, transfer, auditing, or special student status.

**Auburn Science and Engineering Center.** Named for Norman P. Aubum, 10th president of the University, this complex is one of the largest academic buildings in the state. The center houses the College of Engineering, the department of Biology, including the recently completed $2 million Biology research facility, and the scientific and engineering holdings of the University Library.

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

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

**Bierce Library.** Named for Gen. Lucius V. Bierce, an Akron mayor, lawyer, historian, state senator, philosopher, philanthropist, and soldier, the building opened in spring 1973. In addition to the book and periodical collections, the Library includes archival and audio-visual materials, maps, and microforms. The University library, including the Science and Technology Department, has holdings of more than 2.8 million items.

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

**Buckingham Center for Continuing Education.** The center was renovated in 1979 at a cost of $2.8 million. The building houses offices for the Associate Provost and Dean of Continuing Education, Public Services and Outreach, the Adult Resource Center, International Programs, the Programs Division and Promotional Services, as well as the Law School Clinical Program, a lecture hall and general classrooms.

**Business Administration Building.** A new $9.1 million business administration building, located at 259 South Broadway, was completed in 1991. This structure consolidates office, classroom, and laboratory facilities for the Dean of the College of Business Administration, the School of Accountancy, and the departments of Finance, Marketing, and Management.

**Carroll Hall.** Adjacent to the Gardner Student Center, Carroll Hall houses classrooms, laboratories, and offices for the departments of Counseling and Special Education, Geography, Developmental Programs, Information Systems, and the academic computer testing facility, as well as the University's Media Services, Electronic Systems, and the Learning Resources Center.

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

**Computer Center.** Purchased and renovated in 1981 for $1.3 million, this building at 185 Carroll Street houses the University's Information Services offices, main computers, and workrooms, as well as student and faculty microcomputer labs and time-sharing terminals.

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

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

**Edwin J. Thomas Performing Arts Hall.** Named for Edwin J. Thomas, prominent industrialist and dedicated member of the University Board of Trustees from 1952 to 1975, this cultural center, which cost more than $13.9 million, was formally opened in 1973. Designed to accommodate concerts, opera, ballet, and theatre productions, the hall is a masterpiece in architecture, acoustics, and creative mechanisms. It stands at the corner of East Center and Hill Streets.

**Exchange Building.** This building, located at 222 East Exchange Street, houses the School of Social Work.

**Flr Hill Center.** This recently remodeled building, north of East Buchtel Avenue at Flor Hill, houses the offices of the Associate Vice President for Research and Graduate Studies, the dean of Graduate Studies, and Research Services and Sponsored Programs.

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

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

**Forge Building.** This building at 171 South Forge Street houses the College of Engineering's Construction Technology Program, including offices and computer lab and classroom space.

**Gallucci Hall.** This building at 200 East Exchange Street, formerly a Holiday Inn, is a coed residence hall. The north wing houses the Department of Urban Studies, the Center for Urban Studies, and the Department of Hospitality Management.

**Gardner Student Center.** This complex was named for Donfred H. Gardner, who was appointed dean of men in 1926, named the University's first dean of students in 1937, in 1955 named the University's first dean of administration, and later in 1955 promoted to vice president. He retired in 1962. This facility, which serves as a unifying force in the life of the institution, houses nearly 80 percent of all nonacademic activities on campus. It provides bowing alleys, meeting rooms, lounges, student activity and publication offices and workrooms, a game and billiard room, a bookstore, bank facilities, the Perkins Art Gallery, the Gardner Theatre, a cafeteria, and other dining facilities.
Gladwin Hall. Housing the College of Nursing, allied health and biology laboratories, the building was named in honor of distinguished alumna Mary E. Gladwin (1887), who rendered unparalleled service to the nation during World War I. The $10 million complex opened in 1979 and includes the administrative offices of the College of Nursing, faculty offices, the Center for Nursing, and a Learning Resources Center which includes patient care simulation areas, an audio visual center, and a state-of-the-art computer learning center.

Guzzetta Hall. Complementing the Edwin J. Thomas Performing Arts Hall, this facility was constructed directly across from Thomas Hall on Hill Street. The $5.5 million structure dedicated in October 1976 houses the office of the dean of the College of Fine and Applied Arts, laboratory space for the School of Communication, and departmental space for the Schools of Theatre and Music. In addition to providing more than 40 student practice rooms, the complex houses radio and television studios, WZIP-FM, a small experimental theatre, and a 300-seat recital hall.

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

Hower House. Located on Fir Hill, the century-old mansion has been designated as a Historic Place by the National Park Service.

Knight Chemical Laboratory. This $10 million complex is named in honor of Dr. Charles M. Knight, who taught the first courses in rubber chemistry in Buchtel College as early as 1909. Opened in 1979, the building features numerous innovative laboratories with the latest, most sophisticated safety equipment along with classrooms and faculty and administrative offices.

Kolbe Hall. Identified by its colonnade arch, this complex was named for the first president of the University, Dr. Charles Olin Kolbe. It houses the University Theatre, and the Center for Community and Public Television, classrooms and interim office space for the Department of Civil Engineering (during the 1991/92 Auburn Science and Engineering Center Phase I Rehabilitation Project).

Leigh Hall. Named in honor of Warren W. Leigh, first dean of the College of Business Administration, the facility on Buchtel Common currently houses the John S. Knight Auditorium, and interim space for the Dean of Engineering, the Engineering Co-op office and and Department of Mechanical Engineering offices (during the 1991/92 Auburn Science and Engineering Center Phase I Rehabilitation Project).

Mcdowell Law Center. Named for C. Blake McDowell, prominent local attorney, alumnus, and benefactor of the University, the center houses the School of Law. Opened in 1973 at a cost of $2.5 million, it provides space for the 200,000-square foot law library, classrooms, moot courtroom, appellate review office, seminar rooms, and faculty offices. A $2.8 million addition provides additional library and support space. The center stands at the corner of University Avenue and Wolf Ledges Parkway.

Memorial Hall. Dedicated to the memory of Summit County men and women who died in World War Ii, this is the companion building to the JAR. It contains offices of the Department of Health and Physical Education, a main gymnasium, a gymnastics area, a combatives area, a motor learning lab, a human performance lab, an athletic training for sports medicine lab, a weight training and fitness center, a swimming pool, the intramural sports office, and classrooms.

North Hall. Located on South Forge Street, this building houses, on a temporary basis, all faculty offices for the School of Communication and supplemental service space for the University Police Department.

Ocasek Natatorium. The six million dollar natatorium, completed in 1988, is a 70,000 gross square foot structure that houses an Olympic-size swimming pool with adjacent spectator seating area, and locker rooms and showers. The center also houses nine racquetball courts as well as weight room facilities. The natatorium is named for former Ohio State Senator Oliver Ocasek.

Olin Hall. Named in honor of Professor Oscar E. Olin and Mr. Charles Olin, this facility was completed in May 1975. The hall houses the dean of Buchtel College of Arts and Sciences and the following departments and institutes: classics, economics, English, general studies, history, modern languages, political science, philosophy, sociology, and English Language Institute. The complex is at the corner of Buchtel Common and South Union Street.

100 Lincoln Street Building (Industrial Incubator). This building currently houses the Purchasing, Telecommunications department offices, and Information Services’ voice and cable communications group.

143 Union Street Building (Newman Center). This recently purchased building, located at 143 South Union Street, provides administrative office space for the University auditor, budget director, the payroll department, and Information Services’ network services group.

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

Physical Facilities Operations Center. This building at 146 Hill Street is adjacent to E. J. Thomas Hall and houses physical facilities offices and craft shops, the central heating and cooling distribution center, and the Campus Police/Security Department.

Polycmer Science Building. Construction of the new $17 million polymer science building was completed in the spring of 1991. This two-story structure of steel, concrete, and glass, located at 170 University Avenue, houses offices for the dean of the College of Polymer Science and Polymer Engineering and the American Chemical Society. The facility features a 200-seat lecture hall, offices, classrooms, and research laboratories for the Institute and Department of Polymer Science.

Robertson Dining Hall. This building, located at 248 East Buchtel Avenue, has a cafeteria and dining room for dormitory students, as well as the campus infirmary, which provides health services for the University.
The Paul E. Martin University Center. Located at 105 Fir Hill Street, The Paul E. Martin University Center has recently changed from a private club serving dues-paying members to a University-operated restaurant and banquet center. The table service restaurant is open for lunch between 11:30 a.m. and 2 p.m. Business and departmental functions, banquets, receptions, and parties can be scheduled during the hours of 7:30 a.m. to noon. The Office of Alumni Relations and the Department of Development as well as offices for the division of Institutional Advancement are located on the upper floors of the building.

277 Broadway Street Building (Blakemore-Roehl). This building was recently purchased to provide administrative space for the Vice President for Human Resources, academic and staff personnel, affirmative action, the benefits office, and the Department of University Communications.

West Hall. This renovated structure on Wolf Ledges Parkway next to the McDowell Law Center houses the School of Communicative Disorders and the outpatient Speech and Hearing Center as well as classrooms and law school offices.

Whitby Hall. Named for G. Stafford Whitby, a pioneer in the development of polymer science, this building opened in 1975. Housed in this faculty are some Polymer Science laboratories, and the Department of Chemical Engineering.

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

Information Services

Information Services, which is located in the Computer Center at the west end of campus, provides computational support to those academic efforts of research and instruction where such support is feasible. Administrative data processing is to assist in the conduct of the business of the University, and support for all the University’s voice and data communications and networking.

The center is equipped with an IBM 3090/200 Dyadic processor which runs the MVS-XA operating system. This computer also has a Vector Processor attached which supports local super-computing applications. This IBM is shared between academic and general administrative use. The academic community also uses an IBM 4381-R14 with the VM/CMS operating system. This is used for interactive editing and submission of programs. A third computer, a VAX 11/785 with the Ultras operating system, is also used exclusively by the academic community. This machine is used primarily to support computer science and engineering fields.

A variety of peripheral equipment is attached to these computers including magnetic tape drives, disk drives, and remote terminals. Plotting may be done using either a CalComp Drawingmaster or CalComp Pen plotter. A Scanntron Mark Sunse Reader creates computer-readable tapes from mark sense forms providing fast and reliable data entry for testing services and surveys. The center also has widely used computer languages like FORTRAN C, COBOL, PL/1, BASIC, PASCAL, SAS, SPSS, APL.

All of the computers above as well as many microcomputer labs, the Library computer system, faculty members offices, and administrative offices are connected via Zippy’s Internet Protocol network (ZIPnet). This is a high-speed data network available across campus which has connection to off-campus networks such as Internet and BITnet. This network provides access to the Ohio Supercomputer Center in Columbus.

The Academic User Services Section assists the student and faculty member in making effective use of the Computer Center. It provides consultation and help in preparing usable computer programs and in analysis and solution of problems where the use of the computer is indicated. It will also acquire and install prepackaged programs for specific departments. The Computer Based Education and Testing group develops and acquires specialized programs. Some of these programs are tutorial in nature and are designed to assist the student in learning a particular idea or principle. The group also supports the Testing Center which is a site at which students take their course’s tests via a computer.
The student who becomes counseling.

In addition to participating with the Career Center in the Career Development Service, the Counseling and Testing Center provides a wide range of psychological counseling, therapy, testing, and outreach and consulting services to the University community. The Center is located in 163 Simmons Hall, phone: 972-7082.

Counseling Service

The Center's counseling service offers assistance in the following areas:

- Career counseling involves discovering one's interests, values, aptitudes, abilities, and goals, relating these to the world of work; exploring appropriate major subjects and career fields. Occupational information is available through reference books and two computerized career guidance and information systems, SIGI and OCIS.
- Personal-emotional counseling deals with feelings of loneliness, inadequacy, guilt, anxiety, and depression; harmful involvement with alcohol and drugs; recovery from acquaintance or stranger rape; interpersonal relationships, especially with the immediate family, intimate relationships, and roommates; personality development, identity, and self-esteem.
- Educational counseling relates to educational goals, motivation, attitudes, abilities and the development of effective study habits and skills.
- Group educational programs cover a wide range of topics which typically deal with improving grades, reducing test anxiety, planning careers, increasing wellness, and addressing personal issues, as well as providing support groups for minority students and others with a variety of concerns. Brochures are available.

Outreach and Consulting Service

The Center's outreach and consulting service offers assistance to the larger university community by providing programs and workshops for a wide variety of campus groups. The Center regularly provides speakers for classrooms, residence halls, student organizations, and administrative offices. Topic areas include academic performance, wellness, sexuality, and appreciating cultural diversity.

The Center's staff is also available for consultation and advice in understanding individual or group behavior using psychological theory and principles. In addition, the Center provides appropriate referral services for social, psychological, and medical services.

Testing Service

The Center's testing service offers a variety of testing programs including learning disability determination, advanced placement testing for course credit (CLEP), placement testing in mathematics and foreign language, and national testing programs. National testing includes pre-college tests (ACT, SAT, and OTEA), pregraduate school tests (Miller's Analogies Test, LSAT, GRE) and Education certification tests (PPST and NTE).

Individual psychological and career assessment is offered in conjunction with counseling. Tests cover such areas as vocational interests, aptitudes, achievement, personality, and assessment of psychological problems.

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

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

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

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

UNIVERSITY LIBRARIES

Library facilities are housed in three separate locations: Buchtel Common; the Science and Technology Department in Auburn Science and Engineering Center 104; and the Psychology Archives in Simmons Hall 10. Library services include reference and research assistance, user education, bibliographic instruction, and computer-based information searching. Materials can be borrowed from the University libraries through the circulation department or obtained through interlibrary loan from other libraries. Archival Services collects and makes available materials which have historical or other research interest and which relate primarily to The University of Akron, to an eight-county region in Northeast Ohio, or to American psychology.

The University Libraries' collections contain more than 2.8 million items: books, periodicals, government documents, curriculum materials, microforms, maps, audio-visual materials, and archival documents. The library receives more than 6,000 magazines, journals, newspapers, and other serial publications, such as annual reports and the publications of various societies. Through the library's memberships in the Center for Research Libraries, the Northeast Ohio Mayor Academic and Research Libraries consortium, the Online Computer Library Center (OCLC) and the Ohio Network of American History Research Centers, access to vast resources is greatly increased for University students, faculty, and staff.

University identification cards function as library cards. Photocopy services and equipment for use in making paper copies from microforms are available in the main library and the science and technology department. Group study rooms and typing facilities are also available in the main library.

Audio-Visual Services, located in Buchtel Library 63B, maintains an extensive centralized collection of media hardware and audio-visual resources and materials for student and faculty use. It also has a collection of instructional materials in various media formats (filmstrips, slides, etc.) to supplement classroom instruction.

STUDENT HEALTH SERVICES

Health service facilities are located in the Robinson Dining Hall, immediately adjacent to the residence halls. This facility is capable of handling most acute illnesses and injuries.

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

The University of Akron Nursery Center provides a variety of early childhood programs which are open to students, faculty, staff, and the community. Each classroom is staffed with a Pre-K certified teacher and student aides. Opportunities are provided for the children to engage in developmentally appropriate activities in the following areas: creative art, language arts, music and rhythm, science exploration, gross motor and fine motor development, socio-dramatic play, multi-sensory activities, and computer experience. The program emphasizes the development of a positive self concept through an anti-bias curriculum.

The Nursery Center is open between 7:30 a.m. and 6:00 p.m. Monday through Friday during the fall and spring semesters offering hourly flextime and half day programs for children three to five years old. Full day sessions are available for three to five year olds year around.
A summer program is also offered for school-aged children who are graduates of kindergarten and first grade. This program is offered during summer sessions I and II from 7:00 a.m. until 6:00 p.m.

For more information call the Nursery Center, 972-7760.

COURSE NUMBERING SYSTEM

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

3300:220  English Literature

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

An explanation of that numbering system follows:

100·199  First-year-level courses
200·299  Second-year-level courses
300·399  Third-year-level courses
400·499  Fourth-year-level courses
500·599  Master's-level courses
600·799  J.D.-level courses
700·899  Doctoral-level courses

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

The purpose of the Graduate School is to provide a quality program of education by the following means:

• Advanced courses in various fields of knowledge beyond the baccalaureate level.
• Opportunities to develop and apply research techniques and to use the resources appropriate to various graduate programs.
• Advancement of student's knowledge for the benefit of mankind through the efforts of its faculty and students.

Nature of Graduate Education

The Graduate School provides a qualified student with education which may be required for the full development of scholarly and professional capacities, subject to the criteria developed by graduate departments.

Graduate education involves the extension of knowledge. However, it is by no means a mere continuation of undergraduate study. At its best, graduate education is characterized by an able and enthusiastic advanced student who joins faculty leaders to form a community of scholars dedicated to the common pursuit of truth. Critical analysis, independence of thought, originality of method, intensity of purpose, freedom from bias, thoroughness of inquiry, keenness of perception and vital creativity combine to produce in the successful student both the professional competence and the breadth of understanding essential to leadership in many areas of human endeavor.

History of the Graduate School

Graduate study began a few years after Buchtel College opened its doors, and the first earned master's degree was conferred in 1882. The College of Education awarded its first master's degree in 1924, the Colleges of Engineering and Business Administration in 1959, the College of Fine and Applied Arts in 1967 and the College of Nursing in 1979. The Department of Communicative Disorders (previously the Department of Speech), now housed in the College of Fine and Applied Arts, was formerly a part of the Buchtel College of Arts and Sciences and conferred a master's degree in 1963. The first earned doctoral degrees were conferred in 1969. 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. Brinnall was appointed dean of Graduate Studies and Research in 1967, being succeeded in 1968 by Dr. Edwin L. Lively. Dr. Claibourne E. Griffin succeeded Dr. Lively in 1974 and served in that capacity until 1977. Dr. Joseph M. Walton, associate dean of Graduate Studies and Research, was administrative head of the Graduate School during the 1977-78 academic year. Dr. Alan N. Gent was appointed dean of Graduate Studies and Research in 1978 and served in that capacity until 1986. Dr. Joseph M. Walton served as acting dean of Graduate Studies and Research from 1986 until 1989. In 1989 Dr. Patricia L. Carroll became dean of the Graduate School.

The administrative functions of the Graduate School include establishment of suitable entrance requirements, admission of qualified students, maintenance of high-quality instruction and approval of graduation requirements for advanced degrees.

Graduate Programs

A qualified student who has completed the baccalaureate program with sufficiently high grades may continue studies through the University's Graduate School in a program leading to the master's degree as well as to the doctoral degree. An undergraduate student who qualifies may enroll in certain graduate-level classes and apply the credits earned to the total required for the baccalaureate degree. To receive graduate credit for the courses, however, the student must first be admitted to the Graduate School.

The Graduate School offers programs of advanced study leading to the degree of Doctor of Philosophy in chemistry, history, polymer science, psychology, sociology, urban studies, education (elementary, secondary and guidance and counseling) and engineering. The Doctor of Education degree is offered in educational administration. The Doctor of Philosophy program in sociology is a joint program with Kent State University. The Doctor of Philosophy program in urban studies is a joint program with Cleveland State University.

The school also offers programs of study leading to the master's degree with majors in the following areas: accounting, biology, business administration (accounting, finance, international business, management, marketing and taxation), chemical engineering, chemistry, civil engineering, communicative disorders, earth science, economics, education (educational foundations, elementary, secondary, multicultural education, physical education, elementary or secondary school principal, school supervisor, local superintendent, counseling,
special education, visiting teacher, reading specialist and school psychology), electrical engineering, engineering, English, French, geography, history, home economics and family ecology, management, communication, mathematics, mechanical engineering, music, nursing, philosophy, physics, political science, polymer engineering, polymer science, psychology, public administration, sociology, Spanish, speech, statistics, technical education, theatre arts and urban studies. In addition, the College of Education provides a year of study beyond the master's degree in the area of school superintendent. Several departments offer a limited amount of work which may be taken on the graduate level. Such courses may supplement the major program of study for students who do not wish to devote their entire attention to one field.

Graduate Faculty and the Graduate Council*

The graduate faculty is comprised of those members of the faculty who hold appointments at the rank of assistant professor or above and teach graduate courses, supervise theses and dissertations and are generally responsible for the graduate program at the University. They are appointed by the dean of the Graduate School after recommendation by the department, college dean and Graduate Council. Guidelines for recommendation and appointment include the following:

• Quality and experience in upper-level and graduate-level teaching.
• Possession of terminal degree in field.
• Scholarly publication record.
• Activity in research.
• Activity in profession or discipline.

The purpose of the graduate faculty is to encourage and contribute to the advancement of knowledge through instruction and research of highest quality, and to foster a spirit of inquiry and a high value on scholarship throughout the University.

The graduate faculty recommends a student who has been nominated by the student's college faculty for the appropriate master's or doctoral degree.

Graduate Council is elected by the graduate faculty. Membership in the council presently includes two members from the College of Engineering, two members from the College of Business Administration, two members from the College of Education, four members from the Buchtel College of Arts and Sciences, two members from the College of Fine and Applied Arts, one member from the College of Nursing, one member from the College of Polymer Science and Polymer Engineering, and one student member elected yearly by the Graduate Student Council. Members serve three-year terms and may not succeed themselves. The dean of the Graduate School serves as chair of both the graduate faculty and the Graduate Council.

The functions of the council include examination of proposed graduate programs and course offerings, recommendation of policy for all phases of graduate education, recommendation of persons for membership in the graduate faculty and advising and counseling the dean in administrative matters.

Graduate Student Government

All registered graduate students at the University are constituents of the Graduate Student Government (GSG). The government council consists of elected representatives from each of the graduate departments, an executive board of officers, and a faculty adviser.

The objectives of GSG are to govern graduate student affairs, represent graduate student sentiment, and promote interdepartmental social exchange and interaction between students. These objectives are met by appointing members to participate in various administrative committee meetings, such as University Council, Graduate Council and Board of Trustees meetings. GSG also sponsors numerous social events, such as faculty-student mixers and an annual dinner dance.

GSG maintains an office on the lower level of Gardner Student Center (phone 972-6123). Anyone wishing more information or anyone who wants to air a complaint, problem or suggestion concerning graduate students may contact the office or attend the bimonthly GSG meetings, where all graduate students are welcome.

*An exclusive listing of graduate faculty and Graduate Council can be found in the "Directory" of the Graduate Bulletin.
SECTION TWO

General information
General Information

REGULATIONS

Student Responsibility
A student assumes full responsibility for knowing the regulations and pertinent procedures of the Graduate School as set forth in this Bulletin. Normally, the degree requirements in effect at the time a student is admitted to a program will apply through graduation. However, if existing programs are revised, the student has the option of pursuing the revised program as long as all requirements in the revised program are met. Additional information pertaining to programs can be obtained from the appropriate department head.

Admission
Every person who desires to enroll in or audit any graduate credit course must be first admitted or approved by the Graduate School.

Applications for admission to the Graduate School should be submitted to the dean of the Graduate School at least six weeks before the start of the term for which admission is sought in order to allow adequate time for complete processing. No applications will be accepted after the University deadline for applications, which is usually about three weeks before the beginning of a term and is published in the Schedule of Classes. Some programs, such as nursing, school psychologist and counseling psychology, have earlier deadlines. Applicants should contact the departments for more detailed application information.

Each first-time application to the Graduate School must be accompanied by an application fee. The fee for domestic students is $25. The fee for international students applying to enter in the Fall 1993 term or thereafter is $50.

An official transcript from each college or university attended must also be received by the Graduate School before the application will be processed. This applies to the complete academic record, both undergraduate and graduate. Transcripts should be sent from the institutions attended directly to the Graduate School. The applicant is responsible for seeing that the above conditions are met by the deadlines for filing applications.

All records, including academic records from other institutions, become part of the official file and cannot be returned for any purpose. An offer of admission will normally be made to an applicant who meets all admission requirements. However, it must be recognized that staff, facilities and other resources are limited, so the number of students accepted will vary among departments and from term to term. An accepted applicant may begin graduate work in the fall, spring or summer semester. The offer of admission is void, however, if the applicant does not register for courses within two years from the time of admission. An individual whose offer of admission has lapsed must submit a new application to be reconsidered.

The student is admitted only for the purpose or objective stated on the application for admission. A new request for admission must be filed when the original objective has been attained or when the student wishes to change objectives. The admitted status terminates when the time limits have been exceeded or other conditions for continued admitted status have not been met.

No student will be admitted without approval and acceptance by a department within the University, but admission to a department does not necessarily imply admission to or candidacy for any graduate degree program in that department. Admission for graduate study in any program can only be granted by the dean of the Graduate School.

Classification
All students are identified by the Graduate School as being in one of the following categories. Any change must be arranged through the Graduate School.

- Full Admission may be granted to a person who has not met all of the requirements for full admission. This admission status permits a student to take up to 15 semester credits of graduate coursework. Graduate courses taken under this admission status may be applied to a graduate degree program, but only when all requirements for full admission have been met.
- Deferred Admission may be granted if the applicant's record does not meet provisional admission standards. After completion of a postbaccalaureate program of study with an appropriate GPA, as prescribed by the department (usually two to five courses), the student may be reconsidered for provisional admission to the Graduate School. No graduate-level coursework can be taken by a student under the deferred admission status.
- Non-Degree Admission may be granted to a person who wishes to take particular courses but who is not working toward a graduate degree. This admission status permits a student to take up to 15 semester credits of graduate coursework. Graduate courses taken under this admission status may be applied later to a graduate degree program, but only when all requirements for full admission have been met.
- Special Workshop status is for a person permitted to take workshops for graduate credit without being admitted to Graduate School. Such permission is granted by the workshop director upon receipt of a signed statement of possession of a baccalaureate degree by the applicant, and terminates upon completion of this workshop. A student admitted to special workshop status must apply through regular channels for any other category. A maximum of six workshop credits may be applied to degree work at a later date if the applicant is given full admission to the Graduate School.
- Transient status is given to a student who is a regularly enrolled graduate student in good standing in a degree program at another accredited university and has written permission to enroll at The University of Akron. Such permission is void only for the courses and semester specified, with a maximum of 10 semester credits allowable, and is subject to the approval of the instructor, department head and Graduate School. A transient student is subject to the same rules and regulations as a regularly enrolled student of the University.
- Undergraduate status is for an undergraduate student at the University who may be granted permission to take one or more graduate-level courses if all the following conditions are met:
  - senior standing;
  - overall grade-point average of 2.75 or better through preceding term (if a student does not have a 3.00 or better in the major field, special justification will be required);
  - written approval is given by the instructor of the course and the student's adviser.

- Provisional Admission may be granted to a person who has not met all of the requirements for full admission. This admission status permits a student to take up to 15 semester credits of graduate coursework. Graduate courses taken under this admission status may be applied to a graduate degree program, but only when all requirements for full admission have been met.

The University of Akron
These courses may later be applied to a degree program if not used to satisfy baccalaureate degree requirements. The maximum number of graduate credits that may be taken by an undergraduate and applied later toward a graduate degree is 12.

Postdoctoral status is divided into three categories:

- A Fellow is a person holding an earned doctorate who is engaged in advanced research. A fellow shall be considered a guest of the University and provided with a limited amount of facilities subject to the need of the undergraduate and graduate programs. Tuition and fees shall be collected if allowed under sponsoring contract for any courses the fellow may choose to take.

- A Special is a person holding an earned doctorate who desires an additional graduate degree. A special may be admitted to any program upon submission of application forms, application fee (if new student) and an official transcript from the institution awarding the doctorate. This student will be treated as a regular student subject to registration fees and program degree requirements.

- A Guest is a person holding an earned doctorate who desires to attend courses and seminars relevant to individual work of others without registering or receiving grades. A written application should be submitted to the dean of the graduate school for each course to be taken and approval of the instructor department head and college dean shall be obtained. A guest is welcome to any course or seminar provided space is available. Normally space and facilities for research cannot be provided for a postdoctoral guest, but special requests will be considered. Requests should be submitted in writing, to the dean of the Graduate School who will review such requests with the appropriate college dean and department head.

International Students

International students are normally admitted for the fall semester. All credentials must be received by the previous April 1. Applicants seeking financial aid should submit all credentials by the previous January 1. International students should not plan to leave home until they have received both admission to a graduate program and the appropriate immigration materials from the Office of International Student and Scholar Services. The first obligation of The University of Akron is to residents of the state of Ohio. Therefore only the most qualified international students can be admitted.

Graduate students will need approximately $7,500 for tuition and fees and $11,000 for living expenses for 12 months.

Applicants whose native language is not English are required to demonstrate high-level competence in the use of the English language, including reading, writing, speaking and listening, prior to admission. This competence is established by achieving a score of at least 650 on the TOEFL (Test of English as a Foreign Language). The TOEFL is administered by Educational Testing Service, Box 899, Princeton, NJ 08540, USA. Applicants should make arrangements to take the test as soon as study at The University of Akron is anticipated and should request to forward the official test score directly to the Graduate School. The University of Akron, Akron, OH 44325. The official score should be received in the Graduate School by June 1 for fall admission. Unofficial copies of the TOEFL cannot be accepted. If the TOEFL is not available, the applicant should contact the international student adviser at The University of Akron for other arrangements. Personal letters certifying English competence are not acceptable as substitutes for test scores.

Nonaccredited American School Graduates

A student holding a baccalaureate degree from a non-accredited American college or university, if otherwise qualified, is normally required to complete at least 10 semester credits of postbaccalaureate work at a 300 level before being considered for admission to the Graduate School. The accreditation status of the school at the time of the student's graduation shall apply. A student should consult with the department head in the major field to develop a postbaccalaureate program.

Grades

A student admitted to graduate study under any status at the University is expected to maintain a minimum 300 grade-point average (4.00 = "A") at all times. A minimum grade-point average of 3.00 is required for graduation. No more than six semester credits of "C+", "C", and "C-") grades may be counted toward the degree. Grades of "D+", "D", and "D-") are treated as "F" grades. No grades below "C-" may be counted toward a degree.
Official academic records for graduate students are maintained with a grade-point system as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality Points</th>
<th>Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>C+</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>C-</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>D+</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>0.0</td>
<td>Failure</td>
</tr>
<tr>
<td>CR</td>
<td>0.0</td>
<td>Credit</td>
</tr>
<tr>
<td>NC</td>
<td>0.0</td>
<td>No credit</td>
</tr>
<tr>
<td>AUD</td>
<td>0.0</td>
<td>Audit</td>
</tr>
</tbody>
</table>

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

I — Incomplete: Indicates that the student has done passing work in the course but that some part of the work is, for good and acceptable reason, not complete.

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

PI — Permanent Incomplete: Indicates that the student's instructor and the department's dean have for special reason authorized the change of an incomplete ("I") to an "F". When the work is satisfactorily completed within the allotted time the "I" is converted to whatever grade the student has earned.*

W — Withdraw: Indicates that the student has dropped the course officially sometime after the second week of the term.

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

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

Probation and Dismissal

Any student whose grade-point average falls below 3.0 is no longer in good standing and will be placed on probation. In consultation with the college or department, as appropriate, the dean of the Graduate School will dismiss full-time students who do not return to good academic standing within two consecutive semesters (excluding summers) and part-time students who do not return to good academic standing within the attempting of 15 additional credits.

For the purpose of administration of the full-time and part-time provisions of this policy, full-time and part-time status are determined by the semester in which the student goes on probation. Full-time enrollment constitutes nine or more graduate credits; part-time is less than nine graduate credits.

The dean of the Graduate School, with the approval of the relevant department head, may also dismiss anyone who fails to make satisfactory progress toward declared goals or who accumulates six semester credits of "C+" or below. The accumulation of six semester credits of "F" will result in mandatory dismissal.

A student dismissed from the Graduate School for academic reasons may not be readmitted for one calendar year, and then only if evidence for expecting satisfactory performance is submitted and found acceptable.

ACADEMIC DISHONESTY

Students at The University of Akron are an essential part of the academic community, and enjoy substantial freedom within the framework of the educational objectives of the institution. Securing the freedom necessary for learning in a community so rich in diversity and achieving success toward our educational objectives requires the implementation of high standards of academic integrity. Academic dishonesty has no place in an institution of advanced learning.

The University community should become familiar with the policies and regulations contained within the University Rules and Regulations Concerning Campus Conduct and Student Discipline Procedures. These procedures are available in the Student Discipline Office, Buchtel Hall 51, 972-7907.

Because The University of Akron considers academic integrity to be an essential part of each student's personal and intellectual growth, instances of academic dishonesty are addressed consistently. All members of the community should become actively involved in building a strong reputation of academic excellence and integrity here at The University of Akron.

It is each student's responsibility to know what constitutes academic dishonesty and to seek clarification directly from the instructor if necessary. Examples of academic dishonesty include, but are not limited to:

- Submission of an assignment as the student's original work that is entirely or partly the work of another person.
- Failure to use appropriate referencing of published or unpublished works or print-on-print materials.
- Unauthorized copying of an assignment in computer programming, or the unauthorized examination or view of the computer, specifically during examinations.
- Possession and/or unauthorized use of tests, notes, books, calculators or formulas stored in calculators not authorized by the instructor during an examination.
- Providing and/or receiving information from another student other than the instructor, by any oral or written means.
- Obstructing or assisting another student's work.
- Violation of the procedures prescribed by the professor to protect the integrity of the examination.
- Cooperation with a person involved in academic misconduct.

A student who has been accused of academic dishonesty will be asked to meet with the course instructor. The matter can be resolved informally at the College level and/or an academic sanction can be imposed. If the student opposes the decision, he/she may appeal to the College Dean. If the matter is referred to the Student Discipline Office, an informal meeting will occur and, if substantial evidence exists, the office has the authority to take formal action against the student including, but not limited to, suspension or dismissal from the University. A more detailed discussion of these procedures can be found in the University Rules and Regulations Concerning Campus Conduct and Student Discipline Procedures.

Repeating Courses

Any graduate course may be repeated once for credit. However, the degree requirements shall be increased by the credit hour value of each course repeated. The hours and grades of both the original and the repeated section shall be used in computing the grade-point average. Required courses in which a "D" or "F" was received must be repeated.

Transfer Students

A graduate student matriculated in the Graduate School of another college or university who wishes to transfer to The University of Akron to continue graduate education must be in good standing at the other school.

Course Load

A full load of coursework at the graduate level is normally 9-15 semester credits including audit. Full-time status is defined as a minimum of 9 semester credits.
Colloquia, Seminars and Workshops

Colloquium (credit/noncredit grading)
A course that normally involves guest, faculty or graduate students as speakers. The intent of the course is to introduce a broad range of topics using resource personnel. Normally, assignments are limited to class participation.

Seminar (letter grades)
A course that normally involves group discussion or other activities based on assigned material. Grades are awarded based on a combination of assignments, tests and class participation.

Workshop (credit/noncredit grading)
A course that normally operates over a shorter period than a semester or a summer session. Workshops focus on a particular aspect or aspects of a field of study, require a combination of assignments, tests and class participation, and may or may not be permitted to satisfy degree requirements.

Registration

The responsibility for being properly registered lies with the student, who should consult with the assigned adviser in preparing a program of courses and research. A schedule of courses, hours, class location and registration procedures is obtainable from the registrar.

Entrance Qualifying Examinations

The use of examinations to determine admissibility to enter a graduate program or eligibility to continue in one is the prerogative of the departments offering graduate programs. The department has the right to select the examinations and minimum acceptable level of performance. Information and procedure may be obtained from the head of the appropriate department.

Fees

All fees reflect charges in 1992-93 and are subject to change without notice.

Application Fee
This fee is not refundable under any circumstances $25

Tuition Fee
Resident student per credit $127.80
Nonresident student per credit $22680
(laurel students pay same fees)

General Fee
112 credits per semester $4.56 per credit
13 credits and over per semester $59.00 per semester

Parking Permit Fee
5 or more credits per semester $50
4½ or fewer credits per semester $30
One summer session $17.75
Workshop participants $2 per day up to $16

Graduation Fee
Each degree (except law) $30

Other Fees
Thesis and binding (payable at time of application for degree) $95.00
Microfiling (Ph. D. only) (payable at time of application for degree) $65.00
Copyright Fee (payable at time of application for degree if copyright is sought) $25
Course schedule change fee (for each schedule change) $5

Transcripts (if more than one transcript of a student's academic record is ordered by a student at one time, the fee shall be $4 for the first transcript and $2 for each additional one) $4

Late Graduation Application Fee $10
Late Registration Fee $25

Course Materials and Computing Fees
For the following graduate courses, the fee noted is to be paid to the instructor (regardless of instructional materials distributed by the instructor and/or computing fees.

Pathogenic Bacteriology $15
Virology $20
Immunology $15
Mycology $15
Plant Development $15
Plant Anatomy $15
Physiology $15
Plant Morphology $15
Plant Physiology $15
General Entomology $10
Invertebrate Zoology $15
Parasitology $15
Vertebrate Zoology $10
Human Physiology $15
Human Psychology $15
General and Comparative Psychology $15
Developmental Anatomy $15
Developmental Anatomy $425
Radiation Biology $15
Procytic DNA Technique $10
Animal Tissue Culture $20
Principles of Transmission Electron Microscopy $20
Principles of Scanning Electron Microscopy $20
Biochemistry Laboratory $25

Copyright Fee
Application Fee $25

Late Registration Fee $25

Thesis and binding $4
Application Fee $30
Parking Permit Fee $50
Late Graduation Application Fee $10
Late Registration Fee $25

Course Title

Course Number

Buchtel College of Arts and Sciences

3100.521
3100.522
3100.523
3100.524

Topical Field Biology
Conservation of Biological Resources
Freshwater Ecology

Credits

4
4
3

Course Fee

$100
$5
$15

General Information

College of Engineering

All graduate-level courses in the College of Engineering are assessed a $5 fee with the exception of the following courses:

4200.566
4400.555
4400.565
4400.572
4400.584
4600.563
4600.601
4600.601
4600.602
4600.603
4600.640
4600.641
4600.642

Digital Data and Simulation $60
Microcomputers $40
Computer Circuits $40
Control Systems II $40
Power Electronics Laboratory and Design Project $40
CAE/CAM $40
Biomedical Instruction I $50
Neural Networks $30
Medical Imaging Devices $50
Space Mechanics $40
Soft Computing Tissue Biochemistry $30
Hard Connecting Tissue Biochemistry $40

College of Education

Design and Production of Institutional Material $20
Introduction to Computer-Based Education $20
Seminar in Computer-Based Education $20

Note: Workshops and Special Topics courses offered at a non-credit basis may include fees not listed here. Consult appropriate department for course material and computing fees for those classes.
Refunds

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

Fees Subject to Refund

- Instructional and nonresident surcharge.
- General fee.
- Parking (only if permit is returned).
- Student teaching.
- Laboratory breakage and late service deposit.

Amount of Refund

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

- In full:
  - if the University cancels the course;
  - if the University does not permit the student to enroll or continue;
  - if the student dies before or during the term or is drafted into military service by the United States; or if the student enlisted in the National Guard or Reserves prior to the beginning of the term called to active duty, presents notice of induction or orders to active duty.
  - A student who enlists or orders to active duty. A student who enlists or orders to active duty.
  - See the Student Teaching, Laboratory Breakage and Late Service Deposit section.

- In part:
  - less $5 per enrolled credit to a maximum of $50 if the student requests in writing to the dean or designated official withdrawal from all credit courses on or before the second day of the term.

The student assumes the risk of all changes in business or personal affairs.

College of Business Administration

All graduate-level courses in the College of Business Administration are assessed a $5 fee.

College of Fine and Applied Arts

7100.591  Architectural Presentation I  3   $ 5
7100.592  Architectural Presentation II  3   $ 5
7400.501  Advanced Food Preparation  3   $15
7400.519  History of Furniture and Interiors II  3   $ 5
7400.520  Experimental Foods  3   $15
7400.532  Interns, Textiles, and Product Analysis  3   $10
7400.533  Interior Design I, Residential  3   $10
7400.534  Commercial Design  3   $10
7400.535  Principles and Practices of Interior Design  3   $10
7400.536  Textile Conservation  3   $ 5
7500.553  Music Software Survey and Use  2   $25
7500.613  Instructional Programming in Music for the Microcomputer  3   $25
7600.566  Audio and Video Editing  3   $10
7700.641  Amplification  3   $10
7700.650  Advanced Clinical Practicum: Differential Diagnosis  1   $10
7700.651  Advanced Clinical Practicum: Voice  1   $10
7700.652  Advanced Clinical Practicum: Fluency  1   $10
7700.654  Advanced Clinical Practicum: Diagnostic Audiology  1   $10
7700.655  Advanced Clinical Practicum: Articulation  1   $10
7700.656  Advanced Clinical Practicum: Language  1   $10
7700.657  Advanced Clinical Practicum: Rehabilitation Audiology  1   $10

Note: Workshops and Special Topics courses offered on a rotation basis may include fees not listed here. Consult appropriate department for course material and computing fees for those classes.

Commencement

Students earning graduate degrees are expected to participate in the commencement exercises. A degree candidate who has legitimate reasons for graduating "in absentia" should make a written request to the registrar within the established dates and pay the designated fee.

Students must apply to graduate in advance of completing degree requirements. Applications are filed with the Graduation Office which observes the following deadlines:

- Spring graduation: September 15
- Fall graduation: May 15

Financial Assistance

The University awards a number of graduate assistantships to qualified students. Assistantships are normally awarded for up to two years of master's study and up to four years of doctoral degree study. These assistantships provide stipends of $5,000 to $18,000 plus remission of tuition and fees and are available in all departments with graduate degree programs. A graduate assistant renders service to the University through teaching, research and other duties. For information and/or applications, contact the head of the department. Tuition scholarships are also available on a limited basis in some departments.

A number of fellowships sponsored by industry and government agencies are available in some departments. Stipends range up to $13,000. For information, contact the head of the department.

Information about student loans can be obtained from the Office of Student Financial Aid.

Additional information concerning financial aid policies is available in the Graduate Assistant Handbook which can be obtained from the Graduate School.

*If the 7th, 12th, 17th, 22nd, or 33rd day falls on a Friday, Saturday or a holiday, the deadline will become the next business day.
Academic Requirements

MASTER'S DEGREE REQUIREMENTS

Admission

When a student is admitted to graduate study, an advisor is appointed by the head of the major department. A student who is academically qualified in general but deficient in course preparation may be required to make up the deficiencies at the postbaccalaureate level. This may be recommended prior to beginning graduate work, or in some cases, can be done simultaneously.

Residence Requirements

There are no formal residence requirements for the master’s degree. A student may meet the degree requirements of the Graduate School and the department through either full- or part-time study.

Continuous Enrollment Requirements

There is no formal Graduate School continuous enrollment requirement for the master’s degree. Individual master’s programs, however, may require continuous enrollment. Students should consult their advisors about this requirement.

Time Limit

All requirements must be completed within six years after beginning graduate-level coursework at The University of Akron or elsewhere. Extension by up to one year may be granted in unusual circumstances by the dean of the Graduate School upon written request by the student and recommendation by the advisor and department head.

Credits

A minimum of 30 semester credits of graduate work is required in all master’s degree programs. This includes thesis credit. Some departments require more (see departmental requirements). A minimum of two-thirds of the total graduate credits required in any master’s program must be completed at The University of Akron. A maximum of six workshop credits may be applied to a master’s degree. Such credits must be relevant to the degree program, recommended by the student’s advisor and approved by the dean of the Graduate School.

No graduate credit may be received for courses taken by examination or for credits required in any master’s program must be of a student’s grade point average.

A maximum of six workshop credits may be applied. No graduate credit may be received for courses taken by examination or for credits required in any master’s program must be of a student’s grade point average.

A student seeking to transfer credit must have full admission and be in good standing at The University of Akron and at the school at which the credits were earned. Transfer credit shall not be recorded until a student has completed 12 semester credits at The University of Akron with a grade-point average of 3.00 or better. Transfer credits from other institutions shall not be computed as part of a student’s University of Akron grade point average.

Optional Department Requirements

Each department may set special requirements with regard to entrance examinations, qualifying examinations, foreign language, required courses and thesis. Details are available from the head of the major department.

Advancement to Candidacy

A student should apply for advancement to candidacy after completion of one-half of the credits required for the degree in his or her program. A student must be fully admitted and in good standing to be advanced to candidacy.

Advancement to Candidacy forms must be submitted no later than May 15 for the January commencement and no later than September 15 for the May commencement. These forms are available in the office of the Dean of the Graduate School or in the academic department.

Graduation

To be cleared for graduation, a candidate must have completed coursework with a minimum average of 3.00; been advanced to candidacy; filed an application for graduation with the registrar; paid all applicable fees; and met any other department and University requirements applicable.

If a thesis is required, two copies, properly prepared, are due in the Graduate School at least three weeks prior to commencement. These copies must be signed by the advisor, faculty reader, department head, and college dean prior to submission to the dean of the Graduate School. A manual entitled Preparing a Thesis or Dissertation is available in the Graduate School and all copies of the thesis must conform to these instructions.

DOCTORAL DEGREE REQUIREMENTS

A master’s degree is not a prerequisite for the doctorate; however, the first year of study after the baccalaureate will be substantially the same for both the master’s and doctoral student. Some programs admit students to doctoral programs directly after the bachelor’s degree; others require a master’s degree. No specific number or sequence of courses constitutes a doctoral program or assures attainment of the degree. A formal degree program consists of a combination of courses, seminars and individual study and research that meet the minimum requirements of the Graduate School and those of the committee for each individual student.

Admission

Usually, a student is not officially considered as a doctoral student until completion of a master’s program or its equivalent and approval for further study. Departments offering doctoral degree programs review each candidate carefully before recommending admission.

A minimum grade-point average of 3.00 is required for graduation of a candidate for all doctoral degrees.

Residence Requirements

A doctoral student may meet the degree requirements of the Graduate School and department by full-time study or a combination of full- and part-time study.

The minimum residence requirement for a doctoral candidate in all programs is at least two consecutive semesters of full-time study and involvement in departmental activities. Full-time study is defined as 9-15 semester credits, except for graduate teaching and research assistantships for whom full-time study is specified by the assistantship agreements. The summer sessions may count as one semester, provided that the candidate is enrolled for a minimum of 10 consecutive weeks of full-time study and for a minimum of six semester credits per five-week session. Individual programs may have additional residence requirements such as credits or courses to be completed, proper time to fulfill the residence requirement, and the extent to which a resident may hold outside employment.

Before a doctoral student begins residency, the student’s advisor and the student shall prepare a statement indicating the manner in which the residence requirement will be met. Any special conditions must be detailed and will require approval of the student’s committee, the department faculty members approved to direct doctoral dissertations, the collegiate dean and the dean of the Graduate School.

The doctoral program in engineering is an interdisciplinary program offered on a collegiate basis. In the descriptions of university doctoral degree requirements on the following pages, citations of department or departmental faculty should be interpreted as citations of college or collegiate faculty with specific reference to the doctoral program in engineering.
Continuous Enrollment Requirements

All students admitted to doctoral programs must register for a minimum of one graduate credit as approved by their advisors during each Fall and Spring semester. Individual departments may exceed this minimum requirement. Doctoral students shall consult their advisors about additional requirements. Master's programs may require continuing enrollment. Students should consult their advisors about this requirement.

Time Limit

All doctoral requirements must be completed within 10 years of starting coursework at The University of Akron or elsewhere. This refers to graduate work after receipt of a master's degree or the completion of 30 semester credits. Extensions of up to one year may be granted by the dean of the Graduate School under unusual circumstances.

Credits

A doctorate is conferred in recognition of high attainment and productive scholarship in some special field of learning as evidenced by the satisfactory completion of a prescribed program of study and research; the preparation of a dissertation based on independent research; and the successful passing of examinations covering the special field of study and the general field of which this subject is a part. Consequently, the emphasis is on mastery of the subject rather than a set number of credits. Doctoral programs generally encompass the equivalent of at least three years of full-time study at the graduate level. A minimum of 50 percent of the total credits above the baccalaureate required in each student's doctoral program must be completed at the University. A maximum of six workshop credits may be applied to a doctoral degree. Such credits must be relevant to the degree program, recommended by the student's advisor and approved by the dean of the Graduate School.

No graduate credit may be received for courses taken by examination or for 500-numbered courses previously taken at the 400-number course level as an undergraduate without advance approval from the dean of the Graduate School.

Transfer Credits

Up to 50 percent of the total credits above the baccalaureate required in a doctoral program may be transferred from accredited colleges or universities. Departments and colleges may set more restrictive limits. The credits must be relevant to the student's academic program as determined by the student's academic department and must fall within the 10-year limit to complete degree requirements beyond the master's degree. All credits transferred must be at the "A" or "B" level in graduate courses.

Credits transferred may come from a prior degree. No more than thirty semester credits may be transferred from a single master's degree. Credits earned in prior or concurrent programs at The University of Akron shall be treated in the same manner as credits earned elsewhere. A University of Akron student who seeks to enroll in courses elsewhere for transfer credit here must receive prior approval.

A student seeking transfer credit must have full admission and be in good standing at The University of Akron and at the school at which the credits were earned. Transfer credit shall not be recorded until a student has completed 12 semester credits at The University of Akron with a grade-point average of 3.00 or better. Transfer credits from other institutions shall not be computed as part of a student's University of Akron grade point average.

Language Requirements

There is no University-wide foreign language requirement for the Ph.D. The student is required to demonstrate one of the following skills depending upon the particular program:

- Plan A: Reading knowledge, with the aid of a dictionary, of two approved foreign languages. At the discretion of the major department an average of "B" in the second year of a college-level course in a language will be accepted as evidence of proficiency in reading knowledge for that language. English may be considered as one of the approved foreign languages for a student whose first language is not English, and demonstrated competence in a research technique (e.g., statistics and/or computers) may be substituted for one of the two foreign languages. Under the last option, each department should define competence and publicize.

- Plan B: Comprehensive knowledge of one approved foreign language, including reading without the aid of a dictionary and such additional requirements as the department may impose.

- Plan C: In certain doctoral programs (counseling and guidance, elementary education, engineering, psychology, secondary education, urban studies) the demonstration of competence in appropriate research skills may serve as a substitute for the foreign language requirements.

Optional Department Requirements

Each department may determine requirements for a doctoral student with regard to entrance examinations, qualifying examinations, preliminary or comprehensive examinations and course sequences.

Advancement to Candidacy

A student should apply for advancement to candidacy after completion of one-half of the credits required for the degree in his or her program. A student must be fully admitted and in good standing to be advanced to candidacy. Advancement to Candidacy forms must be submitted no later than May 15 for the January commencement and no later than September 15 for the May commencement. These forms are available in the office of the dean of the Graduate School or in the academic department.

Dissertation and Oral Defense

The ability to do independent research and demonstrate competence in scholarly exposition must be demonstrated by the preparation of a dissertation on some topic related to the major subject. It should represent a significant contribution to knowledge, be presented in a scholarly manner, reveal the candidate's ability to do independent research and indicate experience in research techniques. A doctoral dissertation committee supervises and approves the dissertation and administers an oral examination upon the dissertation and related areas of study. This examination is open to the graduate faculty. The dissertation and oral examination must be approved by the committee before the dissertation is submitted to the Graduate School. Two copies of the dissertation are due in the Graduate School at least three weeks prior to commencement. These copies are available in the office of the dean of the Graduate School.

A manual titled Guidelines for Preparing a Thesis or Dissertation is available in the Graduate School and all copies of the dissertation must conform to these instructions.

Graduation

To be cleared for graduation, a candidate must have completed the academic program with a grade-point average of at least 3.00; been advanced to candidacy; submitted an approved dissertation and passed an oral examination; filed an application for graduation with the registrar; paid all applicable fees; and met any other department and University requirements.
Buchtel College of Arts and Sciences

Claiborne E. Griffin, Ph.D., Dean
William H. Beyer, Ph.D., Associate Dean
William A. Francis, Ph.D., Associate Dean
Randall H. King, Ph.D., Associate Dean

DOCTOR OF PHILOSOPHY DEGREE

The following programs leading to the Doctor of Philosophy degrees are offered in the Buchtel College of Arts and Sciences: the Doctor of Philosophy in Chemistry, the Doctor of Philosophy in Counseling Psychology, the Doctor of Philosophy in History, and the Doctor of Philosophy in Psychology. The Doctor of Philosophy in Sociology is offered jointly with Kent State University and the Doctor of Philosophy in Urban Studies with Cleveland State University.

Doctor of Philosophy in Chemistry

The Doctor of Philosophy in Chemistry is granted for high scholarly achievement in analytical, inorganic, organic, physical or biochemistry. Students with either a baccalaureate or master’s degree may be admitted to the program. They must satisfy the following requirements to receive the degree:

- Complete a course of study designed in consultation with an adviser or advisory committee including:
  - Completion of at least 90 credits beyond the baccalaureate degree including 24 credits of appropriate coursework.
  - Complete monthly cumulative exam requirement.
  - Complete oral exam requirement.
  - Complete seminar requirement.
  - Defend dissertation in an oral examination.
  - Complete all general requirements for the doctor of philosophy degree.

Doctor of Philosophy in Counseling Psychology

The University of Akron offers a doctoral program in Counseling Psychology. The program allows the student a choice of entry points through the Psychology Department of the Buchtel College of Arts and Sciences or through the Counseling and Special Education Department of the College of Education. Students in both departments are expected to attain a level of broad scientific competence in the core areas of psychology: the biological, social, cognitive-affective, and individual bases of human behavior. Practicum and internship experiences are also required of all students and range from skill building in basic psychological assessment and counseling, to actual work with clients, to a year-long, full-time internship in an applied service setting. Pertinent information regarding the emphasis, orientation, and coursework for the Psychology Department entry is included below. Students receive exposure to both colleges through shared coursework and faculty involvement with dissertations but must choose a specialization in one department. The Collaborative Program in Counseling Psychology is accredited by the American Psychological Association.

The Department of Psychology offers a five-year Counseling Psychology program leading to a doctoral degree and, in general, is geared toward students who hold a B.A. in psychology. Program emphasis is strongly placed on a scientist-practitioner model of training. Beyond the basic core areas of psychology, students are expected to establish specific competencies in these areas of theory, research, and practice of Counseling Psychology. Academic preparation includes theories of individual and group psychotherapy, psychodiagnostic assessments, vocational development theory, intelligence testing, research and statistics, and professional issues. Research and publication are greatly encouraged. Graduates typically seek out academic teaching, research and training positions, as well as positions in counseling centers and other mental health agencies.

Admission to the Collaborative Program in Counseling Psychology is handled through the department associated with the student’s chosen entry point. Students must fulfill both Departmental and Graduate School admission requirements. Departures from the described program for Psychology Depart-

ment entry may be made only with the approval of the counseling psychology program faculty.

Requirements

The curriculum reflects the interdepartmental blend of the Collaborative Program in Counseling Psychology. Electives and other classes are to be planned along with the student’s adviser.

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology core courses (610, 620, 630, 640)</td>
<td>16</td>
</tr>
<tr>
<td>Counseling psychology core courses (655, 701, 711, 712, 713, 714, 715)</td>
<td>30</td>
</tr>
<tr>
<td>Practicum sequence (671, 672, 673, 705 (4+4), 796 (4+4))</td>
<td>28</td>
</tr>
<tr>
<td>Advanced Psychological Tests and Measures (750)</td>
<td>4</td>
</tr>
<tr>
<td>Electives (minimum)</td>
<td>6</td>
</tr>
<tr>
<td>A statistics sequence that may be substituted for the doctoral language requirement</td>
<td>16</td>
</tr>
<tr>
<td>Thesis credits (minimum)</td>
<td>8</td>
</tr>
<tr>
<td>Dissertation credits (minimum)</td>
<td>12</td>
</tr>
</tbody>
</table>

- The comprehensive written examination is prepared, administered and graded by the faculty of the department in which the student is enrolled. At least one faculty member from each department participates in the oral portion of the comprehensive examination.
- Dissertation — at least one faculty member from each department is required on the student’s dissertation committee.
- Internship — 2,000 hours postmaster’s with 1,600 hours over no more than two years. The internship site must be approved in advance by the Collaborative Program Internship Committee.
- Students must attain a 3.50 GPA in the psychology core or perform satisfactorily on the core mastery examination in order to be eligible for M.A./Ph.D. standing in the Department of Psychology.

Doctor of Philosophy in History

The Doctor of Philosophy in History is granted primarily for high scholarly achievement in four fields of study selected by the student and for demonstrated ability to pursue independent research. Each student must:

- Fulfill admission requirements of the School.
- Complete a course of study designed in consultation with an adviser or advisory committee.

The Graduate Committee of the History Department will consider an applicant for admission if a person has a Master’s degree or the equivalent and a grade-point average of 3.3 or better at the M.A. level from an accredited institution. Those holding a Master’s degree from The University of Akron or other accredited institution should not assume that they will automatically be admitted to doctoral studies. In addition to the application made to the Graduate School of The University of Akron, the student must submit the History Department the following materials:

- A personal statement of reasons for wishing to undertake doctoral study and the fields of study the student wishes to pursue;
- Three letters of recommendation from former professors;
- A writing sample, preferably a seminar paper or other comparable scholarly work;
- Scores on the Graduate Record Examination, General Aptitude Test;
- Evidence of a reading knowledge of one foreign language or knowledge of an acceptable cognate field. Those whose native language is not English must demonstrate proficiency in English.

The History Department does not encourage applications for the doctoral program from students who have received both B.A. and M.A degrees from The University of Akron. Special circumstances may warrant consideration, however, and the Graduate Committee reserves the right to judge applications on their own merit.

- Complete studies selected by the student in consultation with an advisory committee, including:
  - Completion of 60 credits beyond master’s degree requirements, including dissertation credit. Courses at the 500-level in the student’s major and dissertation fields will not be counted toward the degree, and only 9 hours of 500-level courses in the student’s secondary fields will be counted;
  - Demonstration of competency in four fields of study selected from the following areas: ancient, medieval, modern Europe to 1750, modern Europe since 1750, England and the Empire, United States 1867 to present, Latin America, Far East, and history of science. Further, students will be required to sit for examinations in three fields chosen from the above list. They will be examined in a fourth field as well, a specialty or sub-topic falling within one of the general fields listed above. The fourth field will be designed by the student and the student’s adviser in consultation with the student’s doctoral committee and the Graduate Committee of the History Department. The student’s dissertation will fall within this fourth field;
  - Satisfactory performance in written and oral comprehensive examinations;
  - Defense of the dissertation in an oral examination.
Doctor of Philosophy in Psychology

The Department of Psychology offers a doctoral degree in psychology with specialization in either industrial/organizational psychology, applied cognitive aging psychology, or industrial gerontological psychology.

A degree will be awarded to a student who, besides fulfilling the general requirements, has met the following specific requirements:

- Fulfill admission requirements of the Graduate School and department requirements as follows:
  - completion of master's degree including 30 graduate credits;
  - completion of master's core courses or equivalent;
  - attainment of a graduate grade point average (GPA) of 3.25;
  - completion of Graduate Record Examination Aptitude and Advanced Psychology Test;
  - securing of three letters of recommendation;
  - Mastery of M.A. core courses with a minimum 3.50 GPA in 3750:610, 620, 630, 640 or successful performance on core mastery examination.
- Major field:
  - a minimum of 90 graduate credits including a 30-credit master's program. A student may be required to complete additional credits beyond the 90 minimum credit requirement;
  - completion of Ph.D. core courses in the student's specialty area: industrial/organizational, applied cognitive aging, or industrial gerontological psychology. Core courses are specified in the Department of Psychology Graduate Student Manual. The student is required to maintain at least a 3.00 GPA in core courses and overall coursework;
  - completion of additional required and elective courses to be planned in conjunction with the student's faculty adviser and subject to approval by the department, industrial/organizational, applied cognitive aging, industrial gerontological committees.
- Written comprehensive examinations:
  - satisfactory performance on doctoral written and oral comprehensive examinations in the student's major area of industrial/organizational psychology, applied cognitive aging, industrial gerontological psychology (refer to the department's graduate student manual).
- Dissertation research:
  - completion of 3750:999 Dissertation Research; (minimum 12 credits)
  - satisfactory performance on final oral examination and defense of dissertation research.
- Other requirements:
  - refer to the department's graduate student manual for other requirements or guidelines;
  - complete and fulfill general doctoral degree requirements of the Graduate School.

Doctoral language requirements or appropriate alternative research skills and techniques may be prescribed by the student's advisory committee, depending upon the career plans of the student and upon the academic and/or scientific requirements of the dissertation.

Doctor of Philosophy in Sociology

The University of Akron and Kent State University departments of sociology offer a joint program leading to the Ph.D. degree. Faculty and students engaged in the joint doctoral program are for all intents and purposes involved in a single graduate program. Course work is offered at both campuses and faculty and students interchange freely.

Admission to the Program

A student may apply with a completed master's degree or equivalent or after at least one year of full-time course work or equivalent (18 credits) in the sociology master of arts program at The University of Akron. The course work must include the master of arts core sequence. Scores from either the Miller Analogies Test (MAT) or the aptitude portion of the Graduate Record Examination (GRE) are required as part of the doctoral application. Admission is limited to students whose records clearly indicate both scholarly and research potential.

Degree Requirements (for a student admitted with the master's degree or equivalent)

In addition to meeting the general requirements of the Graduate School, a student working toward the Doctor of Philosophy in Sociology must meet the following requirements:

- Take two of the following courses, such courses not to count toward meeting specialization requirements:
  - 3850:631 Social Psychology
  - 3850:645 Social Organization
  - 3850:687 Social Change
  - 3850:747 Urban Sociology

- Take two doctoral-level courses in theory. These courses are to be selected from the predetermined group of courses (see Department of Sociology Graduate Student Handbook).
- Complete two doctoral-level courses in methods/statistics. These courses are to be selected from the predetermined group of courses (see the department's graduate student handbook).
- Complete a specialty of at least 15 credits.
- Complete a minimum total of 30 credits (semester) in course work.
- Pass the doctoral comprehensive examination. This examination is given in the specialty area and will include an evaluation of methods, theory, and statistics as relevant to the specialty area.
- Fulfill residency requirement of the Graduate School.
- Complete foreign language requirement by one of four sequences as detailed in the department's graduate student handbook:
  - foreign language;
  - computer science;
  - statistics;
  - philosophy.
- Register for a minimum of 30 credits of dissertation credit, complete a dissertation and successfully defend it in an oral examination.

Degree Requirements (for a student admitted without the master's degree)

In addition to meeting the requirements for a student admitted with the master's degree, the student must meet the following requirements:

- Completion of the M.A. core course work.
- Completion of a research practicum (three credits). This may be waived for the student who already has sufficient research experience.
- Completion of a minimum of 60 credits of graduate-level (600 or higher) course work beyond the bachelor's degree.

Doctor of Philosophy in Urban Studies

The Department of Public Administration and Urban Studies of The University of Akron offers a program leading to the Ph.D. in Urban Studies (joint with Cleveland State University). Students admitted to the program may take courses at either campus and all doctoral committees contain members from both universities.

The program is designed to train professionals interested in the areas of policy analysis and evaluation, public administration, and urban and regional planning for university and professional appointments.

Admission

Admission to the Ph.D. Program involves faculty consideration of all of the following criteria which, taken together, present evidence of the likelihood of success in advanced study:

- Grade point average from previous Master's Degree Program. Students will normally not be admitted with a GPA below 3.5. Having a 3.5 GPA, however, is not sufficient, in itself, for admission.
- Graduate Record Examination General Test Scores. The applicant is expected to submit a score on both the verbal and quantitative portions of the GRE.
- Three letters of recommendation from persons familiar with the applicant's recent performance and abilities.
- A sample of the student's written work. Generally, this should be a thesis or final project paper from the student's Master's Program. Students who did not have such a requirement in the Master's Program are free to submit several samples of written work - for example, term papers, professional papers, published articles.
- A personal statement from the applicant detailing area of intended specialization and career aspirations. (Form available in application packet.) A student will be considered for admission only if faculty resources are available in the student's indicated area of specialization.
- Those whose native tongue is not English must also demonstrate proficiency in the English Language by scoring a minimum of 570 on the Test of English as a Foreign Language (TOEFL) and submitting an acceptable score from the Test of Written English (TWE) and a minimum score of 220 on the Test of Spoken English (TSE).

A student may be required to appear before the Doctoral Committee before a decision is made on admission to the Program.
The program is primarily for the student who wishes to work in a particular sciences.

• Master of Science

  • The major must be taken from one of the following specialties: political science, economics, geography, geology, and urban studies. Before entering the program, the student must show that they have completed a minimum of 30 credits of coursework, 18 of which are at the 600 level.

  • Students must pass written and oral comprehensive examinations on the quantitative core courses and on their area of specialization.

  • A minimum of 63 credits beyond the master’s degree is required. At least 48 hours of course work, and 15 hours of dissertation.

### Degree Requirements

The Ph.D. Program in Urban Studies has a required core of four courses consisting of two courses in advanced quantitative methods and two courses in urban theory. In addition, students must complete a major consisting of 24 credit hours (eight courses); and a minor consisting of 12 credits (four courses). The major must be taken from one of the following specialties: policy analysis and evaluation, public administration, and urban and regional planning. The minor consists of an integrated set of courses offering a specialization in either a set of methodological tools such as advanced statistics, a body of theory, or an area of application such as health policy.

The doctoral major and minor can be completed through a combination of required courses, elective courses, and tutorials. The tutorials allow students to work in close cooperation with an individual faculty member to pursue research interests shared by the student and the faculty member.

Students must pass written and oral comprehensive examinations on the quantitative core courses and on their area of specialization.

A minimum of 63 credits beyond the master’s degree is required. At least 48 hours of course work, and 15 hours of dissertation.

### MASTER’S DEGREE

Programs of advanced study leading to the master’s degree are offered by the departments of biology, chemistry, economics, English, geography, geology (earth science), history, mathematical sciences, modern languages (Spanish), physics, political science, psychology, sociology, and urban studies. Before under-taking such a program, the student must show that the general requirements for admission to the Graduate School have been met, and the standard requirements for an undergraduate major in the area of the proposed graduate specialty have been met or that the student has performed work which the department approves as equivalent to an undergraduate major.

### Biology

**Admission Requirements**

- Possess the equivalent of a biology undergraduate major with a GPA of 3.00 or higher in biology courses.
- Submit three letters of recommendation.
- Submit scores for Graduate Record Examination (aptitude and advanced biology tests).
- Submit a letter of proposed area of specialization within biology.
- Non-active speakers of English must submit a TSE score of 220 or above.

**Master of Science**

**Thesis Option**

The program is primarily for the student who wishes to pursue a research career, including the student who intends to enter a doctoral program in the biological sciences.

- Course work in addition to the master’s research and seminars (must be approved by the student’s advisory committee) — 24 credits.
- Research and thesis — minimum of 12 credits.

- Participation in seminars — a maximum of four credits.
- The student’s advisory committee may require the demonstration of reading proficiency in a foreign language appropriate to the field of study.

A minor may be taken in approved graduate courses including education. Summer study at a biological station is available.

**Nonthesis Option**

This program is designed exclusively for secondary school teachers for whom the M.S. probably will be a terminal degree and who do not need research experience. The program is open only to applicants possessing a teaching certificate or those coregistering with the College of Education and showing normal progress towards qualifying for a certificate.

The requirements are the same as the research option except that no thesis and research is undertaken, but a total of 40 credits of approved course work (including a maximum of four credits for seminar participation) is required.

For additional details concerning admission standards, degree requirements and selection of options, refer to the Department of Biology Graduate Student Guide.

### Chemistry

**Master of Science**

- Chemistry course work — with the approval of the adviser, up to 12 credits may be taken in related areas — 24 credits.
- Research and thesis — six credits.
- Participation in departmental seminars.
- Demonstration of reading proficiency in a foreign language appropriate to the field of study prior to the last semester of enrollment.

### Economics

**Master of Arts**

**Thesis Option**

A minimum of 30 credits of course work including a thesis equivalent to six credits is required. At least 21 credits must be at the 600 level in economics. Thesis must be written in an area of specialization in which the individual has taken at least two courses.

**Nonthesis Option**

A minimum of 30 credits of course work is required. At least 21 credits must be at the 600 level in economics. The individual must also specialize in an area.

**Required Courses for both options:**

- 3250.602 Macroeconomic Analysis I
- 3250.611 Microeconomic Theory I
- 3250.620 Applications of Mathematical Models to Economics*
- 3250.626 Statistics for Economics*

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*These courses may be waived for the student who can demonstrate, in a qualifying exam, an adequate preparation in mathematics and statistics.
The student who has undergraduate deficiencies in cartography, geographic research techniques and spatial analysis will be expected to remedy these by taking appropriate courses with the advice of the head of the department. Courses taken outside the department must be approved by the department prior to enrollment.

**Master of Arts**  
(geography/Urban Planning)

- A total of 45 credits of coursework (plus internship where applicable) as follows:
  - Core requirements:
    - 3990:600 Basic Analytical Research 3
    - 3990:601 Advanced Research and Statistical Methods 3
    - 3990:602 American Urban Development 3
    - 3980:600 Urban Studies Seminar 3
  - Planning requirements:
    - 3350:536 Urban Land Use Analysis 3
    - 3350:640 Introduction to Planning Practice and Theory 3
    - 3350:631 Urban Facilities Planning 3
    - 3350:632 Land Use Planning Law 3
    - 3350:637 Field Methods in Urban and Regional Planning 3
    - 3350:638 Implementation of Planning Techniques 3
    - 3980:670 Planning Research 3
    - Electives ** 12

**Geology**

**Master of Science**

- Complete a minimum of 30 credits of which at least 10 credits shall be at the 600 level and no more than two in research studies.
- Proficiency examination at the beginning of the program to determine weaknesses in undergraduate preparation. The student who demonstrates a lack of basic knowledge will be required to take appropriate undergraduate courses. The student may not begin formal thesis work until he/she has successfully passed the proficiency examination and has corrected deficiencies from same. (Normal thesis work includes thesis proposal and/or thesis research credits). Field camp can be taken for graduate credit; however, it will not count toward the 30 credits for the M.S. in the geology or geophysics options.
  - Core requirements:
    - 3370:690 Seminar in Geology 2
    - 3370:699 Thesis Research 6
  - Pass comprehensive examination after completion of 18 credits. Examination may be attempted twice.
  - Oral presentation and defense of thesis.

**Degree Specialization**

The program of each individual will be adapted to his/her career objectives.

**Geology**

Equivalents of the current geology, cognate science and mathematics requirements for the University's B.S. in geology are required.

**Earth Science**

Equivalents of the current geology courses for the University's B.A. in geology are required. Course program will be selected to provide the student with a well-rounded background in lithosphere, hydrosphere and atmosphere. Those who will be teachers must take 5300:780 Seminar in Secondary Education: Earth Science or equivalent.

**Geophysics**

Equivalents of the geology, cognate science and mathematics requirements for the University's B.S. in geophysics are required.

**Engineering Geology**

This program is for the graduate engineer and geologist who wishes to broaden expertise in the other field. The entering student who has some deficiencies in either engineering or geology may have to satisfy one or more of the following requirements while proceeding with graduate studies.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3370:101</td>
<td>Introductory Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>3370:210</td>
<td>Geomorphology</td>
<td>3</td>
</tr>
<tr>
<td>3370:350</td>
<td>Structural Geology</td>
<td>4</td>
</tr>
<tr>
<td>3450:221,221,221</td>
<td>Analytical Geometry Calculus I, II, III</td>
<td>12</td>
</tr>
<tr>
<td>4330:201</td>
<td>Structures</td>
<td>3</td>
</tr>
<tr>
<td>4330:202</td>
<td>Introduction to Mechanics of Solids</td>
<td>3</td>
</tr>
<tr>
<td>4330:313</td>
<td>Soil Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>4330:314</td>
<td>Geotechnical Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

* Internship
3980:695 or 3350:685 (Required of students who do not have professional planning experience).

** Four elective courses totaling 12 credits or more should be selected in consultation with the faculty adviser.
History

Master of Arts

- Students applying for admission to the M.A. program must have a minimum undergraduate grade-point average of 3.0. The applicant's average in history courses should be substantially higher. Applicants must also have completed at least 24 semester or 36 quarter hours in history courses at the undergraduate level. An application to the M.A. program consists of the following:
  - an application form;
  - a letter of intent, stating the applicant's reasons for wishing to pursue graduate study and the fields of history which the applicant intends to study;
  - scores on the Graduate Record Examination, General Aptitude Test;
  - a writing sample, preferably a research paper from a history class;
  - three letters of recommendation, preferably from faculty who know the applicant well.
- Applicants whose native language is not English must also score at least 580 on the Test of English as a Foreign Language (TOEFL), at least 240 on the Test of English as a Spoken Language (TESL), and take the Test of Written English (TWE).

Degree requirements include:
- Satisfactory completion of a minimum of 30 credits of graduate study in history, of which only six may be in individual reading.
- Concentrated study of three fields, two of which must be chosen from the following:
  - Ancient History
  - Medieval History
  - Europe, Renaissance to 1750
  - Europe 1750 to the Present
  - England and the Empire
  - East Asia
  - History of Science
  - History of Mathematics
- The third field must be chosen from the above history fields or from an approved cognate discipline.
- The student must pass written examinations in two of the three fields. The third field requirement will be met by at least seven credits of coursework at the graduate level, completed with a GPA of 3.0.
- 3400:680 Historiography
- Twenty-three hours of 600-level coursework, at least 16 credits of which must be in seminars. Seminars must be chosen to satisfy one of the following options.

Option I
Three reading seminars and one writing seminar, with the writing seminar paper read and approved by two faculty members.

Option II
Two reading and two writing seminar sequences under different professors with the writing seminar paper of the student's choice read and approved by two faculty members.

Option III
Two reading seminars, one writing seminar, and a thesis read and approved by two faculty members.

Mathematical Sciences

Master of Science - Mathematics

Completion of a placement process prior to the beginning of classes in the student's first semester in the program. This process will consist of a review by a graduate faculty subcommittee of the student's competency in Advanced Calculus I and II (3450:521, 2) and Abstract Algebra I (3450:511). If the student fails any part of this review, then that course will be added to the required courses for the student and the total number of credits required for the degree will reflect this.

- Core:
  - Two of the following courses:
    - 3450:510 Advanced Linear Algebra 3
    - 3450:512 Abstract Algebra II 3
    - 3450:611 Topics in Algebra 3

- And all of the following courses:
  - 3450:621 Real Analysis 3
  - 3450:622 Measure Theory 3
  - 3450:625 Analytic Function Theory 3
  - 3450:699 Mathematical Sciences Seminar 2

Thesis Option (30-39 credits)
In addition to the placement review and course requirements, 9-11 credits of 500/600-level courses in mathematics (3450), statistics (3460), or approved computer science (3460), and 2-4 credits in 3450:699 Thesis Research must be completed. Any graduate-level course may be substituted as an elective provided that this is approved beforehand by the student's advisory committee.

Nonthesis Option (33-42 credits)
In addition to the placement review and core requirements, 16 credits of 500/600-level courses in mathematics (3450), statistics (3460) or approved computer science (3460) must be completed. Any graduate-level course may be substituted as an elective provided that this is approved beforehand by the student's advisory committee.

Successful completion of the comprehensive examinations in the two courses selected from among 3450:510, 512 or 611 and in the courses 3450:621, 622, and 625.

Master of Science - Statistics

- Entrance into the program will require the initial completion of the following prerequisites:
  - 3470:515 Applied Statistics I, four credits; or equivalent,
  - 3470:515 Math Concept for Statistics, four credits, or 3450:521, 522 Advanced Calculus I, II, three credits each, or equivalent.
- Core curriculum:
  - 3470:661 Probability and Statistics 4
  - 3470:662 Advanced Mathematical Statistics 3
  - 3470:663 Linear Models 3
  - 3470:665 Experimental Design 3
  - 3450:665 Regression and Correlation 3
  - 3450:692 Mathematics and Statistics Seminar 2

Thesis Option (30 credits of graduate work)
In addition to the core curriculum, 6-10 credits in 500/600-level mathematical sciences courses and 2-4 credits in 3470:699 Thesis Research must be completed.

Nonthesis Option (33 credits of graduate work)
In addition to the core requirements, 15 credits in 500/600-level mathematical sciences courses must be completed.
- A comprehensive examination, taking the form suggested by the department, must be completed in the thesis or non-thesis option.
- With the consent of the department, up to six credits of approved graduate-level electives outside the department may be substituted in the thesis or non-thesis option.

Master of Science - Applied Mathematics

Option I
Completion of a placement process prior to the beginning of classes in the student's first semester in the program. This process will consist of a review by a graduate faculty subcommittee of the student's competency in Advanced Calculus I and II (3450:521, 2) and of his or her background in at least one junior-level or higher course in engineering or physics. If the student fails any part of this review, then that course will be added to the required courses for the student and the total number of credits required for the degree will reflect this.

- Core:
  - 3450:510 Advanced Linear Algebra 3
  - 3450:621 Real Analysis 3
  - 3450:625 Analytic Function Theory 3
  - 3450:627 Advanced Numerical Analysis I, II 6
  - 3450:633 Methods of Applied Mathematics I, II 6
  - 3450:692 Mathematical Sciences Seminar 2

Thesis Option (30-39 credits)
In addition to the placement review and core requirements, three to five credits of approved 500/600 level courses in mathematics (3450), statistics (3460), or computer science (3460), and two to four credits in 3450:699 Thesis Research must be completed. Any graduate-level course may be substituted as an elective provided that this is approved beforehand by the student's advisory committee.

Nonthesis Option (33-42 credits)
In addition to the placement review and core requirements, ten credits of approved 500/600 level courses in mathematics (3450), statistics (3460), or computer science (3460), must be completed. Any graduate-level course may be substituted as an elective provided that this is approved beforehand by the student's advisory committee.
Successful completion of the Comprehensive Examination in the courses 3450:621, 625, 627, 633 and 634.

**Option II**

Completion of a placement process prior to the beginning of the student's first semester in the program is required. This process will consist of a review by a Graduate Faculty subcommittee of the student’s competency in Advanced Calculus I and II (3450:521-522) and Mathematical Models (3450:536). If the student fails any part of this review, then that course will be added to the required courses for the student and the total number of credits required for the degree will reflect this.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3450:510 Advanced Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>3450:621 Real Analysis</td>
<td>3</td>
</tr>
<tr>
<td>3450:627 Advanced Numerical Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>3450:635 Optimization</td>
<td>3</td>
</tr>
<tr>
<td>3450:636 Advanced Combinatorics and Graph Theory</td>
<td>3</td>
</tr>
<tr>
<td>3470:651 Probability and Statistics</td>
<td>4</td>
</tr>
<tr>
<td>3470:652 Advanced Probability and Stochastic Process</td>
<td>3</td>
</tr>
<tr>
<td>3450:652 Mathematical Sciences Seminar</td>
<td>2</td>
</tr>
</tbody>
</table>

**Thesis Option (30-39 credits)**

In addition to the placement review and core requirements, two to four credits of approved 500/600-level courses in mathematics (3450), statistics (3460) or computer science (3460), and two to four credits in 3450:659 Thesis Research must be completed. Any graduate-level course may be substituted as an elective provided that this is approved beforehand by the student's advisory committee.

**Nonthesis Option (33-42 credits)**

In addition to the placement review and core requirements, nine credits of approved 500/600-level courses in mathematics (3450), statistics (3460) or computer science (3460) must be completed. Any graduate-level course may be substituted as an elective provided that this is approved beforehand by the student's advisory committee.

Successful completion of the Comprehensive Examinations in the courses 3450:621, 627, 635, 636 and 3470:651 is required.

**Physics**

**Master of Science**

- Complete a minimum of 30 graduate credits of approved courses in physics. Up to six credits of graduate-level electives outside the department may be included in the program. There is no foreign language requirement for this degree.
- A cumulative grade-point average of 3.00 or better for all graduate-level credits applicable toward the degree.
- Complete an approved program of courses which includes the following required courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3650:512 Advanced Laboratory I, II</td>
<td>4</td>
</tr>
<tr>
<td>3650:615 Electromagnetic Theory I</td>
<td>3</td>
</tr>
<tr>
<td>3650:625 Quantum Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>3650:641 Lagrangian Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>3650:651 Statistical Mechanics</td>
<td>3</td>
</tr>
</tbody>
</table>

  A student preparing for further graduate work in a physical science or for academic or industrial employment should include the following courses in the graduate program:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3650:581.2 Methods of Mathematical Physics I, II</td>
<td>6</td>
</tr>
<tr>
<td>3650:616 Electromagnetic Theory II</td>
<td>3</td>
</tr>
<tr>
<td>3650:626 Quantum Mechanics II</td>
<td>3</td>
</tr>
</tbody>
</table>

  A student preparing for teaching secondary school science should include the following courses in the graduate program:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3650:500 History of Physics</td>
<td>3</td>
</tr>
<tr>
<td>3650:504 Energy and Environment</td>
<td>3</td>
</tr>
<tr>
<td>3650:568 Digital Data Acquisition</td>
<td>2</td>
</tr>
<tr>
<td>3650:590 Workshops (maximum credit)</td>
<td>6</td>
</tr>
</tbody>
</table>

  A student must complete at least one of the following three options:

  **Option A:** A written exam covering the field of physics at the advanced graduate level.

  **Option B:** A formal report, based on an original research project, submitted in a form suitable for publication and approved by a physics faculty committee.

  **Option C:** A master’s thesis.

- Graduate research participation is strongly encouraged. Up to five credits may be earned in 3650:697 Graduate Research, upon the completion of a graduate research project. One additional credit may, upon approval by the department, be permitted in 3650:697 Master’s Thesis Research for the completion of a master’s thesis based on such research. A successful thesis may thus account for up to six of the total of 30 graduate credits required.

**Political Science**

**Master of Arts**

**Admission**

Admission is open to students who have completed a four-year undergraduate degree and who fulfill the admission requirements of the Graduate School. The Graduate Record Examination (GRE) is not required.

The Master of Arts in Political Science allows students to concentrate their study in one of four areas: American Politics, Comparative Politics, International Politics, or Political Theory.

Students may also work toward certificates in Applied Politics and Public Policy in conjunction with their graduate studies.

**Degree Requirements**

- Complete 30 credits of graduate work, including 18 credits at the 600 level.
- Two required core courses:
  - 3700:600 Scope and Theory of Political Science
  - 3700:601 Research Methods in Political Science
  - Three additional departmental seminars - 9 credits (Not Independent Research, Thesis, or Internship is considered a graduate seminar)
  - Three additional credits at the 600 level
  - Twelve additional credits at the graduate level

- Pass a comprehensive written examination covering one field (American Politics, Comparative Politics, International Politics, or Political Theory)
- Complete either of the following:
  - A master's thesis, including six hours of thesis credit (3700:699) in preparation. These credits may be presented as part of the overall 30-credit requirement. Thesis topic and completed thesis must be approved by the student's thesis committee and the student must complete a successful oral defense of the thesis.
  - A nonthesis option, which shall consist of two extended seminar papers approved by a department committee of three persons chosen by the student with the approval of the graduate advisor.

**Psychology**

**Master of Arts**

- Fulfill admission requirements of the Graduate School and the following departmental requirements:
  - equivalent of psychology undergraduate major including a general or introductory course, statistics course, and experimental psychology course;
  - GPA of 3.00 in psychology courses;
  - Graduate Record Examination, Aptitude and Advanced Psychology Test;
  - three letters of recommendation.
- Course requirements:
  - completion of a minimum of 30 credits of graduate psychology courses including the M.A. core courses or equivalents, specialty area required courses, and electives as specified in the department's graduate student manual;
  - a student is required to maintain at least a 3.00 grade-point average in M.A. core courses as well as overall;
  - Master of Arts examination (first year):
    - non-thesis option: written and oral comprehensive examinations in the specialty areas;
  - Other requirements:
    - refer to the Department of Psychology Graduate Student Manual for additional guidelines;
    - complete and fulfill general master's degree requirements of the Graduate School.

**Thesis Option**

Completion of a minimum of 30 credits of graduate work including thesis in industrial/organizational, counseling or applied cognitive aging psychology.

**Nonthesis Option**

Completion of a minimum of 30 credits of graduate work with no thesis required. Completion of coursework, practicum and examinations in either personnel, counseling or applied cognitive aging psychology.
Sociology

Master of Arts

- Complete three required core courses with at least a 3.00 grade-point average:
  - 3850:600 Sociological Research Methods
  - 3850:604 Social Research Design
  - 3850:617 Sociological Theory
- Complete five required core courses with at least a 3.00 grade-point average:
  - 3850:603 Sociological Research Methods
  - 3850:604 Social Research Design
  - 3850:617 Sociological Theory
  - 3850:631 Social Psychology
  - 3850:645 Social Organization
  - 3850:765 Multivariate Techniques in Sociology
- Complete at least six hours of thesis work (3850:699). No more than six credits will count toward the degree.
- Completion of master's thesis and successful oral defense of thesis.

Thesis Option

Satisfactory completion of 32 semester credits of which at least 21 must be at the 600 level or higher in sociology or anthropology (excluding 3850:689, 3850:697 and 3850:698). In meeting these requirements the student must:

- Complete five required core courses with at least a 3.00 grade-point average:
  - 3850:600 Sociological Research Methods
  - 3850:604 Social Research Design
  - 3850:617 Sociological Theory
  - 3850:631 Social Psychology
  - 3850:645 Social Organization
- Complete at least 15 credits in a contracted specialty area. This area must be defined in consultation with the student's adviser and approved by the Graduate School.
- Complete at least six hours of thesis work (3850:699). No more than six credits will count toward the degree.
- Completion of master's thesis and successful oral defense of thesis.

Nonthesis Option

This degree is intended for the student who wants intensive substantive training in a specialized area.

Completion of 32 credits of graduate work with no more than six credits taken at the 500 level. In meeting these requirements the student must:

- Complete four required core courses with at least a 3.00 grade-point average:
  - 3850:603 Sociological Research Methods
  - 3850:604 Social Research Design
  - 3850:617 Sociological Theory
  - 3850:631 Social Psychology
  - 3850:645 Social Organization
- Complete at least 15 credits in a contracted specialty area. This area must be defined in consultation with the student's adviser and approved by the Graduate Studies Committee. Courses from other departments may be taken to meet the specialty requirement.
- Pass an oral examination on the specialty area.

Anthropology

There is no graduate degree in anthropology. However, there are many graduate courses available. A student interested in taking such courses for graduate credit must be admitted to the Graduate School through an existing graduate program, or may apply for non-degree status through the Department of Sociology. The student should enroll in graduate courses only for specific professional preparation or enhancement and with the permission of the instructor. Inquiries should be directed to the graduate director in the Department of Sociology.

Spanish

Master of Arts

- Thirty-two semester credits of graduate work which may include a thesis amounting to four credits.
- Requirement: proficiency level in listening, comprehension, speaking, reading, and writing Spanish.
- Second language requirement: completion of 202 with a grade of at least "B" in another language, or a translation from another language. Choice of the second language will be left to the student in consultation with an adviser.
- Final comprehensive examinations the candidate will be required to submit an essay, and pass an oral exam on the essay.

Urban Studies and Public Administration

Master of Arts in Urban Studies

Courses may be taken outside the Department of Urban Studies for the purpose of fulfilling any of the requirements listed below but must be approved by the department prior to registration.

Each student will, upon entering the program and in consultation with a faculty adviser, plan a complete course of study which includes 15 hours of core and 15 hours of approved electives.

- Core:
  - 3980:600 Basic Quantitative Research
  - 3980:601 Advanced Research and Statistical Methods
  - 3980:602 History of Urban Development
  - 3980:641 Urban Economic Growth and Development
  - 3980:643 Introduction to Public Policy
  - 3980:699 Thesis (optional)

Basic Program

Complete 33 credits of coursework as follows:

- Core — 18 credits
- Electives - 15 credits
- 3 credits of approved electives may be substituted for thesis with approval of academic advisor.

Master of Public Administration (MPA)

The Public Administration Program is specifically designed to prepare the student for a professional career in public administration, as well as the management and administration of non-profit organizations. The program of study is accredited by the National association of Schools of Public Affairs and Administration (NASPAA).

Admission

Admission is open to students who have completed a four year undergraduate degree, whose academic record meets the standards required for admission to the Graduate School. No specific field of undergraduate major is required for admission. The GRE score is not required for admission to the MPA.

Degree Requirements

- The number of graduate credits required for the MPA will be as follows:
  - Master's Degree in Public Administration (plus 3 credits of internship)
  - Core requirements:
    - 3700:670 Seminar in The Administrative Process
    - 3980:600 Basic Quantitative Research
    - 3980:601 Advanced Research and Statistical Methods
    - 3980:602 History of Urban Development
    - 3980:611 Introduction to the Profession of Public Administration
    - 3980:614 Ethics and Public Service
    - 3980:615 Public Organization Theory
    - 3980:616 Personnel Management in the Public Sector
    - 3980:640 Fiscal Analysis
    - 3980:642 Public Budgeting
    - 3980:643 Introduction to Public Policy
    - 3980:699 Thesis (optional)
    - 3850:630 Internship (May be repeated for a total of 3 credits)

Any required course except 3980:690, Urban Studies Seminar, may be waived on the basis of proficiency in the area covered by the course. The criteria for waiver considered by the department are:

- Completion of a comparable course in another department at the University.
- Transfer of course credit in comparable course from another university.
- Proficiency in an area demonstrated by a group of courses or other work done in the area covered by the course.

- Advanced Elective Courses

  - 3250:639 Public Employee Collective Bargaining
  - 3250:666 Seminar in Regional Economic Analysis and Development
  - 3700:633 Seminar in National Politics
  - 3700:641 Seminar in Intergovernmental Relations
  - 3980:599 Workshop
  - 3980:612 National Urban Policy
  - 3980:613 Intergovernmental Management
  - 3980:617 Leadership and Decision Making in Local Government
  - 3980:618 Citizen Participation
  - 3980:620 Social Service Planning
  - 3980:621 Urban Society and Service Systems
  - 3980:622 Health Planning and Public Policy
  - 3980:636 Parks, and Recreation
  - 3980:641 Urban Economic Growth and Development
  - 3980:650 Comprehensive Urban Systems
  - 3980:679 Research for Future Planning
  - 3980:677 Program Evaluation
  - 3980:672 Advanced Urban Futures
  - 3980:675 Computer Applications for Public Organizations
  - 3980:674 Analytical Techniques for Public Administration
  - 3980:680 Selected Topics: Regional Planning
  - 3980:686 Selected Topics: Urban Housing Policy
  - 3980:681 Selected Topics
  - 3980:697 Individual Studies

*Students may take 3250:606 Public Finance and 3250:607 Local Public Finance to fulfill the requirements of 3980:642 Fiscal Analysis and 3980:643 Public Budgeting. Students must, however, take both 3250:606 and 3250:607 or both 3980:642 and 3980:643.

**Students may take either 3980:641 or 3980:643 in lieu of 3980:601. Students may also take either 3980:617 or 3980:630 in lieu of 3980:643.
Joint Programs

Joint Degree Programs in Law and Urban Planning and Law and Public Administration.

The University offers joint J.D. and Urban Planning and J.D. and Public Administration programs. The titles are: J.D./M.A. in Geography/Urban Planning and J.D./M.P.A.

To be accepted into the first program, a student must meet the admission requirements of the School of Law, the Graduate School, and the Department of Geography and Planning.

To be accepted into the second program, a student must meet the admission requirements of the School of Law, the Graduate School, and the Department of Public Administration and Urban Studies.

J.D./Master of Arts in Geography/Urban Planning Degree Requirements

Seventy-six credits in law and 33 credits in urban planning.

Under this program, a student must take 43 credits of required law courses, 32 credits of law electives and 33 credits of required urban planning courses plus internship of one to three credits. (Internship is required of any student without professional planning experience.)

J.D./Master of Public Administration Degree Requirements

Seventy-six credits in law and 30 credits in public administration.

Under this program a student must take 43 credits of required law courses, 32 credits of law electives, and 30 credits of required public administration courses plus an internship of three credits. (Internship is required of any student without professional administrative experience.)

These programs reduce the total existing credit hours of Law School and Urban Planning or Public Administration as follows:

J.D./M.A. Geography/Urban Planning

The law requirements are reduced by nine credit hours from 85 to 76, while urban planning requirements are reduced by 12 credit hours from 45 to 33.

J.D./M.P.A.

The law requirements are reduced by nine credit hours from 85 to 76, while public administration requirements are reduced by 12 credit hours from 42 to 30.
College of Engineering

Nicholas D. Sylvester, Ph.D., Dean
Max S. Wilke, Jr., Ph.D., Associate Dean, Research and Graduate Studies
S. Graham Kelly III, Ph.D., Associate Dean, Undergraduate Studies

DOCTOR OF PHILOSOPHY IN ENGINEERING

The Doctor of Philosophy in Engineering is an interdisciplinary doctoral program offered on a collegiate basis.

Admission Requirements

In addition to the Graduate School's requirements for admission to the doctoral program, an applicant for the Doctor of Philosophy in Engineering must hold a bachelor's degree from a program that is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology at the time of graduation, or provide satisfactory evidence of an equivalent academic background to the dean of engineering and the appropriate departments head.

If a student already holds a master's of science degree, the applicant must provide satisfactory evidence of an equivalent engineering baccalaureate background to the dean of engineering and the appropriate departments head.

Applicants with a bachelor's or master's degree in a discipline other than engineering will be required to complete a specific, formal set of courses as specified by the appropriate department prior to admission to the doctoral program in engineering.

Each applicant must submit official undergraduate transcripts, undergraduate grade point average, at least two letters of recommendation, and official results of the verbal, quantitative, and analytical portions of the GRE. Personal statements or descriptions of post-baccalaureate experiences that provide a rationale for the proposed graduate study may also be submitted.

An applicant with a bachelor's degree must have a cumulative grade point average of at least 3.0. An applicant with a master's degree must have a cumulative graduate grade point average of at least 3.5.

Applicants whose native language is not English must have a TOEFL score of at least 550, and also must submit their score on the Test of Written English (TWE).

A student not satisfying the requirements for Full Admission may be classified as a Provisional Admission or a Deferred Admission.

Doctoral Requirements

In addition to the University's doctoral degree requirement, the student must:

- Pass a departmental Qualifying Examination. The purposes of the qualifying examination are to determine admissibility to the doctoral program and any technical weaknesses.
- Identify an interdisciplinary field of major study, a minor field of study, a dissertation director, and an Interdisciplinary Doctoral Committee.
- Complete a formal plan of study that is acceptable to the Interdisciplinary Doctoral Committee. The plan of study must have at least 48 credits of course work, of which 42 credits must be at the 600 and 700 level. At least 24 of these course credits must be completed at The University of Akron. The minimum total credit hours for the doctoral program is 96 credit hours.
- Satisfy the language requirement specified by the Interdisciplinary Doctoral Committee.
- Pass a Candidacy Examination. The purpose of the candidacy examination is to test the student's ability to conduct independent research.
- Present an acceptable Dissertation Proposal that describes the proposed research to the Interdisciplinary Doctoral Committee.
- Present and defend the dissertation to the Interdisciplinary Doctoral Committee.

A copy of the Interdisciplinary Doctoral Procedures is available from the dean of engineering.

JOINT PROGRAM

Coordination for the M.D. and Ph.D. Between the Department of Biomedical Engineering, The University of Akron and the Northeastern Ohio Universities College of Medicine.

I. Introduction and Purpose

The Department of Biomedical Engineering of The University of Akron and NEOUCOM agree to cooperate to provide a coordinated program for those desiring both the M.D. and Ph.D. degrees. It is recognized that such cooperation is to the benefit of both institutions.

This coordinated program does not change in any way the requirements for either the M.D. at NEOUCOM or the Ph.D. at The University of Akron. The program allows for the timing of requirements to be met in such a manner that a shorter total time would be required for completion of both degrees than if the degrees were completed separately and individually. This program will also help integrate the knowledge and skills acquired by the student in each of the programs.

II. Routes of Admission

1. Entry from undergraduate (or master's level) programs in engineering, biology, chemistry, or other pre-medicine fields into both the M.D. and Ph.D. programs.
2. Entry from the B.S./M.D. program into the M.D. and Ph.D. programs.

All students will be required to have completed the following minimum courses and to have taken the MCAT prior to admission into the coordinated M.D. and Ph.D. programs.

M.D. Ph.D.
Principles of Chemistry I and II
Organic Chemistry I and II
Principles of Biology I and II
Classical Physics I and II
Statics
Dynamics
Strength of Materials (or Material Science)
Basic Electrical Engineering (or Circuits I & II)
Calculus I, II, III and Differential Equations

III. Structure of Degree Programs

Each individual coordinated degree program will be tailored to suit the background and research interests of the student.

Additional information may be obtained from the Department of Biomedical Engineering at The University of Akron or NEOUCOM.

MASTER'S DEGREE

The degrees Master of Science in Chemical Engineering, Master of Science in Civil Engineering, Master of Science in Electrical Engineering, Master of Science in Mechanical Engineering, and Master of Science in Engineering are offered.

Master of Science in Chemical Engineering

Thesis Option

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4200.600</td>
<td>Transport Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>4200.605</td>
<td>Chemical Reaction Engineering</td>
<td>3</td>
</tr>
<tr>
<td>4200.610</td>
<td>Classical Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Chemical Engineering Electives**</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Approved Electives</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Approved Mathematics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

The thesis must be satisfactorily defended in an oral examination. The student must pass a comprehensive examination and is expected to attend and participate in the department's seminar program.

**The elective chemical engineering courses may not include more than three credits of 500-level courses.**
**Nonthesis Option**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4200:600 Transport Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>4200:605 Chemical Reaction Engineering</td>
<td>3</td>
</tr>
<tr>
<td>4200:610 Chemical Engineering Electives*</td>
<td>6</td>
</tr>
<tr>
<td>Approved Electives</td>
<td>12</td>
</tr>
<tr>
<td>Approved Mathematics</td>
<td>3</td>
</tr>
</tbody>
</table>

The student must pass a comprehensive examination and is expected to attend and participate in the department's seminar program.

**Thesis Option**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved Mathematics</td>
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</tr>
<tr>
<td>Approved Electives</td>
<td>6</td>
</tr>
<tr>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

The thesis must be defended in an oral examination.

**Master of Science in Civil Engineering**

Areas of graduate study in the department include structural mechanics, geotechnical engineering, hydraulic engineering, and environmental engineering.

**Nonthesis Option**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil Engineering Coursework</td>
<td>15</td>
</tr>
<tr>
<td>Approved Mathematics or Science</td>
<td>3</td>
</tr>
<tr>
<td>Approved Electives</td>
<td>12</td>
</tr>
<tr>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

The thesis must be satisfactorily defended in an oral examination.

**Thesis Option**

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>Approved Mathematics</td>
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<tr>
<td>Approved Electives</td>
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</tr>
<tr>
<td>Special Problems</td>
<td>2</td>
</tr>
</tbody>
</table>

The thesis must be defended in an oral examination.

**Master of Science in Electrical Engineering**

Areas of graduate study in the department include computer engineering, control system engineering, power system engineering, and related areas.

**Nonthesis Option**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil Engineering Coursework</td>
<td>15</td>
</tr>
<tr>
<td>Approved Mathematics or Science</td>
<td>3</td>
</tr>
<tr>
<td>Approved Electives</td>
<td>12</td>
</tr>
<tr>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

The thesis must be defended in an oral examination.

**Thesis Option**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved Mathematics</td>
<td>3</td>
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<tr>
<td>Approved Electives</td>
<td>9</td>
</tr>
<tr>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

The thesis must be defended in an oral examination before the advisory committee.

**Master of Science in Mechanical Engineering**

Main areas of graduate study in mechanical engineering include systems and controls, engineering mechanics, and thermal-fluid sciences. Students in the department are encouraged to take at least one mechanical engineering course outside their main area of interest to develop some breadth in their graduate education.

**Nonthesis Option**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Engineering Coursework**</td>
<td>18</td>
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<tr>
<td>Approved Mathematics</td>
<td>6</td>
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<tr>
<td>Approved Electives</td>
<td>12</td>
</tr>
</tbody>
</table>

A student must pass a graduate-level oral comprehensive examination which may be taken after 24 credits have been completed.

**Thesis Option**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Biomedical Engineering Specialization**</td>
<td>9</td>
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<tr>
<td>Core:</td>
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<tr>
<td>Biomedical Instrumentation</td>
<td>4</td>
</tr>
<tr>
<td>Biometry</td>
<td>3</td>
</tr>
<tr>
<td>ST. Physiology for Engineers and Lab</td>
<td>5</td>
</tr>
<tr>
<td>Tracks: 9 credits from either Track I or II</td>
<td>12</td>
</tr>
<tr>
<td>Track I:</td>
<td>12</td>
</tr>
<tr>
<td>Biomedical Signals and Systems courses numbered 4800.620-639 and approved 4800.697 courses.</td>
<td>9</td>
</tr>
<tr>
<td>Track II:</td>
<td>12</td>
</tr>
<tr>
<td>Biomechanics and Bioengineering courses numbered 4800.640-669 and approved 4800.697 courses.</td>
<td>9</td>
</tr>
<tr>
<td>Approved electives</td>
<td>6</td>
</tr>
<tr>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

The thesis must be defended in an oral examination before the advisory committee.

**Polymer Engineering Specialization**

A description of this program is given under the College of Polymer Science and Polymer Engineering.

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*The elective chemical engineering courses may not include more than three credits of 500-level courses.

**The required electrical engineering course work of 18 credits may not include more than three credits of 500-level courses.

***The 36 credit requirement in the nonthesis option became effective for new incoming students in 1988.
DOCTOR OF PHILOSOPHY DEGREE

Programs leading to the Doctor of Philosophy degree in elementary education, secondary education, counseling psychology, and guidance and counseling are offered through the College of Education. The degree will be awarded to the student who, in addition to fulfilling the general requirements of the Graduate School, has met the following specific requirements:

- Completion of the Miller Analogues Test and/or the Graduate Record Examination.
- A minimum of 90 or 120 graduate credits (including a 30-credit master's program where applicable. [Counseling Psychology and Counseling require a minimum of 120 credit hours] including the doctoral dissertation. A student considered deficient in any area may be required to take additional courses.
- Completion of a foundation studies program designed to prepare the student before specialization.
- Completion of preliminary examinations on foundation studies and the major field of concentration.
- Successful completion of a test in a language judged not to be the student's native tongue:
  - a student in the Department of Counseling and Special Education may elect to develop appropriate research skills prescribed by the adviser in lieu of the foreign language requirement.
  - a student in the Department of Elementary Education may elect to develop appropriate research skills prescribed by the adviser, subject to review by the department head, depending upon the career goal of the student and upon the academic and/or scientific requirement of the dissertation in lieu of the foreign language requirement.
  - a student in the Department of Secondary Education may elect to develop appropriate research skills prescribed by the adviser. Subject to review by the department head, in lieu of the foreign language requirement.
- Completion of at least eight credits in cognate area.
- Completion of final written and oral examinations in the student's major field of concentration.
- Completion of a dissertation comprising not more than 20 credits. The oral examination committee shall be constituted of at least five full-time faculty members, at least one of whom must be from outside the College.
- Pass the general requirements for the Doctor of Philosophy degree.

The American Psychological Association (APA) has conferred accreditation on the Ph.D. Program in Counseling Psychology.

Admission to the Collaborative Program in Counseling Psychology will be handled through the department associated with the student's chosen emphasis.

Departures from the program may be made only with the approval of the counseling psychology program faculty. Students may be considered for admission to counseling psychology if they have a master's degree in counseling, guidance and counseling, psychology, school psychology, or a related field.

- Psychology Core (5750:610, 620, 630, 640) is required of all students.
- Students register for dual listed courses (5750/5800) under their home department code.
- The comprehensive written examination is prepared, administered, and graded by the department faculty of the track in which the student is enrolled. At least one faculty member from each track participates in the oral portion of the comprehensive examination.
- Dissertation — at least one faculty member from each track is required on the student's dissertation committee.
- Internship — 1,600 hours post-master's with 1,800 hours over no more than two years. The internship site must be listed in the Association of Psychology Internship Centers (APIC) Directory.
- Language and residency requirements are to be completed in accordance with the guidelines from the Graduate School and the student's home department.

**DOCTORAL PROGRAMS IN COUNSELING**

**Collaborative Ph.D. Program in Counseling Psychology**

The Collaborative Program in Counseling Psychology allows the student a choice of entry options: one through the College of Education for students with a master's degree and one through the College of Arts and Sciences for students with a bachelor's degree. Students in both tracks are expected to attain a level of broad scientific competence in the core areas of psychology: the biological, social, cognitive-affective, and individual bases of human behavior. Counseling psychology coursework covers the special areas of group counseling, theories of counseling and psychotherapy, supervision, vocational psychology, ethics, assessment, and research design. Practica and internship experiences are required of students in both tracks and range from skill building in basic psychology assessment and counseling, to actual work with clients, to a year-long, full-time internship in an applied service setting. Students receive exposure to both colleges through shared coursework and faculty involvement with dissertations but must formally enter through one or the other of the colleges.

**Ph.D. in Guidance and Counseling**

The doctoral program in Guidance and Counseling is designed for students who hold a master's degree in counseling psychology or a related field. The program allows the student a choice of three specialty areas: (1) Counseling Education; (2) Clinical Mental Health Counseling; and (3) Marriage and Family Therapy. Students in each specialty are expected to attain an advanced level of competence in the core areas of counseling, research, and their specialty practice.

*In order to be admitted into the doctoral program, a student must have completed a master's degree in Guidance and Counseling or a master's degree in a related field. Students must have completed graduate coursework in each of the following areas prior to enrolling in courses in their Ph.D. major of Guidance and Counseling.

1) An introductory course in school counseling, student personal services, community counseling, or marriage and family therapy.
2) Group counseling; educational counseling; individual counseling; group counseling; counseling in counseling; research techniques.
and internship experiences are required in each specialty. In addition, the cognate and elective options allow students flexibility in designing a program that is consistent with their career goals. With the proper selection of courses, graduates of the program may be eligible for membership in the American Association for Marriage and Family Therapy.

The Council for Accreditation of Counseling and Related Educational Programs (CACREP), a specialized accrediting body recognized by the Council on Postsecondary Accreditation (COA), has conferred accreditation on the Ph.D. Program in Guidance and Counseling in the Department of Counseling and Special Education.

**Requirements**
- Master's Degree
- Foundations of Education
- Major: Guidance and Counseling
- Research and Statistics
  - 5100:741 Statistics in Education
  - 5100:743 Advanced Educational Statistics
  - 5600:715 Research Design in Counseling I
  - 5600:716 Research Design in Counseling II
  - 5600:756 Outcome Research in Marriage and Family Therapy
- Also required:
  - 5600:685 Internship**
  - 5600:702 Advanced Counseling Practicum
  - 5600:707 Supervision in Counseling Psychology I
  - 5600:708 Supervision in Counseling Psychology II
  - 5600:720 Topical Seminar
  - 5600: Specialty Courses in Counseling***
- Electives
- Dissertation

Normally, a minimum of 60 semester hours must be taken after the student is admitted into the doctoral program in guidance and counseling.

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**DOCTOR OF PHILOSOPHY IN ELEMENTARY EDUCATION**

The program leading to a Doctor of Philosophy Degree in Elementary Education is designed to enhance the professional growth of the practicing teacher academically and professionally. The program is predicated on the belief that an effective educator benefits from a well-planned program containing depth of study in three basic areas:

- A specific teaching area/subject discipline.
- Professional education.
- Other contributing disciplines.

With this philosophy in mind, the program provides study in a selected discipline, professional education, and cognate fields.

Course offerings are designed to present the required courses as well as those areas that will be explored in overcoming individual deficiencies and expanding the students' academic background. Basic minimum course requirements are in the following areas: (1) core, (2) teaching field, (3) professional education, and (4) cognate area. Three guidelines concerning these steps toward the degree are of particular significance.

- Preliminary examination must be taken at first scheduled opportunity after student's full admission.
- Written comprehensive should be taken after the completion of 60 hours of coursework and prior to the completion of 75 hours.
- Dissertation must be approved by the student's committee and reviewed by the dean of the College of Education.

The complete program description may be obtained from the department head of elementary education.

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**DOCTOR OF PHILOSOPHY IN SECONDARY EDUCATION**

The Department of Secondary Education offers a program leading to the Ph.D. This program is designed to meet the needs and interests of persons in public, postsecondary, higher education, and other institutions or agencies that might have educational programs.

A qualified student can, with consultation of an adviser, design a "field of study" to meet his/her career objectives within the expertise and resources of the department.

For further details contact the Department of Secondary Education on program options and specific admission requirements.

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**DOCTOR OF EDUCATION DEGREE**

The Department of Educational Administration offers a program leading to the Doctor of Education degree. One option is designed for persons in public or private K-12 educational organizations.

An option in Higher Education Administration is also offered by the department. This is designed for persons who wish to pursue a career in college, university or other post-secondary administrative positions. The program addresses such major institutional functions as: academic administration, student services, finance, planning, development, and public relations. A student will have the opportunity to direct studies toward a particular career goal. A student may be admitted after either the bachelor's or the master's degree.

- **Minimum Requirements of the K-12 Program**
  - Foundations (including dissertation)
  - School Administration (including doctoral residency seminar)
  - Curriculum and Supervision
  - Cognate
  - General Electives

- **Minimum Requirements of the Higher Education Administration Program**
  - Foundations (including dissertation)
  - Educational Administration
  - Curriculum, Instruction, and Student Services
  - Doctoral Residency Seminar
  - General Electives

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**Foundation Studies Education — Doctoral Program Requirements**

### Behavioral Studies
- 5100:620 Behavioral Bases of Education
- 5100:624 Seminar in Educational Psychology
- 5100:721 Learning Processes
- 5100:723 Teaching Behavior and Instruction

### Humanistic Studies
- 5100:701 History of Education in American Society
- 5100:703 Seminar in History and Philosophy of Higher Education

### Social and Philosophical Studies
- 5100:600 Philosophies of Education
- 5100:602 Comparative and International Education
- 5100:604 Seminar in Cultural Foundations of Education
- 5100:705 Seminar in Social-Philosophical Foundations

### Research
- 5100:640 Techniques of Research
- 5100:741 Statistics in Education
- Dissertation

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*Counseling psychology students contact adviser for requirements.

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**Notes:**
- **A minimum of one academic year of full-time internship is required.** An internship taken as part of a master's degree program may account for up to 50 percent of this requirement. If this is the case, the student is required to complete only three semester hours of 5600:685 after admission to the doctoral program.
- **Selected with the approval of the student's major adviser.**
Continuous Doctoral Program Enrollment

All students admitted to the doctoral program must register for a minimum of one semester hour of graduate credit as approved by their advisers during each fall and spring semester. Individual departments may exceed this minimum requirement. Doctoral students should consult their advisers about additional requirements.

MASTER'S DEGREE

Programs leading to the degree of M.A. in education, M.S. in education, and M.S. in technical education are offered. The student who expects to earn the master's degree for advancement in the field of teaching must meet the general requirements for admission to the Graduate School and must be qualified to hold a standard teaching certificate. Exceptions to this latter requirement will be made for the qualified student who does not wish to teach or perform duties in the public schools provided the student presents or acquires an appropriate background of study or experience. The student who expects to earn the master's degree in guidance and administration also should have had successful teaching experience. A physical examination may be required if and when indicated. Any student who exhibits a deficiency in English or other skills may be required to correct it before recommendation for an advanced degree. The student must receive a pass grade on the relevant Master's Comprehensive Exam.

No more than six credits of workshops or institutes can be used to satisfy degree requirements. The student must complete a minimum of nine credits in foundation studies in education:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:600</td>
<td>Philosophies of Education or Comparative and International Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:602</td>
<td>Seminar in Cultural Foundations of Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:620</td>
<td>Behavioral Bases of Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:624</td>
<td>Seminar in Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>5100:640</td>
<td>Techniques of Research</td>
<td>3</td>
</tr>
</tbody>
</table>

Community Counseling

- Foundation Studies courses — nine credits. (See department handbook for options)
- Required courses:
  - 5600:600 Seminar in Counseling
  - 5600:602 Topical Seminar: Substance Abuse and Sexuality
  - 5600:635 Community Counseling
  - 5600:643 Counseling Theory and Philosophy
  - 5600:645 Group Testing in Counseling
  - 5600:647 Career Development and Counseling Across the Life Span
  - 5600:651 Techniques of Counseling
  - 5600:653 Group Counseling
  - 5600:665 Seminar: Counseling Practice
  - 5600:671 Counseling Clinic
  - 5600:675 Practicum in Counseling
  - 5600:685 Internship

Counseling in Elementary or Secondary Schools

- Foundation Studies courses — nine credits
- Required courses:
  - 5100:604 Topical Seminar in Cultural Foundations
  - 5100:624 Seminar: Educational Psychology
  - 5100:640 Techniques of Research

Counseling and Special Education

Selected program offerings in the Department of Counseling and Special Education are available to a person with or without a teaching certificate. Interdisciplinary programs offered lead to certification by the Ohio State Department of Education and/or a master's degree. Program areas include counseling, school psychology, and special education. The person who meets program prerequisites and who has earned a master's degree may matriculate as a non-degree graduate student and pursue a program that leads, in selected areas, to certification.

The Council for Accreditation of Counseling and Related Educational Programs (CACREP), a specialized accrediting body recognized by the Council on Postsecondary Accreditation (COAP), has conferred accreditation on the Community Counseling program and the Counseling in Elementary or Secondary Schools program in the Department of Counseling and Special Education. The Marriage and Family Therapy program has been accredited by the American Association of Marriage and Family Therapy (AAMFT).

CLASSROOM GUIDANCE FOR TEACHERS

- Foundation Studies courses — nine credits
- Guidance courses - 21 credits:
  - 5600:610 Counseling Skills for Teachers
  - 5600:631 Elementary School Guidance
  - 5600:633 Secondary School Guidance
  - 5600:645 Group Testing in Counseling
  - 5600:647 Career Development and Counseling Across the Life Span
  - 5600:653 Seminar in School Counseling
  - 5600:659 Counseling Clinic
  - 5600:696 Field Experience C
  - 5610:540 Developmental Characteristics of Exceptional Individuals
  - 5610:604 Education and Management Strategies for Parents of Exceptional Individuals

**Students in some psychology programs may choose other options — see adviser. § Must be taken concurrently with 661.

§ Must be taken with 645.
School Psychologist

- College requirements:
  - 5100:640 Techniques of Research 3
  - 5620:694 Research Project 2
  - or 5620:698 Master's Problem 2
  - or 5620:699 Thesis Research 4

Departmental requirements:
- 5600:643 Counseling, Theory and Philosophy 3

- Program requirements:
  - 3750:530 Psychological Disorders of Childhood 4
  - 3750:700 Survey of Projective Techniques 4
  - 3750:712 Principles and Practice of Individual Intelligence Testing 4
  - 5620:604 Seminar in Cultural Foundations of Education 3
  - 5600:624 Seminar in Human Learning 3
  - 5600:741 Statistics in Education 3
  - 5620:600 Seminar: Research: Function of School Psychology 3
  - 5620:602 Behavioral Assessment 3
  - 5620:610 Educational Diagnosis for the School Psychologist 4

Sixth-Year School Psychology Master's Degree
and Certification Program

- Foundations requirements:
  - 5000:604 Seminar in Cultural Foundations 3
  - 5000:624 Seminar in Educational Psychology 3
  - 5000:640 Techniques of Research 3
  - 5610:640 Statistics in Education 3

- Professional requirements:
  - 3750:700 Survey of Projective Techniques 4
  - 3750:720 Psychological Disorders of Childhood 4
  - 3750:712 Principles and Practice of Individual Intelligence Testing 4
  - 5620:643 Counseling: Theory and Philosophy 4
  - 5620:600 Seminar: Role and Function of School Psychology 3
  - 5620:601 Seminar: Educational Psychology 3
  - 5620:610 Educational Diagnosis for the School Psychologist 4
  - 5620:604 Research Project in Special Area 2-3

Special Education

The graduate program in special education is designed for those individuals holding an undergraduate degree in special education. Applicants who do not hold such a degree may be admitted to graduate study in special education as Non-Degree admissions until 12 graduate credits of "B" or better are completed.

No more than six hours of 500-level graduate course work or six hours of workshop credit at the graduate level may be included in the minimum master's degree program in special education.

The master's degree program in special education is a cross-categorical focus with emphasis on master's teaching, curriculum design, research, program development, and clinical practice. The minimum program is 38 semester hours. Additional hours are necessary for the completion of the Supervisor's Certificate. The required additional course work for this certificate is specified below. It is important that an appointment be made with the student's assigned adviser very early in his or her graduate studies. A signed contract specifying the student's program and timeline for completion must be completed with the adviser by the time the student has earned nine hours of graduate course work.

Additional hours are also necessary for teacher certification in special education. The adviser will assist in program planning.

All requirements must be completed within six years after beginning graduate-level course work at The University of Akron or elsewhere.

- Foundation core (nine credits):
  - 5100:600 Philosophies of Education
  - 5100:604 Topical Seminar in Cultural Foundations of Education
  - 5100:620 Behavioral Bases of Education
  - 5100:624 Seminar: Educational Psychology
  - 5100:640 Techniques of Research

- Departmental core (21 credits):
  - 5610:610 Counseling Skills for Teachers
  - 5610:601 Seminar: Curriculum Planning in Special Education
  - 5610:620 Assessment and Educational Programming in Special Education
  - 5610:622 Seminar: Educational Psychology
  - 5610:624 Seminar: Behavioral Assessment

- Electives (minimum of nine credits)
  - Completion of at least nine hours with the approval of your major adviser (May include a directed field experience).

- Certification: Special Education Supervisor
  - The supervisor's certificate may be issued to a holder of a master's degree, plus 27 months teaching experience in the area to be supervised and completion of the following course work:
    - 5100:600 Philosophies of Education
    - 5100:620 Behavioral Bases of Education
    - 5100:640 Techniques of Research
    - 5700:698 Principles of Education Supervision
    - 5700:600 Principles of Curriculum Development
    - 5700:601 Seminar: Curriculum Research in Special Education
    - 5700:602 Supervision of Instruction in Special Education
    - 5700:603 Field Experience for Supervisors
    - 5700:740 Theories of Educational Supervisor

Educational Administration

The Department of Educational Administration offers a master's degree program in educational administration which is not directed toward a particular administrative or supervisory certificate. With the help of an adviser and approval of the Graduate School, courses may be substituted and/or waived to create specialized options. Requirements of the standard program and examples of two such specialized programs are listed below:

General Administration (Standard Program)

- Foundation Studies — nine credits.
- Required courses:
  - 5700:601 Principles of Educational Administration
  - 5700:603 Administration of Educational Personnel
  - 5700:606 Evaluation in Educational Organizations

Program admission is competitive based upon state internship allocations. Selection procedures and criteria are available upon request by calling the school psychology program director in the Department of Counseling and Special Education. For recommendations for certification as a school psychologist in Ohio, the master's student must additionally complete the program prescribed under Certification. *May be waived if completed as undergraduate.
Program School Treasurer (Specialized Option)

Objectives

• Provide the student with practice in implementing a program to improve instruction.
• Develop within each student the ability to communicate successfully with individuals and groups.
• Work with the individual and the group successfully to improve the educational program.
• Implement technical aspects of secondary education.

Higher Education Administration (Specialized Option)

• Foundation studies — nine credits. (5100:703 is required.)

• Required courses:
  5600:649 Counseling and Personal Service in Higher Education 3
  5700:601 Principles of Educational Administration 3
  5700:704 Advanced Principles of Educational Administration 2
  5800:700 Introductory Administrative Colloquium 1
  5800:720 Finance and Higher Education 3
  5900:721 Law and Higher Education 3
  5900:730 Curriculum and Program Planning in Higher Education 3
  5900:800 Advanced Administrative Colloquium in Higher Education 1
  5900:991 Internship in Higher Education 3
  5900:802 Internship in Higher Education Seminar 1

School Treasurer (Specialized Option)

• Foundation studies — nine credits.

• Required courses:
  5700:602 School Business Administration 2
  5700:607 School Law 2
  5700:608 School Finance and Economics 3
  5700:697 Independent Study in School Fiscal Management 3
  5700:706 Collective Bargaining and Employee Relations 2
  5700:707 The Superintendent 3
  5700:795/796 Internship 2
  6200:601 Financial Accounting 3
  6200:649 State and Local Taxation 2

Elementary School Principal

Objectives

• Provide the student with an understanding of the elementary school and its history, its present purpose, and its potential.
• Assist the prospective administrator in perceiving the role of the elementary principal and determining whether it is appealing as a career choice.
• Provide the student with the opportunity to experiment with alternate leadership styles in order to determine how the student might best lead.
• Coordinate classroom activities with field experiences in order to exercise the student’s administrative skills and test the student’s ability to relate understandings to performance.

Program

• Foundation Studies — nine credits.

• Administration courses:
  5200:630 Elementary School Curriculum and Instruction 2
  5200:732 Supervision of Instruction in the Elementary School 2
  5700:601 Principles of Educational Administration 3
  5700:607 School Law 2
  5700:610 Principles of Educational Supervision 3
  5700:613 Administration of Pupil Services 2
  5700:615 Computer Applications in Educational Administration 2
  5700:631 Elementary School Administration 3
  5700:654 Field Experience I: Elementary Administration 2

Post-Master's Degree Requirements for Ohio Certification as an Elementary School Principal:

• Required courses:
  5700:603 Administration of Educational Personnel 2
  5700:604 School–Community Relations 3
  5700:606 Evaluation in Educational Organizations 3
  5700:608 School Finance and Economics 3
  5700:694 Field Experience II: Elementary Administration 3
  5700:706 Collective Bargaining and Employee Relations in Education 2

• Total for Certification: 46 credits.

Secondary School Principal

Objectives

• Enable the student to gain a knowledge of the overall curriculum of the secondary school.
• Provide the student with an understanding of successful methods of improving instruction in the secondary school.

Program

• Foundation Studies courses — nine credits.

• Administration courses:
  5300:619 Secondary School Curriculum and Instruction 2
  5300:721 Supervision of Instruction in the Secondary School 2
  5700:601 Principles of Educational Administration 3
  5700:607 School Law 2
  5700:610 Principles of Educational Supervision 3
  5700:613 Administration of Pupil Services 2
  5700:615 Computer Applications in Educational Administration 2
  5700:620 Secondary School Administration 3
  5700:686 Field Experience I: Secondary Administration 2

Post-Master's Degree Requirements for Ohio Certification as a Secondary School Principal:

• Required courses:
  5700:603 Administration of Educational Personnel 2
  5700:604 School–Community Relations 3
  5700:606 Evaluation in Educational Organizations 3
  5700:608 School Finance and Economics 3
  5700:639 Field Experience II: Secondary School Administration 2
  5700:706 Collective Bargaining and Employee Relations in Education 2

• Total for Certification: 46 credits.

Administration Specialists

The Department of Educational Administration offers programs leading to each of the seven Educational Administrative Specialist certificates granted by the Ohio Department of Education.

Each of these specialist certification programs consists of a master’s degree program and a post-master’s block. In the individual program listings below, master’s degree requirements are marked with a single asterisk (*) and post-master’s requirements are indicated by double asterisk(**).

Administrative Specialist: Business Management

• Foundation Studies — nine credits.*

• Required courses:
  5700:601 Principles of Educational Administration* 3
  5700:602 School Business Administration** 2
  5700:603 Administration of Educational Personnel* 2
  5700:606 Evaluation in Educational Organizations* 3
  5700:607 School Law* 2
  5700:608 School Finance and Economics* 3
  5700:615 Computer Applications in Educational Administration* 2
  5700:686 Field Experience I: Elementary Administration* 2
  5700:687 Field Experience I: Secondary Administration* 2
  5700:695 Field Experience for Supervisors* 3
  5700:706 Collective Bargaining and Employee Relations* 2
  5700:707 The Superintendent* 3

Administrative Specialist: Educational Research

• Foundation Studies — nine credits.*

• Required courses:
  5100:642 Topical Seminar: Measurement and Evaluation** 3
  5100:741 Statistics in Education** 3
  5100:743 Advanced Educational Research** 3
  5100:801 Research Seminar** 3
  5100:807 Independent Study: Educational Research** 3
  5700:601 Principles of Educational Administration* 3
  5700:603 Administration of Educational Personnel* 2
  5700:606 Evaluation in Educational Organizations* 3
  5700:607 School Law* 2
  5700:608 School Finance and Economics* 3
  5700:615 Computer Applications in Educational Administration* 2
  5700:686 Field Experience I: Elementary Administration* 2
  5700:687 Field Experience I: Secondary Administration* 2
  5700:688 Field Experience for Supervisors* 3
  5700:706 Collective Bargaining and Employee Relations* 2
  5700:707 The Superintendent* 3
Administrative Specialist: Educational Staff Personnel Administration

- Foundation Studies — nine credits
- Required courses:
  - 5700.601 Principles of Education Administration
  - 5700.602 Administration of Educational Personnel
  - 5700.606 Evaluation in Educational Organizations
  - 5700.607 School Law
  - 5700.608 School Finance and Economics
  - 5700.610 Principles of Educational Supervision
  - 5700.612 Computer Applications in Educational Administration
  - 5700.614 Field Experience I: Elementary Administration
  - 5700.615 Computer Applications
  - 6000.654 Industrial Relations

Administrative Specialist: Instructional Services

- Foundation Studies — nine credits
- Required courses:
  - 5200.610 Elementary School Curriculum and Instruction
  - 5300.619 Secondary School Curriculum and Instruction
  - 5700.601 Principles of Educational Administration
  - 5700.602 Administration of Educational Personnel
  - 5700.606 Evaluation in Educational Organizations
  - 5700.607 School Law
  - 5700.608 School Finance and Economics
  - 5700.609 Principles of Curriculum Development
  - 5700.610 Principles of Educational Supervision
  - 5700.612 Computer Applications in Educational Administration
  - 5700.614 Field Experience I: Elementary Administration
  - 5700.615 Computer Applications

Administrative Specialist: Pupil Personnel Administration

- Foundation Studies — nine credits
- Required courses:
  - 5400.631 Elementary Counseling
  - 5400.632 Secondary Counseling
  - 5600.645 Group Counseling
  - 5600.659 Organization and Administration of Guidance Services
  - 5700.601 Principles of Educational Administration
  - 5700.603 Administration of Educational Personnel
  - 5700.606 Evaluation in Educational Organizations
  - 5700.607 School Law
  - 5700.608 School Finance and Economics
  - 5700.610 Administration of Curriculum Plan
  - 5700.611 Administration of Educational Facilities
  - 5700.612 Computer Applications in Educational Administration
  - 5700.614 Field Experience I: Elementary Administration
  - 5700.615 Computer Applications

Administrative Specialist: School and Community Relations

- Foundation Studies — nine credits
- Required courses:
  - 5700.601 Principles of Educational Administration
  - 5700.602 Administration of Educational Personnel
  - 5700.604 School Community Relations
  - 5700.606 Evaluation in Educational Organizations
  - 5700.607 School Law
  - 5700.608 School Finance and Economics
  - 5700.610 Principles of Educational Supervision
  - 5700.612 Computer Applications in Educational Administration
  - 5700.614 Field Experience I: Elementary Administration

Administrative Specialist: Special Education (Exceptional Children)

- Foundation Studies — nine credits
- Required courses:
  - 5610.601 Developmental Characteristics of Exceptional Individuals
  - 5610.602 Seminar: Curriculum Planning
  - 5610.603 Team Planning
  - 5610.604 Program Development and Delivery Systems
  - 5610.605 Independent Study: Exceptional Children
  - 5700.601 Principles of Educational Administration
  - 5700.603 Administration of Educational Personnel
  - 5700.606 Evaluation in Educational Organizations
  - 5700.607 School Law
  - 5700.610 School Finance and Economics
  - 5700.615 Computer Applications in Educational Administration
  - 5700.614 Field Experience I: Elementary Administration

Assistant Superintendent/Superintendent Programs

There is significant overlap in the requirements of these two programs. A person entering the assistant superintendent program must already have an administrator or supervisor certificate. Both teaching and administrative experience is required for superintendent certification.

Assistant Superintendent

- Foundation Studies — nine credits
- Required courses — master’s:
  - 5700.601 Principles of Educational Administration
  - 5700.602 Seminar in Educational Organizations
  - 5700.603 School Law
  - 5700.604 School Finance and Economics
  - 5700.605 Principles of Curriculum Development
  - 5700.601 Administration of Educational Facilities
  - 5700.612 Computer Applications in Educational Administration
  - 5700.614 Field Experience I: Elementary Administration

- Required courses — post-master’s:
  - 5700.602 School Business Administration
  - 5700.603 Administration of Educational Personnel
  - 5700.604 Administration of Educational Facilities
  - 5700.605 Collective Bargaining and Employee Relations
  - 5700.606 Two field experiences are required

Superintendent

- All of the assistant superintendent requirements plus
  - 5700.704 Advanced Principles of Educational Administration

- Electives, as needed, to bring the program to a total of 60 graduate semester hours

Supervisor

- Foundation Studies — nine credits
- Major fields:
  - 5200.630 Elementary School Curriculum and Instruction
  - 5200.732 Supervision of Instruction in the Elementary School
  - 5300.619 Secondary School Curriculum and Instruction
  - 5300.724 Supervision of Instruction in the Secondary School
  - 5400.601 Seminar: Special Education Curriculum Planning
  - 5400.602 Supervision of Instruction: Special Education
  - 5700.601 Principles of Curriculum Development
  - 5700.610 Principles of Educational Supervision

6Required only of an elementary student.
7Required only of a secondary student.
8Required only of a special education student.
Educational Foundations

This program area is designed for either the student interested in improving present educational skills or the student interested in educational or instructional positions in business, industry, and social services.

A student's program of study will be determined jointly by the student and an academic advisor. Emphasis can range from advanced instructional technology to traditional studies in educational psychology or the social/philosophical aspects of education. A thesis or problem paper is required.

• Foundation Studies — College Core Foundation Studies.

• Departmental requirements:**

The student will earn a minimum of 15 credits, excluding thesis or problem paper, within the Department of Foundations. These credits will be distributed between the social foundations, psychological studies, and evaluation and research with a minimum of nine credits from one of these areas and six credits from the other (college requirements may be included).

Elementary Education

Bilingual Multicultural Education

The major purpose of this program is to provide education majors with the knowledge, skills, and attitudes necessary to teach bilingual students. Students may become certified in bilingual multicultural education at the undergraduate or graduate level. The certification requires that a person also become certified in one of the following areas: elementary education, secondary education, special education, or physical education.

At the end of the program, the student must demonstrate proficiency in English and a language other than English in order to meet the certification requirements of the Ohio State Department of Education. Graduates wishing a master's degree in addition to bilingual multicultural certification may earn a master's degree in multicultural education by taking additional course work.

The program incorporates course work in the history and philosophy of bilingual multicultural education; linguistics; English as a second language instruction; culture and theories; and practices for teaching bilingual students language arts, reading, mathematics, social studies and science.

• Program requirements:
  5200:699 Seminar in English: Introduction to Bilingual Linguistics 3

  5630:562 Characteristics of Culturally Different Youth 3

  5630:594 Principles of Bilingual Multicultural Education 3

  5630:587 Techniques for Teaching English as a Second Language in the Bilingual Classroom 4

  Select one of the following:

  • 5630:587 Field Experience in Bilingual Classroom Settings 3

  • 5630:586 Teaching Mathematics, Social Studies and Science to Bilingual Students 3

Multicultural Education

The purpose of this program is to provide knowledge, skills and attitudes which will enable the educator to design and implement programs that promote the concept of cultural pluralism. Special attention is given to educational programming for the culturally different learner.

• Required Courses:
  5100:640 Techniques of Research 3

  5300:760 Seminar in Secondary Education* 4

  5600:645 Group Testing in Counseling 3

  5630:581 Multicultural Education in the United States 3

  5630:592 Characteristics of Culturally Different Youth 3

  5630:696 Seminar: Education of the Culturally Different 2

• Electives in related special fields — 17 credits.

30 Credit Option

• Foundation studies — nine credits

• Elementary Education:
  5200:538 Materials and Laboratory Techniques in Elementary School Mathematics 3

  5200:630 Elementary School Curriculum and Instruction 2

  5200:631 Trends in Elementary Education 2

  5200:660 Trends in Reading Instruction 2

  5200:629 Thesis Research 4

  5200:790 Seminar in Elementary Education (two seminars required) 4

• Electives: Total to fulfill program minimum of 30 credits and to be taken from 5200, 5250, or 5630 course work. 2-4

For persons wishing to gain further knowledge of the elementary school curriculum and remain in the elementary classroom, the 36 credit program is available. This program requires a field experience that provides an opportunity for the teacher to experiment with newly acquired skills and knowledge under the direction of a faculty advisor.

36 Credit Option

• Foundation studies — nine credits

• Elementary Education:
  5700:538 Materials and Laboratory Techniques in Elementary School Mathematics 3

  5200:630 Elementary School Curriculum and Instruction 2

  5200:631 Trends in Elementary Education 2

  5200:660 Trends in Reading Instruction 2

  5200:695 Field Experience: Master's 2

  5200:780 Seminar in Elementary Education 2

• Electives: Total to fulfill program minimum of 36 credits. Electives may be taken in one concentrated area or from several areas, but must contain courses from 5200, 5250, or 5630 as listed in the bulletin.

Middle School Education

For elementary and secondary certified teachers, this courses comprise a major area of study within the master's programs in the elementary and secondary education departments. They deal with the middle-grade learner, curriculum, and programs. The student should seek advisement within the appropriate department for other requirements peculiar to the elementary and secondary programs.

• Required courses:
  5100:694 Cultural Foundations of Education 3

  5100:624 Psychology of Early Adolescence 3

  5200:780 Curriculum Development in Middle School 2

  5300:625 Reading Programs in Secondary School 3

  5300:780 Philosophy and Organization of Middle School 2

  5600:526 Career Education/Guidance in Middle School 2

Reading

The master's degree is designed for early childhood, elementary, junior high, middle, secondary content, secondary-developmental, and special education teachers working in a diagnostic-prescriptive, clinical, or adult program. The programs of study provide opportunities to study those aspects of reading that relate to the professional goals and interests of the student.

The 30 credit option is designed for students who contemplate pursuing a doctoral program in the future; this option requires a thesis. The 36 credit option is designed for students who wish to enhance their knowledge of reading instruction and remain in a classroom setting to use their newly acquired knowledge. This program requires a field experience under the direction of a member of the elementary education faculty.

Neither of these degree options lead to certification in reading in Ohio. Persons wishing this certification must complete additional courses as specified below.

30 Credit Option

• Foundation studies — nine credits

• Reading:
  5200:699 Thesis Research 4

  5200:780 Seminar in Elementary Education: Children's Literature 2

  5250:540 Developmental Reading in the Content Areas 3

  5250:680 Trends in Reading Instruction 2

  5250:681 Diagnosis and Correction of Reading Problems 2

  5250:682 Clinical Practices in Reading 2

36 Credit Option

• Foundation studies — nine credits

• Reading:
  5200:695 Field Experience: Master's 2

  5200:780 Seminar in Elementary Education: Children's Literature 2

  5250:540 Developmental Reading in the Content Areas 3

  5250:680 Trends in Reading Instruction 2

  5250:681 Diagnosis and Correction of Reading Problems 2

  5250:682 Clinical Practices in Reading 2

  5250:692 Advanced Study and Research in Reading Instruction 3

  5250:693 Supervision and Curriculum Development in Reading Instruction 2
Physical Education and Health Education

Athletic Training for Sports Medicine
The Athletic Training program, requiring 32 credits, is designed primarily for teams, and other and public agencies which conduct outdoor/environmental education programs.

Outdoor Education
The outdoor education program, requiring 32 credits, is designed for those students having an undergraduate degree in elementary or secondary education, education, biology, environmental studies, health, physical education or recreation. Students may become involved in supervising university undergraduates, working with athletic teams, and other clinical experience both on and off campus.

Physical Education
The graduate program in physical education, requiring 30 credits, is designed for students interested in general physical education and teacher preparation. Specialized graduate programs may be designed in cooperation with the student's advisor, and the approval of the dean of the Graduate School. The program, totaling 30 credits, is designed to meet the needs of the student relative to graduate study and future employment.

- Electives (Select from the following to total three credits)
  5200.780 Seminar in Elementary Education: Language Arts (or) Reading 2
  5200.511 Materials and Organizations for Reading Instruction 3
  5200.541 Language and its Relationship to Reading in the Elementary School 3
  5200.542 Teaching Reading to Culturally Different Learners 3
  Post-Master's Degree Requirements for Ohio Certification in Reading, K-12
  5200.625 Reading Programs in Secondary Schools 3
  5200.780 Seminar in Secondary Education: Teaching Literature 2
  5200.680 Trends in Reading Instruction 2
  Total for Certification: 41 credits

Option: Adapted Physical Education
The Adapted Physical Education option is designed for advanced study about teaching physical education to handicapped individuals. Emphasis is given to a developmental model using assessment and programming of motor skills which lead to increased educational, social, vocational, and lifetime fitness development. The program combines research and clinical/field experiences to provide schools and agencies with expertise needed to improve their programs. A minimum of 33 graduate credits is required. Completion of this program will also afford the student an Ohio validation for teaching this content area.

- Educational Foundations (required)
- Required Courses:
  5550.536 Foundations and Elements of Adapted Physical Education 3
  5550.551 Assessment and Evaluation in Adapted Physical Education 3
  5550.555 Motor Development of Special Populations 3
  5550.605 Physiology of Muscular Activity and Exercise 2
  5550.695 Field Experience: Master's (at least 2 credits if only option selected) 1-6
  5550.698 Master's Thesis Research 2-4
  5550.699 Master's Thesis 4-6

Option: Curriculum Design and Implementation
The Curriculum Design and Implementation Option, requiring a minimum of 32 credits, is designed for teachers of all age groups in physical education. It contains a balance of coursework associated with curriculum design models, implementation procedures and contemporary content.

- Educational Foundations (required)
- Required Major Courses:
  5550.536 Adapted Physical Education Tasks for the Learning Disabled Child 2
  5550.603 Curriculum Planning in Health and Physical Education 2
  5550.606 Measurement and Evaluation in Physical Education 3
  5550.608 Supervision of Physical Education 2

- Select one of the following:
  5550.601 Administration of Health, Physical Education, Athletics, Recreation 3
  or 5550.609 Motivational Aspects of Physical Activity 3
  5550.680 Special Topics (may be repeated to six credits with advisor's consent) 2

- Select at least one of the following:
  5550.695 Field Experience: Master's (at least 2 credits if only option selected) 1-6
  or 5550.698 Master's Thesis Research 2-4

- Elementary or Secondary Education (required)
  5200.630 Elementary School Curriculum and Instruction 2
  5300.619 Secondary School Curriculum and Instruction 2

- Outdoor Education (required)
  5560.550 Application of Outdoor Education to the School Curriculum 4
  5560.556 Outdoor Pursuits 4

- Additional hours to be selected from above courses to total at least 32. Electives may be taken with permission of the advisor.
Option: Exercise Physiology/Adult Fitness
This graduate program, requiring a minimum of 32 credits, is designed to prepare students for advanced study in exercise physiology and future employment in adult fitness, corporate fitness and cardiac rehabilitation programs. Special attention is also given to knowledge and practical skills necessary for students preparing for American College of Sports Medicine certifications.

- Educational Foundations (required) 9
- Required Major Courses 21-25
  - 3100:561 Human Physiology
  - 3100:562 Human Physiology
  - 5550:601 Administration of Health, Physical Education, Recreation, and Athletics
- Electives — at least two credits from the following list with consent of the adviser:
  - 3100:565 Advanced Cardiovascular Physiology
  - 3100:520 Introduction to Computer Based Education
  - 5100:741 Statistics in Education
  - 5100:743 Advanced Educational Statistics
  - 5550:5 Workshops in Sports Medicine
  - 5550:695 Field Experience: Master’s (at least 2 credits if only option selected) 1-6
  - 5550:698 Master’s Problem 2-4
  - 5550:699 Thesis Research 4-6
- Behavioral Electives — at least four credits, limited to two courses in Psychology, from the following:
  - 3750:610 Psychology Core I: Organizational, Social, and Applied
  - 3750:620 Psychology Core II: Developmental, Perceptual, and Cognitive
  - 3750:630 Psychology Core III: Counseling, Individual and Abnormal
  - 3750:640 Psychology Core IV: Sensory, Biobehavioral, and Experimental
  - 3800:631 Social Psychology
  - 3850:632 Small Group Theory
  - 3890:680 Sociology of Education
  - 5100:721 Learning Processes
  - 5100:741 Statistics in Education
  - 5100:743 Advanced Educational Statistics
  - 5550:697 Independent Study
  - 5600:600 Seminar in Counseling
  - 5600:610 Counseling Skills for Teachers
  - 5600:620 Topical Seminar
  - 5600:643 Counseling: Theory and Philosophy
  - 5610:540 Developmental Characteristics of Exceptional Individuals
- Additional hours to be selected from above courses to total at least 32 credits.
- Electives may be taken with permission of the adviser.

Option: Sport Behavior
The Sport Behavior Option, requiring a minimum of 32 credits, is designed for teachers, coaches and other professionals who have responsibilities for the education of persons of all ages in the context of sport. It includes coursework which addresses theoretical concepts of sport behavior, as well as the practical applications of these concepts.

- Educational Foundations (required) 9
- Required Major Courses 12
  - 5550:601 Administration of Health, Physical Education, Recreation, and Athletics
  - 5550:605 Physiology of Muscular Activity and Exercise
  - 5550:606 Measurement and Evaluation in Physical Education
  - 5550:609 Motivational Aspects of Physical Activity
  - 5550:695 Field Experience: Master’s (at least 2 credits if only option selected) 1-6
  - 5550:698 Master’s Problem 2-4
  - 5550:699 Thesis Research 4-6
- Electives — at least two credits from the following list with consent of the adviser:
  - 3100:565 Advanced Cardiovascular Physiology
  - 3100:520 Introduction to Computer Based Education
  - 5100:741 Statistics in Education
  - 5100:743 Advanced Educational Statistics
  - 5550:5 Workshops in Sports Medicine
  - 5550:695 Field Experience: Master’s (at least 2 hours if only option selected) 1-6
  - 5550:698 Master’s Problem 2-4
  - 5550:699 Thesis Research 4-6
- Behavioral Electives — at least four credits, limited to two courses in Psychology, from the following:
  - 3750:610 Psychology Core I: Organizational, Social, and Applied
  - 3750:620 Psychology Core II: Developmental, Perceptual, and Cognitive
  - 3750:630 Psychology Core III: Counseling, Individual and Abnormal
  - 3750:640 Psychology Core IV: Sensory, Biobehavioral, and Experimental
  - 3800:631 Social Psychology
  - 3850:632 Small Group Theory
  - 3890:680 Sociology of Education
  - 5100:721 Learning Processes
  - 5100:741 Statistics in Education
  - 5100:743 Advanced Educational Statistics
  - 5550:697 Independent Study
  - 5600:600 Seminar in Counseling
  - 5600:610 Counseling Skills for Teachers
  - 5600:620 Topical Seminar
  - 5600:643 Counseling: Theory and Philosophy
  - 5610:540 Developmental Characteristics of Exceptional Individuals
- Additional hours to be selected from above courses to total at least 32 credits.
- Electives may be taken with permission of the adviser.

Secondary Education

Secondary Education
Middle School Education
For elementary and secondary certified teachers, these courses comprise a major area of study within the master’s programs in the elementary and secondary education departments. They deal with the middle-grade learner, curriculum and programs. The student should seek advisement within the appropriate department for any other requirements peculiar to the elementary and secondary programs.

- Required courses:
  - 3100:623 Cultural Foundations of Education
  - 5100:623 Psychology of Early Adolescence
  - 5200:780 Curriculum Development in Middle School
  - 5300:625 Reading Programs in Secondary School
  - 5300:780 Philosophy and Organization of Middle School
  - 5600:525 Career Education Guidance in Middle School

Secondary Education

Secondary Education
This program is for middle and junior high school, high school, and post-secondary school teachers. Preparation is for the master teacher, department head, supervisor, and resource teacher (the physical education major should seek advice in any case). The program may also serve the holder of a baccalaureate degree who seeks a teaching certificate. For specific information on obtaining initial teacher certification through a master’s program, see the department head. The degree requires a minimum of 33 semester hours of graduate work.

- Foundation Studies — nine credits.
- Secondary education course:
  - 5300:780 Seminar in Secondary Education: Improvement of Instruction (in the area of concentration)
- Ten credits from the following:
  - 5300:619 Secondary Curriculum and Instruction
  - 5300:625 Reading Programs in Secondary Education
  - 5300:695 Field Experience
  - 5300:698 Master’s Problem
  - 5300:699 Thesis Research
  - 5300:721 Supervision of Instruction
  - 5300:780 Seminar: Secondary Education
- Topics: Senior High
  - Middle and Junior High School
  - Computer-Based Education
  - Individualized Instruction
- 5400:505 Occupational Education for Youth and Adults
- Area of concentration (500 level or above) — 10 credits

Course selections are made by student and advisor in accord with the student’s professional interests. Possible areas of concentration include:

- Subject Matter Specialist (mathematics, English, etc.)
- Middle school education
- Economic education
- Micro-computer applications

- Electives — two to four credits.
- A comprehensive examination is required.

Technical Education

The major objective of the technical education program is to prepare the instructor and other educational personnel for post-secondary educational institutions, industry, and public and private agencies engaged in the education and training of technicians and middle-level workers. The major requires completion of 32 credits.

- Educational Foundations (required) 9
- Required Major Courses 16
  - 5550:601 Administration of Health, Physical Education, Recreation, and Athletics
  - 5550:605 Physiology of Muscular Activity and Exercise
  - 5550:608 Supervision of Physical Education
  - 5550:609 Motivational Aspects of Physical Activity
  - 5550:665 Field Experience: Master’s
- Business Administration Electives — at least three of the following courses:
  - 6200:570 Governmental and Industrial Accounting
  - 6200:601 Financial Accounting
  - 6200:610 Accounting Management and Control
  - 6200:670 Cost Concepts and Control
  - 6200:693 Seminar in Accounting
  - 6500:580 Introduction to Health Care Management
  - 6500:683 Health Services Systems Management
  - 6500:543 Product Planning
  - 6600:600 Marketing Concepts
  - 6600:620 Strategic Marketing Management
- Electives may be taken with permission of the adviser.
Program

- Foundation Studies — nine credits.
- Professional technical education courses:
  5400:505 Occupational Education for Youth and Adults 3
  or
  5400:510 The Two-Year College 3
  or
  5400:530 Curriculum Development in Technical Education 2
  or
  5400:535 Instructional Techniques in Technical Education 4
- Teaching internship:
  The student entering the program without teaching experience is required to take a teaching internship at a cooperating two-year institution.
  5400:690 Internship: Teaching Vocational Education 2
  or
  5400:691 Internship: Teaching Technical Education 2
  or
  5400:692 Internship: Post-Secondary Education 2
- Elective credits (zero to four credits) may support the field of specialization, add to general education, or be professional education courses.
- A comprehensive examination is required.

Options (Select one for a total of 8-13 credits.)

Teaching
An approved schedule of career-related courses selected from the Graduate School offerings. Course selections will be determined by the student's academic and professional background.

Guidance Option A (must be followed in sequence)

5600:643 Counseling Theory and Philosophy 3
5600:651 Techniques of Counseling 3
5600:653 Group Counseling 4
5600:675 Practicum in Counseling I 5

Guidance Option B

5600:635 Community Counseling 3
5600:647 Career Counseling: Theory and Practice 3
5600:645 Group Testing in Counseling 3

Select one of the following:

5600:649 Counseling and Personnel Services in Higher Education 3
5600:526 Career Education 2
5600:610 Counseling Skills for Teachers 3

Curriculum and Supervision

5700:699 Principles of Curriculum Development 3
5700:610 Principles of Educational Supervision 3

Elective in Curriculum or Supervision 2

Vocational Home Economics — Family Life (eight to nine credits)

Vocational Home Economics — Child Care and Development (Job Training Specialization) (eight to nine credits)
College of Business Administration

Russell J. Petersen, Ph.D., Dean
James E. Inman, J.D., Associate Dean of Academic Programs
George E. Prough, D.B.A., Associate Dean of External Affairs
Kenneth E. Mast, D.B.A., Assistant Dean of Undergraduate Programs

MASTER'S DEGREE

The College of Business Administration (CBA) offers graduate programs which lead to the degrees of Master of Business Administration, Master of Science in Management and Master of Taxation. The University has offered programs of study in business since 1919, initially through the Department of Commerce and since 1953 through the College of Business Administration. In 1958, graduate studies in business were begun. Both the undergraduate and master's programs are accredited by the American Assembly of Collegiate Schools of Business (AACSB).

During its long tradition, the college has sought to fulfill the educational and professional needs of its 500 graduate students, the community and regional business organizations. To meet its urban objectives, the college offers most graduate courses only between 5:20 p.m. and 10:30 p.m. The master's programs are designed to serve those who work full-time and wish to pursue a master's program on a part-time basis. However, many students enroll full-time to complete the master's program in a shorter period.

Admission

Policy

The applicant must meet one (1) of the following eligibility requirements which are in conformity with the Graduate School and the college's accrediting agency (AACSB):

- Hold a domestic baccalaureate degree from a regionally accredited college or university and have a total index score of 1,000 or more points based upon the overall undergraduate grade point average (GPA) (A=4.0) times 200 plus the Graduate Management Admissions Test (GMAT) score.
- Hold a domestic baccalaureate degree from a regionally accredited college or university and have a total index score of 1,050 or more points based upon the junior-senior (i.e., last 64 semester or 96 quarter credits) GPA (A=4.0) times 200 plus the GMAT score.
- Hold a degree from outside the United States and have an academic standing of first or high second class, satisfactory evidence of competence in English (i.e., TOEFL score of 550 or above) and a score of at least 450 on the GMAT.

Even though an applicant is eligible for consideration, an offer of admission is not guaranteed. Since staff, facilities and resources are limited, a determination must be made as to the number of applicants who can be adequately served among those eligible. As a result, offers of admission may be limited to only the most qualified of the eligible applicants as determined by the CBA Graduate Admissions Committee. The committee will consider the following in making decisions: the difficulty of the applicant's undergraduate program; the length of time and activities since graduation; and the percentile ranking on the GMAT.

In rare instances, the applicant who has taken the GMAT but does not meet requirements may be considered for admission. Also, those who have previously been denied admission may, upon presentation of new information, be reconsidered. In either case, the applicant must petition, in writing, the CBA Graduate Admissions Committee giving the reasons relevant to the situation which demonstrate the likelihood of success — the burden of proof is on the applicant.

Under the regulations of the Graduate School, eligible applicants who have been extended an offer of admission by the CBA Graduate Admissions Committee are recommended to the dean of the Graduate School for either "full" or "provisional" graduate status. Those admitted with the classification "provisional status" who have not attained an overall 3.00 GPA upon the completion of 12 graduate credits will be dismissed from the program.

Procedure

GMAT scores should be sent to the director of Graduate Programs in Business, College of Business Administration, The University of Akron, Akron, OH 44325 (institution code 1829). Since the GMAT test is administered worldwide only four times per year, the applicant should register for it sufficiently in advance to the filing of the graduate application, so evaluation for admission will not be delayed. GMAT registration bulletins can be obtained from the Graduate Programs in Business Office or the Educational Testing Service, P.O. Box 6266-R, Princeton, NJ 08540. Those who have taken the GMAT more than five years ago are normally required to retake it.

All applications and accompanying documentation are evaluated simultaneously by the Graduate Admissions Committee (GAC). The GAC meets only four times, approximately four weeks after each GMAT date. The applicant will be informed writing of the GAC's decision after approximately one week.

Requirements

To be awarded any master's degree from the College of Business Administration, a student must:

- Meet the time and grade-point requirements of the Graduate School.
- Complete the minimum credits in each of the degree descriptions.
- Complete all course requirements of applicable master's program.

Master of Business Administration

The Master of Business Administration program is designed to give the student a general knowledge of the functional areas of business and permit the concentration of study in one of the five following areas: accounting, finance, management, marketing, or international business. Two phases of coursework are required: Phase I (foundation courses) and Phase II (core courses). The program consists of 54 graduate credits. Phase I courses may be waived for those who have had previous study in the areas. Phase I and II courses can be taken concurrently provided that all prerequisites have been met.

Phase I Foundation Courses

All are required unless Phase I courses have been waived at the time of admission.

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<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3250:600</td>
<td>Foundation of Economic Analysis*</td>
</tr>
<tr>
<td>6200:601</td>
<td>Financial Accounting</td>
</tr>
<tr>
<td>6400:602</td>
<td>Managerial Finance</td>
</tr>
<tr>
<td>6400:655</td>
<td>Government and Business</td>
</tr>
<tr>
<td>6500:600</td>
<td>Management and Production Concepts</td>
</tr>
<tr>
<td>6500:601</td>
<td>Quantitative Decision Making</td>
</tr>
<tr>
<td>6500:602</td>
<td>Computer Techniques for Management</td>
</tr>
<tr>
<td>6600:606</td>
<td>Marketing Concepts I</td>
</tr>
</tbody>
</table>

The following courses are required only for those selecting accounting as their area of concentration:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200:301</td>
<td>Cost Accounting</td>
</tr>
<tr>
<td>6200:317</td>
<td>Intermediate Accounting I</td>
</tr>
<tr>
<td>6200:318</td>
<td>Intermediate Accounting II</td>
</tr>
<tr>
<td>6200:420</td>
<td>Advanced Accounting</td>
</tr>
<tr>
<td>6200:430</td>
<td>Taxation I</td>
</tr>
<tr>
<td>6200:440</td>
<td>Auditing</td>
</tr>
<tr>
<td>6200:603</td>
<td>Business Systems with Processing Applications</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200:610</td>
<td>Accounting Management and Control</td>
</tr>
<tr>
<td>(or 6200:650 Advanced Managerial Accounting)</td>
<td></td>
</tr>
</tbody>
</table>

Phase II Core Courses — Accounting Concentration

Breadth courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6400:650</td>
<td>Administering Costs and Prices</td>
</tr>
<tr>
<td>6500:552</td>
<td>Organizational Behavior</td>
</tr>
<tr>
<td>6500:562</td>
<td>Quantitative Methods in Operations Management</td>
</tr>
</tbody>
</table>

Choose one:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6400:674</td>
<td>Financial Management and Policy</td>
</tr>
<tr>
<td>6600:620</td>
<td>Strategic Marketing Management</td>
</tr>
</tbody>
</table>

Elective: Any three nonfoundation graduate credits at the 600 level offered by the college not in the area of accounting

* If waived, student must select 6400:650 Administering Costs and Prices from the MBA Core (Breadth) courses.

** If waived, student must select 6400:674 Financial Management and Policy from the MBA Core (Breadth) courses.

If still waived, the student must select 6600:620 Strategic Marketing Management from the MBA Core (Breadth) courses.
Phase I Core Courses — Finance Concentration

• Breadth courses:
  6200:610 Accounting Management and Control (or alternate accounting elective as approved by the director of Graduate Programs)** 3
  Choose one:
  6400:650 Administering Costs and Prices 3
  or
  6600:620 Strategic Marketing Management 3
  6500:652 Organizational Behavior 3
  6500:662 Quantitative Methods in Operations Management 3
  Elective Any three nonfoundation graduate credits at the 600 level offered by the CBA not in the area of finance 3

• Concentration courses:
  6400:674 Financial Management and Policy 3
  Electives (three courses from the following: one of which must be 6400:633, 645, 674 or 676)
  6400:631 Financial Markets and Institutions 3
  6400:633 Management of Depository Institutions 3
  6400:645 Investment Analysis 3
  6400:649 Portfolio Management 3
  6400:676 Management of Financial Structure 3
  6400:678 Capital Budgeting 3
  6400:689 International Business Finance 3
  6400:690 Selected Topics in Finance (may be repeated for a total of three credits) 3
  6400:691 International Markets and Investments 3
  6400:697 Independent Study (may be repeated for a total of six credits) 3
  6400:699 Seminar in Finance (must be repeated for a total of six credits) 3

• Integrative course:
  6500:695 Business Strategy and Policy: Domestic and International (restricted to students graduating within two semesters) 3

• Free electives:
  Any six credits of CBA electives (any six credits of foundation courses may be used to satisfy one three-credit free elective requirement up to six credits of free electives). Electives outside the CBA must be approved by the graduate director.) 6

Phase II Core Courses — Management Concentration

• Breadth courses:
  6200:610 Accounting Management and Control (or alternate accounting elective as approved by the director of Graduate Programs)** 3
  Choose one:
  6400:650 Administering Costs and Prices 3
  or
  6400:674 Financial Management and Policy 3
  6500:652 Organizational Behavior 3
  6500:662 Quantitative Methods in Operations Management 3
  Elective Any three nonfoundation graduate credits at the 600 level offered by the CBA not in the area of finance 3

• Concentration courses:
  6500:662 Quantitative Methods in Operations Management 3
  Elective Any three nonfoundation graduate credits at the 600 level offered by the CBA not in the area of management 3

• Integrative course:
  6500:695 Business Strategy and Policy: Domestic and International (restricted to students graduating within two semesters) 3

• Free electives:
  Any six credits of CBA electives (any six credits of foundation courses may be used to satisfy one three-credit free elective requirement up to six credits of free electives). Electives outside the CBA must be approved by the graduate director.) 6

Phase II Core Courses — Marketing Concentration

• Breadth courses:
  6200:610 Accounting Management and Control (or alternate accounting elective as approved by the director of Graduate Programs)** 3
  Choose one:
  6400:650 Administering Costs and Prices 3
  or
  6400:674 Financial Management and Policy 3
  6500:652 Organizational Behavior 3
  6500:662 Quantitative Methods in Operations Management 3
  Elective Any three nonfoundation graduate credits at the 600 level offered by the CBA not in the area of finance 3

• Concentration courses:
  6600:620 Marketing Information Systems and Research 3
  Elective Any six nonfoundation graduate credits in marketing (no more than three credits at the 500 level) 6

• Integrative course:
  6500:695 Business Strategy and Policy: Domestic and International (restricted to students graduating within two semesters) 3

• Free electives:
  Any six credits of CBA electives (any six credits of foundation courses may be used to satisfy one three-credit free elective requirement up to six credits of free electives). Electives outside the CBA must be approved by the graduate director.) 6

Phase II Core Courses — International Business Concentration*

• Breadth courses:
  6200:610 Accounting Management and Control (or alternate accounting elective as approved by the director of Graduate Programs)** 3
  Choose one:
  6400:650 Administering Costs and Prices 3
  or
  6400:674 Financial Management and Policy 3
  6500:652 Organizational Behavior 3
  6500:662 Quantitative Methods in Operations Management 3
  6600:620 Strategic Marketing Management 3
  Elective Any three nonfoundation graduate credits at the 600 level offered by the CBA not in the area of finance 3

• Concentration courses:
  6800:605 International Business Environments† 3
  Electives: 9 credits from the following courses, at least 2 of which must be designated "+":
  3250:671 International Trade 3
  6200:680 International Accounting (+) 3
  6400:691 International Business Finance (+) 3
  6500:656 Management of International Operations (+) 3
  6800:630 International Marketing Policies (+) 3
  6800:690 Seminar in International Business 3
  6800:691 Multinational Corporations 3
  6900:697 Independent Study in International Business 1-3

• Integrative course:
  6500:695 Business Strategy and Policy: Domestic and International (restricted to students graduating within two semesters) 3

• Free electives:
  Any six credits of CBA electives (any six credits of foundation courses may be used to satisfy one three-credit free elective requirement up to six credits of free electives). Electives outside the CBA must be approved by the graduate director.) 6

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*Requires reading and conversational proficiency in one language other than English.

**Students with sufficient managerial accounting background must elect another accounting course to substitute for 6200:610 and such election must be approved by the director of graduate programs in the College of Business Administration.

†Students with sufficient international business background must elect another international course to substitute for 6800:605, and such election must be approved by the director of graduate programs in business.
Master of Science in Accounting

The Master of Science in Accounting program is designed to give the student additional exposure to the functional areas of business plus an advanced concentration in accounting. However, the School of Accountancy has made the Master of Science in Accounting program inactive, and no candidates will be admitted to this program until further notice.

Master of Taxation

The Master of Taxation program is a professional degree designed to provide intensive training both for those planning to enter the field and for experienced accountants and attorneys.

The program provides a framework of conceptual, technical and professional knowledge which will assist the student in developing the expertise needed to examine and understand the many aspects of the difficult and complex tax structure. Through an integrated curriculum with emphasis on tax concepts, substantive knowledge of federal and state taxation, tax research and communication skills and tax planning, the student develops the ability to identify and solve tax problems.

The Master of Taxation curriculum is structured in two phases of course work: Phase I: foundation courses; and Phase II: required courses. A minimum of 30 semester credits is required for the degree.

Phase I:
- **Graduate Foundation:**
  - 3250:660 Foundation of Economic Analysis 3
  - 6200:601 Financial Accounting 3
  - 6200:603 Business Systems with Processing Applications 3
  - 6200:610 Accounting Management and Control 3
  - 6400:602 Managerial Finance 3
  - 6400:655 Government and Business 3
  - 6500:600 Management and Production Concepts 3
  - 6500:601 Quantitative Decision Making 3
  - 6600:600 Marketing Concepts 3
- **Postbaccalaureate Foundation:**
  - 6200:430 Taxation I 4
  - 6500:490 Business Policy 4

Phase II:
- **Required:**
  - 6200:636 Basic Tax Research 1
  - 6200:631 Corporate Taxation I 3
  - 6200:632 Taxation of Transactions in Property 3
  - 6200:633 Estate and Gift Taxation 3
- **Electives:**
  - Eighteen credits of which at least 12 must be in taxation (6200:641-693):
    - Taxation courses 12
    - Any CBA courses 6

Master of Science in Management

The Master of Science in Management program allows students to concentrate their advanced study in one of five areas: quality management, information systems management, human services management, health services management, and human resource management. Because of the complex nature of these specializations, they are not normally offered as options in traditional MBA programs. They are designed for individuals who know what they want to do or to help them apply what they already know more effectively. For example, engineers, science and math undergraduate majors may choose to concentrate in quality or materials management while computer science majors may prefer information systems management. Psychology majors would benefit from the human resource management concentration, and the health services option is a natural enhancement for anyone with special interest in the health field.

The Master of Science in Management program consists of two phases of courses. Phase I courses offer a basic foundation in business (24 credits). These courses may be waived if the student has completed prior study in each area. Phase II courses (36 credits) form the core of the M.S. program, including the concentration in a specific area of study.

Phase I:
- **Foundation:**
  - 3250:660 Foundation of Economic Analysis 3
  - 6200:601 Financial Accounting 3
  - 6400:602 Managerial Finance 3
  - 6400:655 Government and Business 3
  - 6500:600 Management and Production Concepts* 3

*For students selecting Health Services Management Options 6500:600, if not waived, is to be replaced by 6500:580, Introduction to Health Care Management.

Phase II:
- **Business Courses:**
  - 6200:610 Accounting and Control
  - (or alternate accounting elective)**
  - 6400:674 Financial Management and Policy
  - 6500:663 Organizational Theory
- **Core Courses:**
  - 6500:640 Management Information Systems
  - 6500:652 Organizational Behavior
  - 6500:662 Quantitative Methods in Operations Management
  - 6500:695 Business Strategy and Policy: Domestic and International

**Options:**

**Quality Management**
- **Concentration Courses:**
  - 6500:651 Productivity and Quality of Worklife Issues 3
  - 6500:663 Applied Industrial Statistics I 3
  - 6500:664 Applied Industrial Statistics II 3
  - 6500:673 Quality and Productivity Techniques 3
  - 6500:674 Advanced Quality and Productivity Techniques 3

**Information Systems Management**
(Cobol Proficiency is Required)
- **Concentration Courses:**
  - 6500:641 Applied Data Management 3
  - 6500:645 Advanced Management Information Systems 3
  - 6500:672 Manufacturing and Operations Analysis 3
- **Concentration Electives (Choose two):**
  - 6500:642 Systems Simulation 3
  - 6500:643 Expert Systems in Business 3
  - 6500:644 Managerial Decision Support Systems 3
  - 6500:678 Project Management 3

**Health Services Administration**
- **Concentration Courses:**
  - 6500:652 Hospital Operations Management 3
  - 6500:683 Health Services Systems Management 3
  - 6500:686 Health Services Research Project 3
  - 6500:687 Graduate Seminar in Health Services Policy and Administration 3
- **Concentration Elective:**
  - Three credits as approved by the director of graduate programs in business 3

**Human Resource Management**
- **Concentration Courses:**
  - 6500:651 Productivity and Quality of Worklife Issues 3
  - 6500:654 Industrial Relations 3
  - 6500:655 Compensation Administration and Employee Benefits 3
  - 6500:658 Strategic Human Resource Management 3
  - 6500:660 Employment Discrimination 3

**Materials Management**
- **Concentration Courses:**
  - 6500:672 Manufacturing and Operations Analysis 3
  - 6500:675 Materials Management 3
  - 6500:676 Management of Production and Operations 3
- **Concentration Electives (Choose two):**
  - 6500:641 Data Management 3
  - 6500:642 Systems Simulation 3
  - 6500:651 Productivity and Quality of Worklife Issues 3
  - 6500:673 Quality and Productivity Techniques 3
  - 6500:678 Project Management 3

**For students with sufficient managerial accounting background must elect another accounting course to substitute for 6200:610, and such election must be approved by the director of graduate programs in business.**

**For each six credits of Phase I coursework completed, three credits of Phase II coursework may be waived from the courses designated with an asterisk as determined by the director of graduate programs in business. Maximum of six credits to be waived.**
Joint Programs

The School of Law and the College of Business Administration (CBA) offer a joint program in legal and administrative studies (J.D./M.B.A.) and a joint program in legal and taxation studies (J.D./M.Tax.). These combinations are open to the student preparing for a career in such areas as corporate law, tax accounting or legal practice in government. The amount of time required to complete a joint degree program is shorter than the time required to complete both programs independently. To pursue either cooperative program, the student must apply to and be accepted by both the School of Law and the Graduate School of the CBA. The student should contact each school independently for information covering admission criteria and procedures (for further information on School of Law admissions, write: Director of Admissions, School of Law, The University of Akron, Akron, OH 44325). A baccalaureate degree is required.

Degree Requirements

A student is required to fulfill the requirements of the School of Law (77 credits) plus 10 credits transferred from the CBA. The requirements of the CBA may be met by fulfilling the requirements previously listed which include the common body of knowledge (Phase I) courses (unless waived because of prior undergraduate credits earned) and 24 credits for M.Tax. or 30 credits for M.B.A. of advanced courses in the CBA plus six credits transferred from the School of Law. The reciprocal acceptance of course credits by each school is the essence of the joint programs. All law courses used to fulfill CBA requirements must be approved by the director of Graduate Programs in Business prior to completion. To earn both degrees, a total of 97 (J.D./M.Tax.) or 107 (J.D./M.B.A.) credits is required, depending on the master's program pursued. More credits may be required for the master's degree if Phase I courses are required.

Upon the approval of the director of Graduate Programs in Business, 10 credits of School of Law courses may be applied toward the Masters of Taxation degree. No more than six credits from the School of Law may be in non-tax courses. The other four credits taken in the School of Law must be in tax courses which substitute for equivalent tax courses in the CBA.
College of Fine and Applied Arts

Linda Moore, Ph.D., Dean
Donald E. Hall, Ph.D., Associate Dean
William H. Seaton, Ph.D., Acting Assistant to the Dean

MASTER'S DEGREE

Home Economics and Family Ecology

A program of study is offered leading to the Master of Arts in Home Economics and Family Ecology degree with an emphasis in child development; child life; clothing, textiles and interiors; family development; food science; and nutrition/dietetics. Students must meet the following admission requirements for acceptance in the program:

- Meet the minimum GPA of 2.75 for four years of undergraduate study or 3.00 for the last two years of undergraduate study.
- Take the Graduate Record Examination within the five-year period prior to seeking admission.
- Submit a letter of personal career goals.
- Offer two letters of recommendation if desired.

The graduate faculty of the School of Home Economics may require an interview with any applicant.

In addition to the above, the student will be expected to comply with the following requirements:

- Complete the course of study in one of the six options, with a minimum of 40 credits. These credits will include:
  - foundation courses to prepare the student for research in home economics and family ecology as a discipline;
  - core courses in the area of specialty;
  - electives selected from within the department or from another discipline to strengthen student's professional goals. These courses will be selected in consultation with and approval from the student's graduate faculty advisor.
  - Complete a thesis or an internship. The thesis option involves the design and evaluation of original research in an appropriately related area commensurate with the student’s background and area of pursuit. The research may involve a creative, historical or experimental design. The internship option involves the design, development, implementation and evaluation of original and creative programs and/or resource materials pertaining to family and/or child development. Part of the internship experience may take place in a community-based agency which serves families and/or children. A written proposal for the thesis or internship option must be submitted at the completion of approximately 20 credits of graduate study.
  - Pass a written comprehensive examination over major and minor areas after the completion of at least 24 credits of graduate work.
  - Apply for advancement to candidacy upon successful completion of 25 credits of graduate study, the written comprehensive examination, and an approved prospectus for a thesis or internship.
  - Pass an oral examination covering the thesis or internship report.

Foundation Courses

- Required by all program options:

  7400.604 Orientation to Graduate Studies in Home Economics and Family Ecology

- 7400.680 Historical and Conceptual Bases of Home Economics and Family Ecology

- 7400.685 Research Methods in Home Economics and Family Ecology

Child Development Option

- Core courses:

  7400.665 Developmental Parent-Child Interactions

- 7400.666 Development in Infancy and Early Childhood

- Option Electives:

  Select 12 credits from the following courses with approval of adviser. (If a course has been taken at the undergraduate level, other courses must be selected.)

  7400.501 Family-Life Patterns in the Economically Deprived Home

  7400.504 Adolescence in the Family Context

  7400.542 Human Sexuality

Cognate Electives:

- Select 8 credits with approval of adviser from courses within the School of Home Economics and Family Ecology OR from a cognate area outside the School of Home Economics and Family Ecology OR from a combination of the above.

Child Life Option

- Core Courses:

  7400.551 Child in the Hospital

  7400.555 Practicum: Establishing and Supervising a Child Life Program

  7400.585 Orientation to the Hospital Setting

- Option Electives:

  Select 10 credits with approval of adviser from among the following. (If a course has been taken at the undergraduate level, other courses must be selected.)

  7400.501 Family-Life Patterns in the Economically Deprived Home

  7400.504 Adolescence in the Family Context

  7400.505 Family Financial Management

  7400.540 Family Crisis

  7400.542 Human Sexuality

  7400.543 Public Policy and American Families

Clothing, Textiles and Interiors Option

- Option Electives:

  Select 18 credits with approval of adviser from among the following. (If a course has been taken at the undergraduate level, other courses must be selected.)

  7400.531 History of Textiles and Furnishings

  7400.532 Interiors, Textiles and Product Analysis

  7400.536 Textile Conservation

  7400.533 Residential Design

  7400.534 Commercial Design

  7400.535 Principles and Practices of Design

  7400.539 Fashion Analysis

  7400.523 Professional Image Analysis

  7400.631 Problems in Design

  7400.632 American Costume and Textile Heritage

  7400.677 Social Psychology of Dress and the Environment

  7400.696 Individual Investigation in Home Economics and Family Ecology

Cognate Electives:

- Select 8 credits with approval of adviser from courses within the School of Home Economics and Family Ecology OR from a cognate area outside the school OR from a combination of the above.

Family Development Option

- Core Courses:

  7400.607 Family Dynamics

  7400.651 Family and Consumer Law

- Option Electives:

  Select 12 credits from the following courses with approval of adviser. (If a course has been taken at the undergraduate level, other courses must be selected.)

  7400.501 Family-Life Patterns in the Economically Deprived Home

  7400.504 Adolescence in the Family Context

  7400.506 Family Financial Management

  7400.540 Family Crisis

  7400.542 Human Sexuality

  7400.543 Public Policy and American Families

Select 40 credits to complete the master's degree.
Music

The degree Master of Music is offered by the School of Music with options in music education, performance, composition, theory, music history and literature, and accompanying. Entrance requirements for each program are as follows:

- The standard requirements for an undergraduate major in the area of proposed graduate specialty or performance which the school director approves as equivalent to an undergraduate major.
- The Graduate School's requirements for admission.
- The performance and accompanying options require an audition on the student’s major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.
- For the composition option, compositions representing the applicant’s techniques are required.
- The options in music education, music theory, and music history and literature require an interview with faculty in the appropriate area.

The student should consult with the coordinator of Graduate Studies in Music for additional information regarding the individualized nature of each option.

For the performance option in voice, a proficiency following:

- 7500.555 Advanced Conducting: Instrumental
- 7500.556 Advanced Conducting: Choral
- 7500.615 Musical Styles and Analysis I (Chant through Palestrina)
- 7500.616 Musical Styles and Analysis II (Baroque through early Beethoven)
- 7500.617 Musical Styles and Analysis III (Late Beethoven through Mahler/Strauss)
- 7500.619 Theory Pedagogy

Major required courses — 21-23 credits:
- 7500.601 Choral Literature
- 7500.618 Musical Styles and Analysis IV (20th Century)
- 7500.624 Historical Survey: Music of the 20th Century
- 7500.647 Master’s Chamber Recital
- 7520.642 Applied Composition

Additional music courses — zero to two credits.

Graduate-level (music) courses, workshops, applied courses, or field study (other than in composition) and/or advanced problems to be selected by the student and adviser.

Electives — three credits.

To be selected by student and adviser. Areas include graduate-level courses in other disciplines, such as theatre arts, in which the student obtains permission of instructor or 7520.642 Applied Composition.

Degree total: 34-36 credits.

Music Education Option

Thesis Option — 32 credits

- Required Music Education Core Courses — 13-15 credits
  - 7500.611 Foundations of Music Education
  - 7500.612 Practices and Trends in Music Education
  - 7500.614 Measurement and Evaluation in Music Education
  - 7500.699 Thesis

- Additional music education courses — select 17-19 credits with approval of music education and graduate advisors
  - 7500.697 Advanced Problems in Music Education
  - 7500.698 Advanced Problems in Music Education

Non-Thesis Option — 34 credits

- Required Music Education Core Courses — 9 credits
  - 7500.611 Foundations of Music Education
  - 7500.612 Practices and Trends in Music Education
  - 7500.614 Measurement and Evaluation in Music Education
Music History and Literature Option

- Music core courses — eight credits (to be selected):
  7500:555 Advanced Conducting: Instrumental 2
  7500:556 Advanced Conducting: Choral 2
  7500:618 Musical Styles and Analysis I (20th Century) 2
  7510:6--- Ensemble (participation required in two ensembles) 2
  7500:697 Advanced Problems in Music 4

- Major required courses — 20-22 credits:
  7500:551 Introduction to Musicology 2
  7500:553 Bibliography and Research 2
  7500:621 Historical Survey: Music of the Middle Ages and Renaissance 2
  7500:622 Historical Survey: Music of the Baroque 2
  7500:623 Historical Survey: Music of the Classic and Romantic Eras 2
  7500:624 Historical Survey: Music of the 20th Century 2
  7500:697 Advanced Problems in Music 4
  7500:699 Thesis Research/Recital Document 4-6

- Additional music courses — two to four credits.
- Graduate-level (music) workshops, applied music and/or courses to be selected by the student and adviser.
- A minimum reading proficiency in German is required. If a student lacks background in this language, completion of undergraduate courses is required.
- Electives — two to four credits.

To be selected by the student and adviser. Areas include graduate-level courses in other disciplines in which student obtains permission of instructor. Degree Total: 34-36 credits.

Performance Option in Accompanying

- Music core courses — Eight credits (to be selected):
  7500:555 Advanced Conducting: Instrumental 2
  7500:556 Advanced Conducting: Choral 2
  7500:615 Musical Styles and Analysis I (Chant through Palestrina) 2
  7500:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
  7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Strauss) 2
  7500:621 Historical Survey: Music of the Middle Ages and Renaissance 2
  7500:622 Historical Survey: Music of the Baroque 2
  7500:623 Historical Survey: Music of the Classic and Romantic Eras 2
  7500:624 Historical Survey: Music of the 20th Century 2

- Major required courses — 23-26 credits:
  Select either 7500:562 or 7500:633
  7500:562 Repertoire and Pedagogy: Organ 3
  7500:563 Teaching and Literature: Piano and Harpsichord 2
  7500:640 Advanced Accompanying I 1
  7500:641 Advanced Accompanying II 1
  7500:642 Advanced Accompanying III 2
  7500:643 Advanced Accompanying IV 1
  7500:668 Advanced Song Literature 3
  7500:698 Graduate Recital (to be completed in a minimum of two performance media) 2
  7510:614 Keyboard Ensemble (participation in two ensembles required)** 2-4
  7510:618 Small Ensemble - Mixed 2
  7520:6--- Applied Music (piano, organ and/or harpsichord) 8

- Additional music courses — two to three credits.

- Elective — two credits.

Degree total: 33-36 credits.

*Note: A minimum pronunciation proficiency is required in Italian, German and French. If the student lacks background in any of these language requirements, completion of undergraduate courses is required.

All candidates for this degree must accompany a minimum of three solo ensemble recitals (instrumental and vocal). These can be done as part of 7500:697.

Performance Option in Winds, String and Percussion

- Music core courses: Eight credits (to be selected):
  7500:555 Advanced Conducting: Instrumental 2
  7500:556 Advanced Conducting: Choral 2
  7500:615 Musical Styles and Analysis I (Chant through Palestrina) 2
  7500:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
  7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Strauss) 2
  7500:621 Historical Survey: Music of the Middle Ages and Renaissance 2
  7500:622 Historical Survey: Music of the Baroque 2
  7500:623 Historical Survey: Music of the Classic and Romantic Eras 2
  7500:624 Historical Survey: Music of the 20th Century 2

- Major required courses — 16-18 credits:
  7500:618 Musical Styles and Analysis IV (20th Century) 2
  7500:630 Teaching and Literature: Brass Instruments 2
  7500:631 Teaching and Literature: Woodwind Instruments 2
  7500:632 Teaching and Literature: Percussion Instruments 2
  7500:634 Teaching and Literature: String Instruments 2
  7500:698 Graduate Recital 2

- Additional music courses — six credits.*

Graduate-level (music) workshops, applied lessons, advanced problems and/or courses to be selected by student and adviser.

- Electives — four credits.*

Areas may include graduate-level courses in other disciplines, such as theatre arts, in which the student obtains permission of instructor, or additional music courses, as determined by the student and adviser.

Degree total: 34-36 credits.

Performance Option in Voice

- Music core courses: Eight credits (to be selected):
  7500:555 Advanced Conducting: Instrumental 2
  7500:556 Advanced Conducting: Choral 2
  7500:615 Musical Styles and Analysis I (Chant through Palestrina) 2
  7500:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
  7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Strauss) 2
  7500:621 Historical Survey: Music of the Middle Ages and Renaissance 2
  7500:622 Historical Survey: Music of the Baroque 2
  7500:623 Historical Survey: Music of the Classic and Romantic Eras 2
  7500:624 Historical Survey: Music of the 20th Century 2

- Major required courses — 20-22 credits:
  7500:618 Musical Styles and Analysis IV (20th Century) 2
  7500:665 Vocal Pedagogy 3
  7500:668 Advanced Song Literature 2
  7500:698 Graduate Recital 2
  7510:6--- Ensemble (participation in two ensembles required)** 2-4
  7520:624 Applied Voice 8

- Additional music courses — two credits (suggested minimum).

Graduate-level (music) courses, workshops, advanced problems and/or applied lessons, to be selected by student and adviser.

- Electives — four credits.

Areas may include graduate-level courses in other disciplines, such as theatre arts, in which the student obtains permission of instructor, or additional music courses, as determined by the student and adviser.

Degree total: 34-36 credits.

Performance Option in Keyboard

- Music core courses: Eight credits (to be selected):
  7500:555 Advanced Conducting: Instrumental 2
  7500:556 Advanced Conducting: Choral 2
  7500:615 Musical Styles and Analysis I (Chant through Palestrina) 2
  7500:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
  7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Strauss) 2
  7500:621 Historical Survey: Music of the Middle Ages and Renaissance 2
  7500:622 Historical Survey: Music of the Baroque 2
  7500:623 Historical Survey: Music of the Classic and Romantic Eras 2
  7500:624 Historical Survey: Music of the 20th Century 2

- Major required courses — 18-21 credits:
  7500:618 Musical Styles and Analysis IV (20th Century) 2
  Select either 7500:562 or 7500:633
  7500:562 Repertoire and Pedagogy: Organ 3
  7500:633 Teaching and Literature: Piano and Harpsichord 2

**Two semesters ensemble participation required for degrees completed in two semesters. Four semesters ensemble participation required for degrees completed in four semesters.

*It is recommended that each student's graduate committee recommend the appropriate elective credits.
Two semesters ensemble participation required for degrees completed in two semesters. Four semesters ensemble participation required for degrees completed in four semesters.
Complete department requirements for admission which include submission of three letters of recommendation and Graduate Record Examination Aptitude Test results.

Declare intent to major in either speech language pathology or audiology. Speech language pathology and audiology majors are accepted upon meeting requirements. Deadline for assistantship applications is March 1.

Degree Requirements

Successfully complete a course of study with a minimum of 34 credits, including thesis — or with a minimum of 38 credits and comprehensive examinations for the non-thesis option. The student anticipating dual ASHA certification in speech pathology and audiology may need to complete eight or more additional credits in the non-thesis option. Academic requirements within the school include:

- **7700:611** Research Methods in Communicative Disorders I... 3
- **7700:612** Research Methods in Communicative Disorders II... 2
- **7700:699** Research and Thesis... 4-6
- **7700:650** Advanced Clinical Practicum: Differential Diagnosis... 1

Two credits must be taken from the following:

- **7700:651** Advanced Clinical Practicum: Voice... 1
- **7700:652** Advanced Clinical Practicum: Fluency... 1
- **7700:654** Advanced Clinical Practicum: Diagnostic Audiology... 1
- **7700:655** Advanced Clinical Practicum: Articulation... 1
- **7700:656** Advanced Clinical Practicum: Language... 1
- **7700:657** Advanced Clinical Practicum: Rehabilitative Audiology... 1

The student must take four credits of 7700:695 Externship: Speech Pathology and Audiology. Two credits of 5610:693 Student Teaching in Speech Pathology or 5610:692 Student Teaching in Audiology may be substituted for two credits of 7700:695. (Although 5610:692 and 5610:693 are 6 hours of credit, only 2 of those credits may be substituted for 7700:695). The audiology student must take 4 credits in speech pathology, and the speech pathology student must take 4 credits in audiology. It is recommended that the speech pathology major elect 7700:639 Advanced Clinical Testing as the first of the audiology courses.

The following limitations on work toward the degree may be exceeded only with the approval of two-thirds of the department's graduate faculty:

- no more than 4 credits of workshop courses.
- no more than 6 credits of directed study course work (including 7700:697); and
- no more than 6 credits taken in disciplines other than communicative disorders.

Only 7 credits of clinical practicum may be applied toward completion of degree requirements. These 7 credits may consist of externship, student teaching (maximum of 2 credits), and in-house practicum. However, the student may wish, or be required, to complete one or more practica in addition to degree requirements. Only 2 credits of student teaching (5610:693 or 5610:692) can be counted toward degree requirements. Students must be registered for clinical practicum, externship or student teaching during any academic period in which they are involved in in-house practicum, externship or student teaching.

Social Work

There is no graduate degree in social work. A student interested in course work may enroll if admitted to Graduate School through other programs or may apply for non-degree status through the School of Social Work. A student should enroll in graduate courses only for specific professional preparation and with the permission of the instructor. Courses presume a background in social welfare institutions, social work practice, social welfare policy and history. Inquiries should be directed to the director of the School of Social Work.
**College of Nursing**

V. Ruth Gray, R.N., Ed.D., Interim Dean
Dolores Bower, R.N., Ph.D., Interim Associate Dean of Graduate Program
Elaine Nichols, R.N., Ed.D., Associate Dean of Undergraduate Program
Phyllis Fitzgerald, R.N., Ph.D., Assistant Dean of Student Affairs
Janne R. Dunham-Taylor, R.N., Ph.D., Assistant Dean of Continuing Education

**MASTER OF SCIENCE IN NURSING**

**Philosophy**

The College of Nursing, an integral part of The University of Akron, accepts the responsibility for promoting the general mission of the University, which is dissemination and pursuit of knowledge, the nurturing of intellectual curiosity, the search for truth and an unconscious effort to serve the (nursing) student in the urban and rural community.

The College of Nursing faculty believe that the foci of professional nursing are individuals, families and communities. The individual is seen as a complex whole whose existence involves patterns, dynamic change, transformation and interdependence. The individual interrelates within the environment in biological, psychological, social, spiritual, cultural and other dimensions. The individual is unique and universal. The individual is a thinking, feeling, interacting, evolving, creating, valuing being.

Families are individuals dynamically connected with each other over time. Family configurations may be traditional or nontraditional.

Communities are groups of people with one or more common characteristics who are in relationship to one another and may or may not interact.

Health is comparative, dynamic, multidimensional and has personal meaning. It includes disease, nondisease and quality of life. People have the right to participate in decisions affecting and affecting personal health.

Environment includes all living and nonliving dimensions with which the individual, family and community have interrelationships. The dynamic environmental interrelations define and establish rules for health and modes of action.

Nursing is an art and a science. The discipline of nursing is concerned with individual, family and community and their responses to health within the context of the environment. Professional nursing includes the appraisal and the enhancement of health. Personal meanings of health are understood in the nursing situation within the context of familial, societal and cultural meanings. The professional nurse uses knowledge from theories and research in nursing and other disciplines is providing nursing care. The practice of nursing occurs in a variety of settings. The role of the nurse involves the exercise of social and cultural responsibilities, including accountability for professional actions and provision of quality nursing care.

Education is an individualized, life-long process. Learning is a continual process and includes the individual's interrelations with the environment. Knowledge acquisition, development of critical thinking and self-expression enable the student to respond to clients who have unique human values and cultural heritage. Each nursing student brings attitudes, beliefs, values, feelings, knowledge and experience into the learning environment. These variables influence learning. Learning occurs through continual construction and reconstruction of experience in relation to environmental influences. Nursing education at the baccalaureate level synthesizes knowledge from nursing, humanities, social, cultural, physical and natural sciences to operationalize the nursing process in practice. The student is prepared to function as nurse generalist in a variety of settings. Faculty and student continually seek to refine the commitment to and understanding of the relationship between theory and practice. Students are encouraged to become self-directed, collaborative, interdependent and independent. These variables are the foundation for life-long learning and professional development.

Nursing education at the master's level builds upon baccalaureate nursing preparation and is a foundation for doctoral study. Graduate education provides advanced learning to prepare specialists, educators and administrators in the practice of nursing. College of Nursing graduate students analyze and use a variety of theoretical formulations and research findings in advanced practice as well as plan and conduct research with guidance. The students develop expertise through self-direction, peer relations, personal valuing, and faculty modeling and facilitation.

**Characteristics of the Graduate**

Upon completion of the program graduates will be able to:

- Incorporate theories and advanced knowledge into nursing practice.
- Demonstrate competence in selected role(s).
- Identify researchable nursing problems and participate in research studies in advanced nursing practice.
- Use leadership, management, and teaching knowledge and competencies to influence nursing practice.
- Assume responsibility for contributing to improvement in the delivery of health care and influencing health policy.
- Assume responsibility for contributing to the advancement of the nursing profession.

**Admission**

- Baccalaureate degree in nursing from an NLN-accredited nursing program. **
- 3.00 GPA on a 4.00 scale for all previous college work.
- GRE taken within the last five years. The average score is 4.00.
- Three (3) letters of reference from a recent employer; a member of the nursing profession; a member of the faculty.
- A 300-word essay describing professional goals.
- Interview prior to admission to the program.
- Current state of Ohio license to practice nursing and evidence of malpractice insurance.
- Prerequisite course requirements: Undergraduate Statistics, Nursing Research, Basic Health Assessment and Computer Skills Graduate Level Statistics.

A one-year experience in an area where critical care and emergencies occur is required for all students admitted to the master's program.

Applicants who are certified nurse practitioners will be evaluated and have their program planned on an individual basis.

**Admission Procedures**

The student secures application for Graduate School from the Office of the Dean of the Graduate School, The University of Akron. Criteria for admission to the Graduate Nursing Program may be secured from the associate dean of the graduate program of the College of Nursing.

A graduate admissions committee of the College of Nursing will review all applications and make recommendations to the associate dean regarding the applicant's status. The associate dean will send recommendation first to the dean of the college, then to the dean of the Graduate School, who will notify the student of admission status.

Applications received in the graduate office of the College of Nursing will be reviewed on a rotating basis to facilitate the admissions process.

**Instructional Program**

The Master of Science in Nursing curriculum includes 36 credit hours of study and focuses on nursing care of vulnerable populations in episodic and long term care situations. Areas of concentration include Adult Health Nursing, Liaison Mental Health Nursing, Child and Adolescent Health Nursing, and Gerontological Nursing. Students are prepared for advanced practice roles in education, administration or clinical nurse specialization. The curriculum is based on theory and research both in nursing and in related disciplines. It provides the foundation of doctoral study and for ongoing professional development.

The Master of Science program in Nurse Anesthesia includes 44 credit hours of study and focuses on the master's preparation of certified registered nurse anesthetists (CRNAS).

**Nursing Core**

The core consists of 17 credits which span the curriculum. These courses encompass advanced theory, research and practice.

**Nursing Research**

All students enroll in a research core for a total of 7 credits: 8200:613, Nursing Inquiry I and 8200:699 Thesis or 8200:618 Nursing Inquiry II.

**Advanced Practice Roles**

Options are provided for roles of educator, administrator or clinical nurse specialist.
Electives

Students may choose to enroll in cognate electives. The graduate nursing curriculum requires 36 credit hours of study. Additional credits will provide the opportunity to individualize and strengthen the major.

Core courses required of all students:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>3100:670</td>
<td>Physiology</td>
<td>3</td>
</tr>
<tr>
<td>8200:603</td>
<td>Theoretical Bases for Nursing</td>
<td>3</td>
</tr>
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<td>8200:605</td>
<td>Computer Applications in Nursing</td>
<td>2</td>
</tr>
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<td>8200:699</td>
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</table>

Functional role courses selected by students based upon area of specialty.

- **Education:**
  - 8200:682 Nursing Curriculum Development: 3 credits
  - 8200:683 Evaluation in Nursing Education: 3 credits
  - 8200:684 Practicum: The Academic Role of the Nurse Educator: 6 credits

- **Administration:**
  - 8200:601 Financial Accounting: 3 credits
  - 8200:639 Organizational Behavior in Nursing Settings: 3 credits
  - 8200:699 Practicum: Nursing Administration: 10 credits

- **Nurse Anesthersys**
  - 3100:561 Human Physiology I: 4 credits
  - 3100:562 Human Physiology II: 4 credits
  - 8200:640 Scientific Components of Nurse Anesthesia: 3 credits
  - 8200:641 Pharmacology for Nurse Anesthesia I: 2 credits
  - 8200:643 Principles of Anesthesia I: 4 credits
  - 8200:644 Pharmacology for Nurse Anesthesia II: 3 credits
  - 8200:645 Principles of Anesthesia II: 4 credits
  - 8200:647 Professional Role Seminar: 2 credits

- **Child and Adolescent Health**
  - 8200:651 Child and Adolescent Health Nursing I: 3 credits
  - 8200:655 Child and Adolescent Health Nursing II: 4 credits
  - 8200:656 Pharmacology for Child and Adolescent Health Nursing: 3 credits
  - 8200:657 Child and Adolescent Health Nursing III: 4 credits
  - 8200:659 Practicum: Child and Adolescent Health Nursing: 3 credits

- **Liaison Mental Health Nursing**
  - 3100:655 Psychopharmacology: 2 credits
  - 8200:661 Liaison Mental Health Nursing I: 3 credits
  - 8200:665 Liaison Mental Health Nursing II: 4 credits
  - 8200:667 Liaison Mental Health Nursing III: 4 credits
  - 8200:669 Practicum: Liaison Mental Health Nursing: 3 credits

**Students in education are required to take an additional 7 credits of Advanced Nursing in Child and Adolescent Health, Liaison Mental Health, Adult Health, or Gerontological Nursing.**

**In addition to the listed courses, all nurse anesthesia students must complete a 15 month residency.**

**Students in Child and Adolescent Health, Liaison Mental Health, Adult Health, or Gerontological Nursing are required to take the 2 credit hour Advanced Clinical Practice Seminar.**

**R.N.-M.S.N. PROGRAM**

Admission Policies

The R.N.-M.S.N. Program is a graduate program, and as such, applicants must meet the following admission requirements:

- Current Ohio State license as a registered nurse and evidence of malpractice insurance.
- Grade-point average of 3.00 on a 4.00 scale for all previous college work.
- Three (3) letters of reference from: a recent employer; a member of the nursing profession; a former faculty member.
- Graduate Record Exam (GRE) taken within the last five (5) years. During the past three years, the range of scores has been: verbal 400-614, quantitative 400-695, and analytical 400-640.
- Three hundred (300) word essay describing professional goals.
- Interview with selected faculty members and submission of a portfolio.
- Computer skills.

Curriculum

The R.N.-M.S.N. program is designed for those registered nurses holding a diploma or associate degree in nursing who aspire to the Master of Science in Nursing degree. Students must complete 60 hours of prerequisite undergraduate coursework prior to acceptance into the program. The R.N.-M.S.N. Program consists of 15 hours of upper-division baccalaureate coursework and a minimum of 36 hours of graduate coursework. Students will receive 39 hours of undergraduate by-passed credit after successful completion of all undergraduate credit. Upon successful completion of all program requirements, the student will receive the M.S.N.

Once students are admitted into the R.N.-M.S.N. sequence, they complete the following four Bridge Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8200:460</td>
<td>Issues and Roles of the Profession of Nursing</td>
<td>3</td>
</tr>
<tr>
<td>8200:465</td>
<td>Concepts and Theories of Professional Nursing</td>
<td>3</td>
</tr>
<tr>
<td>8200:470</td>
<td>Community Health Nursing</td>
<td>4</td>
</tr>
<tr>
<td>8200:485</td>
<td>Leadership Roles of Professional Nursing</td>
<td>5</td>
</tr>
</tbody>
</table>

Upon completion of the Bridge Courses, students follow the Graduate Curriculum.

**Students in Child and Adolescent Health, Liaison Mental Health, Adult Health, or Gerontological Nursing are required to take the 2 credit hour Advanced Clinical Practice Seminar.**
**Doctor of Philosophy in Polymer Science**

An interdisciplinary program leading to the Doctor of Philosophy in Polymer Science is administered by the Department of Polymer Science. Graduates from the three main disciplines (chemistry, physics and engineering) are guided into the appropriate courses of study and research in that field under the supervision of a faculty member. Research facilities of the Institute of Polymer Science are available for thesis research. Students may be admitted directly to the Ph.D. program upon screening of their qualifications and recommendation by the department head and dean.

In addition to satisfying the general requirements of the Graduate School, a student working toward the Doctor of Philosophy in Polymer Science must meet the following requirements:

- Complete a course of study prescribed by the student's advisory committee based on the committee's judgment of the student's background and on the result of any special examinations it might impose. This course will consist of a minimum of, but usually more than, 36 credits in graduate courses, as outlined below, or 26 credits in graduate courses and 10 credits in non-graduate courses (exclusive of Master of Science thesis credit). Credits for participation in either polymer Science or Polymer Engineering seminars do not apply toward the degree. At least 12 credits of graduate course work and all dissertation credits must be completed at the University.
- Pass eight cumulative examinations which are given at intervals during the academic year. The candidate is urged to begin these examinations early in the graduate program.
- Complete 987:60PF Polymer Science Seminar I and II
- Pass an oral examination upon completion of a research dissertation.
- Demonstrate competency in computer programming.
- Pass the general requirements for the Doctor of Philosophy degree.
- Satisfy the foreign language requirement for the doctoral degree by meeting the requirements of Plan A, B, or C as specified by the student’s advisory committee. Appropriate research skills for Plan C are to be specified by the department on the basis of the student’s area of specialization and intended research. These skills include proficiency in a computer programming language, special mathematical methods, applied statistical analysis, and special literature search techniques.

**Doctor of Philosophy in Engineering (Polymer Engineering)**

The Department of Polymer Engineering administers a graduate program in which graduate students, with primarily engineering backgrounds, are guided through a course of study and research under the supervision of a faculty member. Students may be admitted directly to the Ph.D. program upon screening of their qualifications and recommendation by the department head and dean.

Students in Polymer Engineering must satisfy the general requirements of the Graduate School and the department as stated below:

- Successfully complete a qualifying examination within three semesters after admission into the program. The examination shall cover graduate courses that the student has completed and basic undergraduate topics.
- Complete courses in the plan of study developed by the student advisory committee on the basis of the qualifying examination. A minimum of 90 credits of graduate work must be earned, including all course requirements listed for the Master of Science in Polymer Engineering degree.
- Pass a candidacy examination which may be taken after 90 percent of the course work specified in the plan of study has been completed.
- Pass an oral examination in defense of the dissertation.

**MASTER’S DEGREE**

Students may pursue Master of Science degrees in either Polymer Science or Polymer Engineering.

**Master of Science in Polymer Science**

- A minimum of 24 credits in appropriate courses in biology, chemistry, mathematics, physics, polymer science and engineering as prescribed by the advisory committee.
- Completion of a research project (987:699) and the resulting six credits.
- Attendance at and participation in seminar-type discussions scheduled by the department. Credits for participation in either polymer science or polymer engineering seminars do not apply toward the degree.
Master of Science in Engineering  
(Polymer Engineering)

The major emphases of the graduate program in polymer engineering are in polymer processing, engineering performance and structural and rheological characterization of polymers.

This would involve an academic program of 33 credits, including 12 credits of core courses, three credits of approved mathematics courses and six thesis credits.

• Polymer engineering core:
  9841:611 Structural Characterization of Polymers with Electromagnetic Radiation 2
  9841:621 Rheology and Polymer Processing 3
  9841:632 Analysis and Design of Polymer Processing Operations I 3
  9841:633 Engineering Properties of Solid Polymers 2
  9841:641 Polymeric Materials Engineering Science 2

• Polymer engineering elective
  9841:601 Polymer Engineering Seminar 1
  9841:623 Analysis and Design of Polymer Processing Operations II 3
  9841:642 Engineering Aspects of Polymers and Colloids 2
  9841:651 Polymer Engineering laboratory 2
  9841:661 Polymerization Reactor Engineering 3

• Approved engineering and science elective (a minimum of three credits of approved science or mathematics required):
  4300:681 Advanced Engineering Materials 3
  4600:622 Continuum Mechanics 3
  9871:613 Polymer Science laboratory 2
  9871:674 Polymer Structure and Characterization 2
  9871:675 Polymer Thermodynamics 2

• Thesis:
  9841:699 Thesis 6

• Attendance at and participation in department seminars as directed by the advisory committee is required.
Interdisciplinary and Certificate Programs of Study

OVERVIEW
To add to the dimensions of the traditional disciplines, the University has established interdisciplinary and interdepartmental programs of study. In addition to a major, the student may elect to pursue one of these programs.

Interdisciplinary Studies programs feature courses which integrate and analyze issues and concepts from more than one field. The goal of this type of study is to place knowledge into a greater perspective than would be possible through any one traditional field. This is accomplished by taking courses from a variety of departments as well as courses which may be team taught. Interdisciplinary Studies and certificate programs will include coursework designated as 3000.

Upon completion of any of these programs, a statement will be placed on the student’s permanent record indicating the area of concentration. The certificate indicating the area of concentration will be awarded when the student completes requirements for a degree unless otherwise specified.

APPLIED POLITICS
John C. Green, Ph.D., Director

The Certificate Program, through the Ray C. Bliss Institute of Applied Politics, offers concentrated coursework in the history, organization and management of campaigns intended to influence the outcome of political decisions. This includes as a major focus, but is not limited to, efforts to capture elective public office in partisan contests. This program is available to any student who has a deep interest in practical politics. The set of courses comprising the certificate program is also incorporated as a track within the Bachelor of Arts and Bachelor of Science in Public Policy Management Program. Interested students are able to create degree programs with an emphasis on campaign management.

Requirements
Persons are eligible for admission to the Certificate Program in Applied Politics if they have been admitted to study as special, non-degree or full-time students in any department of the University. Students who are pursuing a graduate degree in other departments at the University may be admitted to the master’s level certificate program upon the recommendation of the head of the department in which they are enrolled. Students shall seek admission to this program by filing an application with the political science department. The student will schedule courses with the assistance of an adviser in the department.

Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3100:540</td>
<td>Public Opinion and Political Behavior</td>
<td>4</td>
</tr>
<tr>
<td>3100:570</td>
<td>Campaign Management</td>
<td>3</td>
</tr>
<tr>
<td>3100:571</td>
<td>Campaign Finance</td>
<td>3</td>
</tr>
<tr>
<td>3100:572</td>
<td>American Political Parties</td>
<td>3</td>
</tr>
<tr>
<td>3100:695</td>
<td>Internship</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

In addition to the core courses, students must complete two of the following elective courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3100:690</td>
<td>Special Topics Applied Politics Focus*</td>
<td>3</td>
</tr>
<tr>
<td>3100:692</td>
<td>Independent Study*</td>
<td>3</td>
</tr>
<tr>
<td>3100:502</td>
<td>Politics and the Media</td>
<td>3</td>
</tr>
<tr>
<td>3100:572</td>
<td>American Interest Group</td>
<td>3</td>
</tr>
<tr>
<td>3100:690</td>
<td>One American Politics Graduate Seminar*</td>
<td>3</td>
</tr>
</tbody>
</table>

Students must maintain at least a 3.0 average in the certificate coursework.

*Students must have prior approval of the Bliss Institute Director.

Certificate
Political science majors at both the undergraduate and graduate level will, upon completion of the program, be awarded a B.A., B.S. or M.A. in Political Science with a Certificate in Applied Politics. Majors in other disciplines will have the certificate noted on their permanent records.

COMPOSITION
Martin McKoski, Ph.D., Director

Requirements
To be eligible for the certificate in composition, a person must be admitted to the University as a graduate student (with either full or provisional status). An eligible person interested in the program should contact the program director. Five courses in composition and linguistics are required. Other appropriate English courses in composition or linguistics may be substituted as optional courses with the permission of the director.

Required Courses:

<table>
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<tbody>
<tr>
<td>3300:576</td>
<td>Seminar: Theory and Teaching of Basic Composition</td>
<td>3</td>
</tr>
<tr>
<td>3300:673</td>
<td>Theories of Composition</td>
<td>3</td>
</tr>
<tr>
<td>3300:675</td>
<td>Seminar Research Methodologies in Composition</td>
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</tr>
</tbody>
</table>

Optional Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3300:570</td>
<td>History of the English Language</td>
<td>3</td>
</tr>
<tr>
<td>3300:571</td>
<td>U.S. Dialects: Black and White</td>
<td>3</td>
</tr>
<tr>
<td>3300:589</td>
<td>Grammatical Structures of Modern English</td>
<td>3</td>
</tr>
<tr>
<td>3300:575</td>
<td>Theory of Rhetic</td>
<td>2</td>
</tr>
<tr>
<td>3300:589</td>
<td>Seminar: Sociolinguistics</td>
<td>3</td>
</tr>
<tr>
<td>3300:970</td>
<td>Modern Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>3300:690</td>
<td>Seminar: Stylistics</td>
<td>3</td>
</tr>
<tr>
<td>3300:695</td>
<td>Seminar: Contextual Linguistics</td>
<td>3</td>
</tr>
</tbody>
</table>

DIVORCE MEDIATION
Helen Clemingshaw, Ph.D., Coordinator

Requirements
This graduate certificate program in divorce mediation requires a minimum of 18 graduate credits dependent upon previous educational background. The program has been designed to serve the practicing or prospective divorce mediator.

All applicants to the program should have previously earned a law degree or a master’s degree (at minimum in the behavioral sciences, such as psychology, social work, counseling, and marriage and family therapy, or child and family development). Applicants planning to pursue the certificate must apply to the Center for Family Studies and the Graduate School for admission as non-degree students. Persons currently working toward a doctorate or Juris Doctor at the University may participate in the certificate program as a cognate or minor. In this case, students must receive permission from their academic department as well as admission from the Center for Family Studies. Since the educational preparation prior to entry to this program will be quite diverse, the selection of courses within the certificate will vary among the participants. However, all students are expected to complete the core courses in addition to 10 credit hours selected from among several disciplines related to divorce mediation.

Core

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1800:601</td>
<td>Divorce Mediation</td>
<td>3</td>
</tr>
<tr>
<td>1800:602</td>
<td>Divorce Mediation Practicum</td>
<td>2</td>
</tr>
</tbody>
</table>

Select at least one from each area:

Law

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200:638</td>
<td>Family Law</td>
<td>3</td>
</tr>
<tr>
<td>1400:651</td>
<td>Family Consumer Law</td>
<td>3</td>
</tr>
</tbody>
</table>
To participate in the program, a student should:

- Be formally admitted to The University of Akron as an undergraduate, postbaccalaureate or graduate student.
- Make written application to the program countersigned by student's major academic adviser.
- Have an interview with a designated faculty member of the Institute for Life-Span Development and Gerontology.
- Receive written notification for admission from the director of the Institute for Life-Span Development and Gerontology.
- Consult with the director or a designated faculty member to formulate a program of study.

**Program**

Minimum: 18 credits.

**Core**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1850:690</td>
<td>Interdisciplinary Seminar in Life-Span Development and Gerontology</td>
<td>3</td>
</tr>
<tr>
<td>1850:695</td>
<td>Practicum/internship</td>
<td>3</td>
</tr>
<tr>
<td>5900:800</td>
<td>Research Methods Course</td>
<td>3</td>
</tr>
</tbody>
</table>

*From student's home department.

**Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1850:686</td>
<td>Retirement Specialist</td>
<td>2</td>
</tr>
<tr>
<td>1850:696</td>
<td>Workshop—Women: Middle and Later Years</td>
<td>2</td>
</tr>
<tr>
<td>1850:697</td>
<td>Workshop—Aging Processes and Intervention</td>
<td>2</td>
</tr>
<tr>
<td>3700:586</td>
<td>Policy Problems: Aging**</td>
<td>3</td>
</tr>
<tr>
<td>3700:620</td>
<td>Psychology Core II: Developmental, Perceptual, Cognitive</td>
<td>4</td>
</tr>
<tr>
<td>3750:727</td>
<td>Psychology of Adulthood and Aging</td>
<td>4</td>
</tr>
<tr>
<td>3810:678</td>
<td>Social Gerontology</td>
<td>3</td>
</tr>
<tr>
<td>3850:651</td>
<td>Cross Cultural Perspectives in Aging</td>
<td>3</td>
</tr>
<tr>
<td>5400:541</td>
<td>Educational Gerontology Seminar</td>
<td>3</td>
</tr>
<tr>
<td>5400:661</td>
<td>Current Issues in Higher Education: Life-Span and Community Education</td>
<td>2</td>
</tr>
<tr>
<td>6500:687</td>
<td>Seminar in Health Services Policy and Administration</td>
<td>3</td>
</tr>
<tr>
<td>6500:683</td>
<td>Health Services Systems Management (with permission)</td>
<td>3</td>
</tr>
<tr>
<td>7400:603</td>
<td>Family Middle and Later Years</td>
<td>2</td>
</tr>
<tr>
<td>7700:550</td>
<td>Social Needs and Services for Later Adulthood and Aging</td>
<td>3</td>
</tr>
</tbody>
</table>

**Requirements**

This certificate program in higher education requires a minimum of 15 credits. The program of studies has been designed to serve the practicing or prospective college or University administrator or instructor.

**Admission**

All applicants to the program should have previously earned a master's degree. Special admission for concurrent studies toward a master's degree and the higher education certificate may be allowed for persons currently employed in higher education. Students interested in this admission category should first meet with the director of the Center for the Study of Higher Education. The person wishing to pursue a doctorate in an academic department may concurrently undertake the certificate program as a cognate or minor. Such students must apply to the Graduate School for admission to the academic department and also apply for admission to the Center for the Study of Higher Education and must be admitted to both programs. Applicants wishing to pursue only the certificate program must apply to the Graduate School for admission as a special non-degree student.

**Program**

Courses and internships in higher education are directed toward the study of administrative and academic operations of colleges and universities. Specific program options include: administration, student services, curriculum, and instruction. Each of the options requires an internship. In the case of the curriculum and instruction option, a higher education teaching internship developed in conjunction with the student's major academic adviser and the center staff may be anticipated. Internships may be completed at the University or at one of several cooperating institutions.

Required:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:703</td>
<td>Seminar: History and Philosophy of Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>5900:703</td>
<td>Introductory Administrative Colloquium in Higher Education</td>
<td>1</td>
</tr>
<tr>
<td>5900:800</td>
<td>Advanced Administrative Colloquium in Higher Education</td>
<td>1</td>
</tr>
<tr>
<td>5900:801:2</td>
<td>Internship and Internship Seminar</td>
<td>2</td>
</tr>
<tr>
<td>5900:801:3</td>
<td>Independent Study or course work to support concentration</td>
<td>2</td>
</tr>
</tbody>
</table>

**Options**

A student may select all three courses listed as "A" and omit "B" or may select an area of concentration and take one course from "A" under I, II or III and the supporting course from "B" from the same heading.

**Organization and Administration in Higher Education (I)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:704</td>
<td>Administrative Organization in Education (A)</td>
<td>2</td>
</tr>
<tr>
<td>5900:715</td>
<td>Seminar in Higher Education: Administration in Higher Education (B)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Student Services in Higher Education (II)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>5600:649</td>
<td>Counseling and Personal Services in Higher Education (A)</td>
<td>3</td>
</tr>
<tr>
<td>5900:725</td>
<td>Seminar in Higher Education: Student Services (B)</td>
<td>3</td>
</tr>
</tbody>
</table>

* Selects a minimum of three courses. A student is required to take two of the three electives outside the major or degree department. One credit workshop may be included as an elective, with permission.

** The awarding of this certificate is not contingent upon completion of a degree program. Undergraduate certificate programs require a 2.00 grade point average; graduate certificate programs require a 3.00 grade point average.

** Offered every other year.
Eligibility

Program

Instruction In Higher Education courses at the to-at-risk children and their families. This course of study coordinates Based Core Courses Students who already hold a graduate degrees may elective coursework. and postbaccalaureate program students and graduate degree programs in various departments and Requirements This certificate program is a special course of study along with undergraduate and graduate degree programs in various departments and colleges throughout the University. Undergraduate students will earn the certificate upon graduation in their degree program. Individuals who already hold undergraduate or graduate degrees may also pursue the certificate. Students with an undergraduate degree who do not seek a graduate degree may pursue the certificate in the postbaccalaureate program. Students who already hold a graduate degree may be admitted to the program as non-degree graduate students. Students pursuing graduate degrees will receive their graduate certificate upon completion of the requirements for their graduate degree. The program represents a concentration in current theoretical knowledge and practice in home-based intervention. It adds another dimension to the knowledge and skills a student is able to offer in the many professions that relate to services to at-risk children and their families. This course of study coordinates multidisciplinary training of personnel in home-based intervention and helps to meet the need for trained professionals in home-based intervention. The undergraduate and graduate curriculum committees of the Center for Family Studies will oversee the certificate program and certify through the Director of the Certificate Programs in Home-Based Intervention that all requirements for the certificate have been completed.

Admission

To participate in the program the student should:

• Be formally admitted to The University of Akron as an undergraduate, post-baccalaureate, or graduate student
• Make written application to the program countersigned by the student’s major advisor (if applicable)
• Have an interview with the Director of the Certificate Programs in Home-Based Intervention
• Receive written notification for admission from the Director of the Certificate Programs in Home-Based Intervention
• Consult with the Director of the Certificate Programs in Home-Based Intervention to formulate a program of study

All students enrolled in the home-based certificate programs will enroll in the core course in Home-Based Intervention. Students enrolled in the undergraduate and post-baccalaureate program will enroll in the courses at the undergraduate level. Students admitted to the Graduate School as degree-seeking or non-degree students will enroll in graduate courses. Graduate students enrolled in the core courses at the 500 level will have an additional graduate level project.

Students will complete a minimum of 18 hours of graduate credits in core and elective coursework, in order to earn the interdisciplinary certificate in Home-Based Intervention, the student must complete the following requirements within six years after beginning the program.

Requirements

Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>5900:730</td>
<td>Higher Education Curriculum and Program Planning (A)</td>
<td>3</td>
</tr>
<tr>
<td>5900:735</td>
<td>Instructional Strategies and Techniques for the College Instructor (B)</td>
<td>3</td>
</tr>
<tr>
<td>5200:710</td>
<td>Principles of Curriculum Development (B)</td>
<td>3</td>
</tr>
</tbody>
</table>

Eligibility Courses

Students must complete at least 9 credits of coursework in theoretical frameworks from their discipline or related areas as follows:

THEORETICAL FRAMEWORKS

• Systems Theory
  - 3850:620 General Systems Theory
  - 5600:643 Theories of Counseling
  - 5600:655 Marriage and Family Therapy: Theory and Techniques
  - 7400:607 Family Dynamics

• Developmental Theory
  - 5900:512 Socialization: Child to Adult
  - 7400:602 Family in Life Span Perspective
  - 7400:605 Developmental Parent-Child Interactions
  - 7400:610 Child Development Theories

• Therapeutic Theory
  - 5600:651 Techniques in Counseling
  - 5600:667 Mental Therapy
  - 5600:688 Systems Theory in Family Therapy
  - 7750:553 Social Work with Families

Elective Courses (9 credits)

Select one course from three different disciplines. (Must be outside student's major degree area)

SPECIFIC SKILL AREAS

• Psychology
  - 3750:530 Psychological Disorders of Children
  - 3750:704 Social Psychology

• Sociology
  - 3850:550 Sociology of Mental Health
  - 3850:688 Human Ecology
  - 3850:753 Family and Health (Special Topics) 1-3

• Counseling
  - 5600:550 Counseling Problems Related to Life/Care
  - 5600:620 Multicultural Counseling
  - 5600:620 Human Sexuality 1-4

• Special Education
  - 5610:540 Developmental Characteristics of Exceptional Individuals
  - 5610:546 Developmental Characteristics of Developmentally Disordered Individuals
  - 5610:560 Working with Parents of Children with Special Needs
  - 5610:634 Education and Management Strategies for Parents of Exceptional Individuals

• Multicultural Education
  - 5630:582 Multicultural Education

• Home Economics and Family Ecology
  - 7400:501 Family Life Patterns in the Economically Deprived Homes
  - 7400:504 Adolescence in the Family Context
  - 7400:506 Family Resource Management
  - 7400:508 Family Stress
  - 7400:542 Human Sexuality
  - 7400:546 Family Counseling
  - 7400:550 Family and Divorce
  - 7400:556 Parenting Skills
  - 7400:675 Conceptual Frameworks in Family Economics

• Social Work
  - 7750:510 Minority Issues in Social Work Practice
  - 7750:552 Social Work and Mental Health
  - 7750:554 Social Work in Juvenile Justice

MID-CAREER PROGRAM IN URBAN STUDIES

Peter J. Leahy, Ph.D., Department Head

Requirements

The program will require the completion of 16 graduate credits in a single area or in several areas in the urban field. Upon the completion of the program, a certificate will be granted.

Admission

A student must satisfy the requirements for entrance in graduate programs or have a bachelor's degree and the equivalent of five years experience in a professional, administrative or leadership position, in which case the student shall be admitted as a non-degree student. A student may wish to pursue additional electives. However, a student admitted to this program will be limited to 20 credits. If the student wishes to pursue more than 20 credits, the student must be admitted to the M.A. program in urban studies.
Program
The Mid-Career Certificate Program in Urban Studies will require the successful completion of a plan of study which must include a minimum of 16 credits of work in existing courses offered by the Department of Urban Studies. The core program and areas of study are listed below. Electives will be chosen in consultation with the advisor from the approved list of courses. Courses offered by other departments will be accepted if they are urban related and will specifically contribute to the student's objectives.

Core
- 3980:500 Basic Analytical Research 3
- 3980:601 Advanced Research and Statistical Methods 3

Options
Public Administration
- 3980:611 Introduction to the Profession of Public Administration 3
- 3980:640 Fiscal Analysis 3
- 3980:643 Introduction to Public Policy Elective(s) 3

Urban Research Methods
- 3980:670 Research for Futures Planning 3
- 3980:673 Computer Applications in Public Organizations Elective(s) 3

Urban Planning
- 3980:630 Introduction to Planning Practice and Theory 3
- 3980:681 Selected Topics: Urban Planning Design Elective(s) 3
- 3980:681 Selected Topics: Planning Theory and Innovation Elective(s) 3

Urban Service Systems
- 3980:620 Social Services Planning 3
- 3980:621 Urban Society and Service Systems 3
- 3980:671 Program Evaluation in Urban Studies Elective(s) 3

Urban Studies
- 3980:670 History of Urban Development 3
- 3980:670 Seminar on Economic Planning Elective(s) 10

Sociology
- 3850:613 Sociology of Program Evaluation and Program Improvement 3
- 3850:679 Political Sociology 3

In addition to the courses listed above, each student, after receiving the approval of his or her advisor, shall complete two courses related to public policy. Each student shall complete a scholarly paper dealing with public policy under the direction of a graduate faculty member in the departments of economics, political science or sociology. The student shall enroll for three credits in one of the following courses: 3250:691/692 Reading in Advanced Economics, 3700:697 Independent Research and Readings or 3850:697 Readings in Contemporary Sociological Literature. The student's paper shall be evaluated by an interdisciplinary committee consisting of graduate faculty from at least two of the previously mentioned departments.

All persons enrolled in the Graduate Certificate Program in Public Policy must successfully complete 3700:695 Internship in Political Science, a course which will permit a student to gain experience working with public officials, government agencies, political parties or interest groups. A student will normally enroll in this course after having completed at least 12 semester credits of work relating to public policy. A person with extensive administrative or governmental experience may be permitted, with the approval of the student's advisor, to substitute another course dealing with public policy in place of the Internship in Political Science.

At least two-thirds of the credits earned for this certificate must be in 600- or 700-level courses. No more than three courses in which the student enrolls, of the seven required for the Graduate Certificate in Public Policy, may also apply toward meeting requirements for a graduate degree at The University of Akron. The student must maintain at least a "B" (3.00) average in course work for the certificate.

Administration of the Program
The departments of economics, political science and sociology shall each annually select a representative for a coordinating committee from among those members of the graduate faculty who have special knowledge or expertise in the area of public policy. The committee shall meet whenever appropriate. The chairperson shall be responsible for disseminating information about the certificate, certifying that a student has met requirements for the completion of the program and convening members of the coordinating committee whenever appropriate.

Teaching English as a Second Language
Kenneth J. Pakenham, Ph.D., Director
Requirements
This program is intended for those who seek training in the teaching of English as a second language (ESL) at the elementary or high school level or who wish to obtain an initial qualification in teaching ESL in order to teach in settings other than the Ohio public school system.

The program is designed to introduce the student to the central issues in the theory and practice of teaching English to non-native speakers through courses in modern and applied linguistics, in second language pedagogy and in related disciplines. Students who do not have English as a native language must demonstrate adequate proficiency in English with a valid TOEFL score of at least 550.

Program
- 3300:589 Special Topics: Theory and Method of ESL 3
- 5300:589 Special Topics: Grammatical Structures of English 3
- 3400:561 Multicultural Education in the U.S.* 3
- 3200:616 Special Topics: Sociolinguistics** 3
- 5630:567 Techniques for Teaching ESL 3

*The awarding of this certificate is not contingent upon completion of a degree program. Undergraduate programs require a 2.00 grade-point average; graduate certificate programs require a 3.00 grade-point average.

**Choice to be decided in consultation with the program director.
Five

Research centers and institutes
Research Centers and Institutes

Claibourne Griffin, Ph.D., Associate Vice President for Research and Graduate Studies; Dean of Buchtel College of Arts and Sciences
Frank Kelley, Ph.D., Dean, College of Polymer Science and Engineering (Member)
Nicholas Sylvester, Ph.D., Dean, College of Engineering, (Member)
Charmaine C. Streharsky, M.S.T.E., Director of Research Services and Sponsored Programs
Ted Mallo, J.D., Assistant Professor, General Counsel, (Member, ex officio)

In the past, colleges and universities have been thought of as ivy-covered storehouses of knowledge where neatly packed information was dispensed to eager students. But this has never been true, for it is here that much of the new knowledge is developed. And with the accelerating tempo of our times, there is an increased call for universities to provide more information to enable society to cope.

The University of Akron is alive to this challenge and has sought to develop its research program with an eye to the needs of the society it serves. Here the emphasis is on work that is relevant, not on mere knowledge for knowledge's sake. One consequence of the University's concern with relevant research has been the number of interdisciplinary teams that have been put together to tackle specific problems. For instance, problems in connection with water pollution have used the services of chemists, biologists and chemical, mechanical and civil engineers. While the planning and organization of a research project is usually carried out by or with the assistance of a faculty member, both graduate and undergraduate students have the opportunity to participate, depending on the nature of the project and the skills and knowledge required.

Sponsored research activities on campus are coordinated by the Research Council founded in 1962; it also serves as the policy-making body for research. The council consists of the associate vice president for research and graduate studies, the director of research services and sponsored programs, various college deans, and general counsel.

Ray C. Bliss Institute of Applied Politics

John C. Green, Ph.D., Director

The Ray C. Bliss Institute of Applied Politics is a public education and research adjunct of The University of Akron and the Department of Political Science. The broad purposes of the institute, in keeping with the career of its namesake, Ray C. Bliss, are: to give all citizens, and particularly students, an opportunity to learn how to become active and competent in political life; to help maintain a tradition of ethical public service in politics; to foster useful relationships between applied politics and political science; to promote public comprehension of political organizations and the requirements for their effectiveness; and to improve understanding of continuity and change in American political institutions.

Institute for Biomedical Engineering Research

Daniel B. Shaffer, Ph.D., Director

This institute was established in 1979 to promote interdisciplinary studies in the rapidly growing areas of knowledge which overlap the fields of biology and medicine, on the one hand, and engineering and the physical sciences, on the other. It conducts seminars, courses and degree programs in biomedical engineering in association with the College of Engineering and individual departments.

In addition to its research and educational functions, the institute provides a research service to local hospitals and industry, as well as to private and government agencies. The premise for this program is that the combined resources of the University, Northeastern Ohio Universities College of Medicine and affiliated organizations will often permit more cost-effective solutions than would be possible by an individual or group doing the research independently.

The work of the institute is carried out by faculty of the Department of Biomedical Engineering in association with "members" selected from the faculties of The University of Akron and Northeastern Ohio Universities College of Medicine, as well as from the ranks of area physicians, engineers and scientists. The institute and the department occupy the third floor of the Olson Research Center on the north edge of the campus.

Center for Economic Education

Fred M. Carr, Ph.D., Director

The center exists to improve the economic literacy of individuals to help them function competently as citizens, producers and consumers.

The center conducts workshops, seminars and economic programs for teachers, students and interested groups. It provides consulting services in the area of economic education and acts as a clearinghouse for the gathering and dissemination of economic education materials and programs. It also fosters an understanding and appreciation of the American economic system.

Center for Environmental Studies

Jim L. Jackson, Ph.D., Director

The Center for Environmental Studies matches the expertise of 95 affiliates in 33 disciplines with the needs of students seeking study and research opportunities in complex environmental issues. Since its founding in 1970, the center has sponsored, or in other ways supported, activities appropriate to the goal of attaining a quality environment for mankind.

The center coordinates special forums, workshops and seminars that address major issues. Examples include the National Energy Forum, the World Food Forum, and Evaluation of Environmental Data. Workshops on energy, natural history and environmental studies in England also emphasize the interdisciplinary approach to the resolution of issues.

The center provides programs of environmental studies in the Cuyahoga Valley National Recreation Area (CVNRA). These programs are operated through the University's Cuyahoga River Interpretive Center. Water research is a major role of the Center.

Center for Family Studies

Helen K. Cleminshaw, Ph.D., Director
John S. Wodarski, Ph.D., Associate Director of Development
Nancy B. Miller, Ph.D., Associate Director of Research

The Center for Family Studies, established in 1979, was designed to stimulate and encourage the interdisciplinary study of the family. It serves both the University and the community by fostering collaboration between faculty, students, practitioners and community leaders on curriculum development, educational conferences and seminars, research and training, and public policy relevant to important family issues.

The Center is represented by faculty from five colleges and over 15 disciplines. It also includes leaders from various community systems, such as the schools, hospitals, courts, churches, mental health, social and health care agencies. In addition, the Center has a fellows program in which outstanding faculty and community leaders are named as either fellows, adjunct fellows or senior fellows.

Presently, the Center has two graduate interdisciplinary certificate programs. The Home-Based certification program is funded by grant monies from the Ohio Department of Mental Health and by Dr. Carol Pastore. The Divorce Mediation certificate program has received research funds from the Ohio Supreme Court and the Ohio Commission on Dispute Resolution and Conflict Management.

Any student, faculty member or community person interested in family issues is invited to call the director to learn how they can participate or learn more about the Center's activities.

Training Center for Fire and Hazardous Materials

David H. Hoover, M.S., Director

The Training Center for Fire and Hazardous Materials brings the University, government and industry together into one comprehensive regional center to integrate educational programs, fire and hazardous materials training and other applications of fire and safety technology. The center coordinates seminars and workshops presented by the Federal Emergency Management Agency (FEMA), the Division of State Fire Marshal and other related organizations. Training in all phases of hazardous materials containment and fire prevention and control is
provided under contract to various municipalities, industries and agencies. The programs are supported by the faculty of the Fire Protection Technology degree program in association with other state and nationally recognized professionals.

Institute for Futures Studies and Research
Gary Gappert, Ph.D., Director
Jan M. Grell, M.A., Research and Planning Associate

The Institute for Futures Studies and Research exists to initiate and provide comprehensive programs in salient and vital policy research, including a structural framework which encompasses strategic planning, environmental scanning, trends analysis and other innovative research methods.

The Institute for Future Studies and Research was established in 1978, with its focus on interdisciplinary courses, lectures, publications, and activities relating to relevant issues which will impact the future of the local, state, national, and international arenas. It cooperates with the Center for Urban Studies and other research institutes.

The Institute, in cooperation with the Department of Public Administration and Urban Development, has undertaken Initiatives and special campus programs, and research projects. It also collaborates with community organizations and peace centers on other campuses.

Institute for Life-Span Development and Gerontology
Harvey L. Sterns, Ph.D., Director
Isadore Newman, Ph.D., Associate Director
Raymond E. Santiorski, Ph.D., Associate Director for Research
Evelyn Sutton, M.A., Program Coordinator
Jerome Kaplan, Ph.D., Program Coordinator

The Institute for Life-Span Development and Gerontology, founded in 1978, coordinates interdisciplinary credit certificate programs in gerontology at the undergraduate and graduate levels. In addition, this certificate is included in the Ohio Board of Examiners of Nursing Home Administrators approved course of study in Nursing Home Administration which combines a Bachelor of Science degree in Industrial Management (Personnel Option) with a Certificate in Gerontology.

Faculty fellows at the institute representing 23 University departments conduct research, and provide special courses, workshops, and seminars as well as participate in community research and demonstration projects. Students in the certification program carry out field placements at numerous community service settings.

Examples of outreach activities include the Elderhostel program, offered each summer for older adults who participate in a week-long residential learning experience.

The Institute is a member of the Northeastern Ohio Consortium on Geriatric Medicine and Gerontology, joining together with the Office of Geriatric Medicine and Gerontology, Northeastern Ohio Universities College of Medicine, Gerontology Center, Kent State University, and Gerontology Committee, Youngstown State University.

Center for Nursing
Mary Helen Kreidler, Ed.D., R.N., Director
Martha Conrad, M.S.N., R.N., Assistant Director

The Center for Nursing is a part of The University of Akron's College of Nursing. It is an education and practice center for College of Nursing faculty and students as well as faculty and students from other health care disciplines on campus.

Since 1981 the Center for Nursing has provided wellness services to campus students, faculty and staff as well as outreach services to community residents of all ages. Services include health assessments and nursing physicals, stress management and self-care assistance, family and group education and support sessions.

Center for Peace Studies
Hon. John F. Seiberling, L.L.B., Director

The Center for Peace Studies provides students with the opportunity for an interdisciplinary course of study in one of the related fields of international peace and conflict resolution and management. Course programs draw on the resources of a wide spectrum of the University's academic departments. Upon completion of all selected courses, students receive not only academic credits for the courses but a Certificate in Peace Studies or a Certificate in Conflict Resolution/Management, respectively. The Center also sponsors workshops for teachers, special campus programs, and research projects. It also collaborates with community organizations and peace centers on other campuses.

Institute of Polymer Engineering
James L. White, Ph.D., Director

The Institute of Polymer Engineering carries out fundamental and applied research in polymer processing, engineering performance and associated characterization.

The institute, founded in 1983, seeks to be a major intellectual and research resource in northeast Ohio. The institute maintains up-to-date and futuristic processing and characterization laboratories, with continued interest in development investigation of new process technology and new materials. Its activities also include organization of scientific symposia and various seminars related to polymer processing and engineering.

Institute of Polymer Science
Darrell H. Reneker, Ph.D., Director

The institute is concerned with basic and applied research in polymers. It was established in 1956 as the Institute of Rubber Research and in 1964 became the interdisciplinary Institute of Polymer Science. The University's first Ph.D. program in polymer chemistry was started in 1956 and was administered by the institute until a separate Department of Polymer Science was established in 1967. The institute maintains extensive laboratory facilities, an applied research group, a macromolecular modeling center, and a mini pilot plant for polymer synthesis. It is the principal organization responsible for external funding of research projects and graduate fellowships in polymer science.

Process Research Center (PRC)
Sunggyu Lee, Ph.D., Director
Kathy L. Fulleston, Ph.D., Assistant Director

The Process Research Center (PRC), founded in 1990, focuses on fundamental and applied research involving new chemical processes and novel materials. The specialties of the PRC include chemical reactions, separation technology, new polymeric materials, biotechnology, and environmental engineering. In conjunction with this, the Center operates several scale-up and miniplant pilot plant facilities.

The PRC aims at responding more positively to the needs of industries and enhancing cooperation between the University and industries. Great opportunities are available for both graduate and undergraduate students to conduct practical research.

Small Business Institute
Joseph C. Latona, Ph.D., Director

The Small Business Institute was established in 1973 and was the first Small Business Institute funded in Northern Ohio. The Small Business Institute's...
The Center for Taxation Studies, established in 1985, is a joint venture of the College of Business Administration, working as advisers under the supervision of College of Business Administration faculty. Nearly 300 firms have been serviced by the institute since its founding. It is an integral part of the Akron Summit Industrial Incubator project.

Survey Research Center
Jesse F. Marquette, Ph.D., Director
Anne-Marie Scarsbrick-Hauser, Ph.D., Assistant Director

The University of Akron Survey Research Center is a research organization established with the prime objective of making quality survey research facilities available to university personnel, national, state, community and other legitimate research agencies. The Center is equipped to facilitate telephone interviewing, mail surveys, focus group administration, intercept studies and personal interviews, database analysis, and computer-assisted data entry and multiple method studies. Center staff are available for consultation in the development of grant proposals and budgets.

The Survey Research Center has been in continuous operation at The University of Akron since 1982, utilizing research and professional staff, graduate assistants, and over 50 regular interviewers. Most of the work done by the Center is on behalf of government or non-profit agencies and mass media organizations such as newspapers and television stations. The Center's work, both directly and indirectly, influences public discussion and planning on significant social and political issues. The Survey Research Center has, since its inception, processed more than 80,000 completed interviews over 100 projects concerned with topics such as national or state political and social issues, government services, economic development, and public policy planning.

Center for Taxation Studies
Richard W. Metcalf, D.B.A., Director

The Center for Taxation Studies, established in 1985, is a joint venture of the College of Business Administration and the School of Law. Funding for the center is provided under an Academic Challenge grant part of the Ohio Board of Regents' Selective Excellence Program.

The center focuses on studies in tax policy which are directed toward legislative changes regarding federal, state and local taxation and their effect on individuals and businesses. Further, the center sponsors and monitors research by tax scholars and professionals. It also conducts taxation seminars, presentations, and programs directed toward both the tax professionals and laymen. The center oversees operation of the Tax Clinic and the Volunteer Income Tax Assistance (VITA) site for electronic filing. Studies concerning taxation are coordinated by the center with other disciplines on campus. For example, projects have been undertaken in the following areas: business, law, political science, urban studies, finance, economics and English (document design).

Center for Urban Studies
James L. Shanahan, Ph.D., Director
Gail A. Sommers, M.A., Assistant Director

One of the greatest challenges for an urban university is utilizing its resources for resolving urban problems and improving the urban environment. The Center for Urban Studies (CUS), established in 1965, was this University's response to that challenge. The Center develops research and professional service projects in response to the needs of the urban community and to perceived urban issues. The Center's objectives are to apply new methods and to experiment with new approaches to solving urban problems. The main portion of CUS activities is supported by grants and contracts which faculty and staff bring to the University.

The Center provides advisory and research expertise in a wide range of areas to both the public and private sectors. Every effort is made to identify political, economic, and social issues of the utmost importance to the future of Ohio communities, their leaders, businesses, institutions, community groups, and citizens.

The Center, a part of the Buchtel College of Arts and Sciences, strives to simulate within the University creative solutions to urban problems by coordinating the urban perspective of the various disciplines and professions. This multidisciplinary approach encourages faculty and graduate student participation from all departments with an urban focus. With its programs in research and professional service, the center provides the setting and facilities through which interested faculty and graduate students become involved in urban research or professional service activities to the urban community. For many graduate students, experience gained in the Center for Urban Studies becomes an important complement to formal classroom training in their career preparation.
# Course Numbering System*

## INDEX

### Department of Developmental Programs
1020 Developmental Programs

### English Language Institute
1030 English Language Institute

### University College
1100 General Studies

### Air Force ROTC
1500 Aerospace Studies

### Army ROTC
1600 Military Science

### Interdisciplinary Programs
1800 Divorce Mediation
1610 Afro-American Studies
1820 Home-based Intervention Therapy
1630 Environmental Studies
1840 Women's Studies
1850 Institute for Life-Span Development and Gerontology
1860 Peace Studies
1870 Honors Program
1880 Medical Studies
1890 Environmental Health

### Community and Technical College
2000 Cooperative Education
2015 Distinguished Student Program
2020 Associate Studies
2030 Associate Studies - Mathematics
2040 Associate Studies - Social Sciences
2100 Individualized Study
2200 Educational Technology
2210 American Sign Language Interpreting and Transliterating Technology
2220 Criminal Justice Technology
2230 Fire Protection Technology
2240 Commercial Art
2250 Public Service Technology
2260 Community Services Technology
2270 Labor Studies
2280 Hospitality Management
2290 Legal Assisting Technology
2420 Business Management Technology
2430 Real Estate
2440 Computer Programming Technology
2520 Marketing and Sales Technology
2540 Office Administration
2560 Transportation
2730 Histotechnology
2740 Medical Assisting
2760 Radiologic Technology
2770 Surgical Assisting
2780 Allied Health
2790 Respiratory Care
2840 Chemical Technology
2860 Electronic Technology
2870 Automated Manufacturing Technology
2880 Manufacturing Technology
2900 Instrumentation Technology
2920 Mechanical Technology
2940 Drafting and Computer Drafting Technology
2980 Surveying and Construction Technology

### Buehler College of Arts and Sciences
3000 Cooperative Education
3100 Biology
3110 Biology/NEOUCOM
3120 Medical Technology
3130 Cytotechnology
3150 Chemistry
3200 Classics
3210 Greek
3220 Latin
3250 Economics
3300 English
3350 Geography and Planning
3370 Geology
3400 History
3450 Mathematics

### College of Engineering
4100 General Engineering
4200 Chemical Engineering
4300 Civil Engineering
4400 Electrical Engineering
4450 Engineering Computer Science
4600 Mechanical Engineering
4800 Biomedical Engineering
4980 Construction Technology

### College of Education
5000 Cooperative Education
5050 Teacher Education Core Program
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5250 Reading
5300 Secondary Education
5400 Technical and Vocational Education
5550 Physical Education
5560 Outdoor Education
5570 Health Education
5600 Educational Guidance and Counseling
5616 Special Education
5620 School Psychology
5630 Multicultural Education
5700 Educational Administration
5800 Special Educational Programs
5850 Educational Technology
5900 Higher Education Administration

### College of Business Administration
6000 Cooperative Education
6500 Management
6200 Accountancy
6600 Marketing
6400 Finance
6800 International Business

### College of Fine and Applied Arts
7000 Cooperative Education
7100 Art
7400 Home Economics and Family Ecology
7500 Music
7510 Musical Organizations
7520 Applied Music
7600 Communication
7700 Communicative Disorders
7750 Social Work
7800 Theatre
7810 Theatre Organizations
7900 Dance
7910 Dance Organizations
7920 Dance—Performance

### College of Nursing
8000 Cooperative Education
8200 Nursing

### School of Law
9200 Law

### College of Polymer Science and Polymer Engineering
9841 Polymer Engineering
9871 Polymer Science

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*A more detailed explanation of the numbering system can be found in "Course Numbering Systems," Section 3 in this Bulletin."
Interdisciplinary Programs

DIVORCE MEDIATION

1800:

601 DIVORCE MEDIATION
Prerequisite: Admission to the Graduate Certificate Program on Divorce Mediation. Overview of divorce mediation process includes guidelines for negotiating separation and divorce agreements, division of personal and real property, support, custody, and future plans.

602 DIVORCE MEDIATION PRACTICUM
Prerequisite: 601. Practical application of divorce mediation procedures. Review of strategies and ethical considerations.

HOME-BASED INTERVENTION THERAPY

1820:

503 HOME-BASED INTERVENTION THEORY
Prerequisite: Admission to Certificate Program. Overview of home-based intervention to include philosophy and description of this programming as well as assessment of family, their home and community environment.

504 HOME-BASED INTERVENTION TECHNIQUES AND PRACTICE
Prerequisite: 503. Provides intervention techniques and skill areas required for home-based intervention and learning opportunities for matching techniques with specific family problems.

505 HOME-BASED INTERVENTION INTERNSHIP
Prerequisite: 504. Gives students the opportunity to apply knowledge of home-based intervention in actual delivery process working with families in their homes under the direct supervision of trained, experienced home-based intervention therapists.

ENVIRONMENTAL STUDIES

1830:

590 WORKSHOP IN ENVIRONMENTAL STUDIES
Prerequisite: varies with topic. Credit in graduate program must have prior approval of advisor. Skills, attitudes and fundamental concepts dealing with timely environmental problems and issue covered. Instruction under direction of University faculty.

602 EVALUATION OF ENVIRONMENTAL DATA
Prerequisites: graduate standing, one year of chemistry, physics, job experience or course work in chemical engineering. A review of environmental testing techniques in current use; emphasis on interpretation and limitations.

661 GRADUATE SEMINAR IN ENVIRONMENTAL STUDIES
Prerequisite: graduate standing. Explores topics of current environmental concern. Emphasis on presentation of oral and written reports and subsequent student-faculty dialogue.

WOMEN’S STUDIES

1840:

585 SPECIAL TOPICS IN WOMEN’S STUDIES
(May be repeated). Specialized topics and current issues in Women’s Studies. Covers content and issues not currently addressed in other academic courses. Emphasis will be on original source materials, critical analyses and the synthesis of empirical and theoretical aspects.

590 WORKSHOP
(May be repeated). Group experiential study of special issues in Women’s Studies.

INSTITUTE FOR LIFE-SPAN DEVELOPMENT AND GERONTOLOGY

1850:

580 INTERDISCIPLINARY SEMINAR IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY
Prerequisite: permission. The certificate program student only. Explores interdisciplinary issues in life-span development and gerontology. Guest speakers from various disciplines and services which have life-span development and gerontological components and from government and community facilities and services.

585 SPECIAL TOPICS
Prerequisite: permission of instructor. Specialized topics and current issues in life-span development, gerontology or gender. Emphasis is on original source materials, critical analyses and syntheses of empirical, theoretical and applied aspects.

586 RETIREMENT SPECIALIST
An investigation of issues related to the design and implementation of pre-retirement planning and examination of life-span planning education as employed by labor, business and education.

690 WORKSHOP
(May be repeated). Group studies of special topics in life-span development and gerontology. May be used as elective credit but not as part of certificate required courses.

695 PRACTICUM IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY
Prerequisite: permission. Supervised experience in research or community agency work.

MEDICAL STUDIES

1880:

501 SPECIAL TOPICS: MEDICAL EDUCATION
(May be repeated with a change of topic with a maximum of three credits toward graduation.) Prerequisite: upper-college student status and permission. Specialized topics in medical education offered by professionals. Intended to provide advanced undergraduate education and continuing education for student and practitioners in the health sciences.
Buchtel College
of Arts and Sciences

BIOLOGY
3100:

500 FOOD PLANTS
2 credits
Preq: 211 or permission of instructor. A survey of the plants used for human food, including their history, structure, uses.

521 TROPICAL FIELD BIOLOGY
4 credits
Preq: 111/112 or equivalent. Ecology of coral reefs, lidos pools, mangroves, intertidal zones, terrestrial flora and fauna, island biogeography. Taught at a field station in the tropics.

522 CONSERVATION OF BIOLOGICAL RESOURCES
4 credits
Preq: 217 or permission. Basic principles for management of plant and animal resources and natural areas. Political, economic and social aspects of resource management. Laboratory with field trips.

524 FRESHWATER ECOLOGY
3 credits
Preq: 217. Field laboratory study of lake ecosystems. Species composition of selected biotic communities; community energetics, nutrient cycling. Littoral survey of a local lake. Laboratory.

525 FRESHWATER ECOLOGY FIELD AND LABORATORY STUDIES
3 credits
Preq: 217. Field or laboratory studies of local lakes, ponds, and reservoirs. Collection, identification, and ecology of aquatic plants and animals, especially phytoplankton, zooplankton, and benthic organisms.

528 APPLIED AQUATIC ECOLOGY
4 credits

528 BIOLOGY OF BEHAVIOR
2 credits
Preq: 211, 217 and 316. Biological basis of behavior: ethological theory, function, causation, evolution and adaptability of behavior. May be taken without 429/529.

529 BIOLOGY OF BEHAVIOR LABORATORY
2 credits
Preq: or corequisite 429/529 and permissio of instructor. Individualized, directed study to provide the student with firsthand experience in observing, describing and interpreting animal behavior.

531 GENERAL MICRICAL PHYSIOLOGY
2 credits
Preq: 331 or permission. Physiology of microscopic eucaryotes, archaeabacteria, and eubacteria.

532 ADVANCED GENERAL BACTERIOLOGY
4 credits
Preq: 331. Study of the groups of bacteria involved in the production of food or chemicals, their found in soil and water and those involved in microbial biogeochemical cycles. Laboratory.

533 PATHOGENIC BACTERIOLOGY
4 credits
Preq: 331 and corequisite 437. Study of major groups of bacteria which produce infections in humans. Biochemical properties of microorganisms which engender virulence and nature of host resistance. Laboratory.

535 VIROLOGY
4 credits
Preq: 331. Physical, chemical and biological properties of viruses including mechanisms of infection, genetics and tumor formation; methods of culturing and purification. Laboratory.

537 IMMUNOLOGY
4 credits

540 MYCOLOGY
4 credits
Preq: 331. Structure, life history, classification of representative fungi with emphasis on the importance of fungi to humans. Laboratory.

541 PLANT DEVELOPMENT
4 credits
Preq: or one year of organic chemistry. Embryology and morphogenesis of plants in relation to physical, chemical, genetic and spatial factors. Laboratory.

542 PLANT ANATOMY
3 credits
Preq: 112. Structure and development of cells, tissues, organs and organ systems of seed plants. Laboratory.

543 PHYCOLOGY
4 credits
Preq: 112. Examination of the major groups of algae with emphasis on life histories and their relationship to algal form and structure. Laboratory.

545 PLANT MORPHOLOGY
4 credits

547 PLANT PHYSIOLOGY
4 credits
Preq: 112 and one year of organic chemistry. Water, soil and mineral requirements of plants, and their metabolism, growth and response to irradiation and external stimuli. Laboratory.

548 ECONOMIC BOTANY
2 credits
Preq: 112; 111/112 instructor’s permission. A survey of economically important plants and plant products, excluding food plants. Includes wood and fiber, dyes, drugs, resins, latex and other extracts.

550 ANIMAL PESTS AND VECTORS
3 credits
Preq: 217 or permission of instructor. Study of the biology and control of disease vectors and urban pests. Laboratory.

551 GENERAL ENTOMOLOGY
4 credits

553 INVERTEBRATE ZOOLOGY
4 credits
Preq: 112. Invertebrate groups, their classification, functional morphology, adaptive radiation and life history. A phylogenetic approach is used. Laboratories parallel lectures.

554 PARASITOLOGY
4 credits
Preq: 112, 3150. Principles of parasitism; host-parasite interactions important human and veterinary parasitic diseases, and control measures. Laboratories parallel lectures.

556 ORNITHOLOGY
4 credits
Preq: 112. Introduction to biology of birds, classification, anatomy, physiology, behavior, ecology, evolution, natural history and field identification. Laboratory.

557 VERTEBRATE ZOOLOGY
4 credits
Preq: 316 or permission. Biology of vertebrates, except birds—evolution, ecology, behavior, systematics and anatomy. Laboratory with field trips.

561, 12 HUMAN PHYSIOLOGY
4 credits each
Preq: senior or graduate standing. Detailed study of function of the human body with special emphasis on neuromuscular, cardiovascular, renal and endocrine physiology. Laboratory.

564 GENERAL AND COMPARATIVE PHYSIOLOGY
4 credits
Preq: 112 and one year of organic chemistry. Study of cellular, organolegal, respiratory, cardiovascular, endocrine and neural mechanisms involved in understanding physiology of variety of invertebrate and vertebrate animals. Laboratory.

566 ADVANCED CARDIOVASCULAR PHYSIOLOGY
3 credits
Preq: 462 or 562 or permission. Study of the development of major vertebrate orders and individual study research. Laboratory.

568 THE PHYSIOLOGY OF REPRODUCTION
4 credits each
Preq: 465/562 or permission. Study of the physiological mechanisms of reproduction throughout the animal kingdom with special emphasis upon mammmalian endocrinocological control. Controversial issues in the field will be examined and current research presented.

569 RESPIRATORY PHYSIOLOGY
3 credits
Preq: 462/562 or 464/564 or permission. Study of mechanisms determining gas exchange including mechanisms, ventilation, blood flow, diffusion, and control systems. Emphasis is given to normal human lung function. (Clinical aspects are not considered in detail.)

570 RADIATION BIOLOGY
3 credits
Preq: permission. Principles of radiotacticity, interaction with matter, particularly its effects on biological systems. Detection devices, radiation safety and dosimetry, use of radioisotopes and radiopharmaceuticals. Laboratory.

571 ADVANCED GENETICS
3 credits
Preq: 211. Nature of the gene; genetic codes; hereditary determinants; mutation and genes in population. Lecture and seminar.

572 PHARMACOLOGY
3 credits
Preq: 311; recommended: college-level physiology. Interactions of drugs and living systems with emphasis on molecular and cellular mechanisms of action, drug metabolism and excretion, and selected aspects of environmental toxicology. Clinical aspects and specific drug therapies not considered in detail.

574 WORKSHOP IN BIOLOGY
1-3 credits
Preq: or repeated. Permission of instructor. Group studies of special topics in biology. May not be used to meet undergraduate or graduate major requirements in biology. May be used for elective credit only.

578 BIOLOGICAL PROBLEMS
1-2 credits each
Preq: permission. Honors-level work, usually consisting of laboratory investigations.

625 PROCARYOTIC DNA TECHNIQUES
4 credits
Preq: permission. Basic DNA techniques involving procaryotic microorganisms including isolation of DNA, cleavage of DNA and cloning. Laboratory.

631 EXPERIMENTAL BACTERIAL PHYSIOLOGY
4 credits
Preq: 331 or permission of instructor. Basic techniques peculiar to study of microbial physiology and analysis of selected biochemical techniques for application to microbial systems. Laboratory.

650 EUCARYOTIC GENE EXPRESSION
3 credits
A lecture course exploring the basic principles, methods, and applications of molecular biotechnology to a wide range of scientific disciplines.

660 ENVIRONMENTAL PHYSIOLOGY
3 credits
Preq: 561, 562. Study of physiological reactions of healthy mammals to natural changes or extremes of physical environment.

671 MEDICAL PHYSIOLOGY, PATHOPHYSIOLOGY, AND PHARMACOLOGY
3 credits
Preq: Admission to M.S.N. program, or 310/5061, or consent of instructor. Selected principles of human physiology, pathophysiology, and pharmacology are examined in depth, interrelated, and related to the care of patients in the clinical setting.

681 CYTOLOGY
3 credits
Preq: 311. Structure and functional organization of cells at ultrastructural level. Three lecture hours a week.

682 EUCARYOTIC TECHNIQUES—DNA
3 credits
A graduate level laboratory course which familiarizes the student with several methods used to isolate and characterize eucaryotic genes at the DNA level.

684 EUCARYOTIC TECHNIQUES—RNA
3 credits
A graduate level laboratory course which familiarizes the student with several methods used to study eucaryotic genes at the RNA level.

685 ANIMAL TISSUE CULTURE
3 credits
Tissue culture techniques: biology and physiology of animal cells and tissues under in vitro conditions; application of these techniques to radiobiology, cancer chemotherapy and animal cell genetics. Laboratory.

*Field trips involved; minor transportation costs.
604.5 CHEMISTRY OF POLYMERS LABORATORY I, II 2 credits

610 BASIC QUANTUM CHEMISTRY 3 credits

611 SPECTROSCOPY 3 credits

619 TRANSITION—METAL ORGANOMETALLICS 3 credits

620 MAIN GROUP ORGANOMETALLICS 3 credits

621 ADVANCED PREPARATIONS 1-2 credits

625 CHEMISTRY SEMINAR 1 credit

629 PHYSICAL INORGANIC CHEMISTRY 3 credits

630 THEORETICAL INORGANIC CHEMISTRY 2 credits

631 THERMODYNAMICS AND STATISTICAL THERMODYNAMICS 3 credits

632 CHEMICAL KINETICS 3 credits

633 DESCRIPTIVE INORGANIC CHEMISTRY 3 credits

635 PHYSICAL CHEMISTRY OF POLYMERS I, II 2 credits each

636 EXPERIMENTAL PHYSICAL CHEMISTRY 2 credits for 656, CHEMISTRY OF POLYMERS I, II 2 credits for 666

699 MASTER'S RESEARCH 6 credits

687 RESEARCH IN THE BIOLOGY OF AGING 3 credits each

688 PRINCIPLES OF TRANSMISSION ELECTRON MICROSCOPY 3 credits

689 PRINCIPLES OF SCANNING ELECTRON MICROSCOPY 3 credits

690 SPECIAL TOPICS: BIOLOGY 1-3 credits

691, 692 BIOLOGY COLLOQUIUM 1 credit each

695, 696 BIOLOGY NEUROCOM 1-6 credits

697, 698 BIOLOGY SEMINAR 1 credit

699 MASTER'S RESEARCH 6 credits

702 BIOMEDICAL CHEMISTRY LECTURE 3 credits

703 BIOCHEMISTRY LABORATORY 2 credits

704 MICROSCOPIC ANATOMY 4 credits

705 HUMAN GROSS ANATOMY I 3 credits

706 FUNCTIONAL NEUROANATOMY 6 credits

707 NEUROPHYSIOLOGY 4 credits

708 RADIOISOTOPES IN MEDICINE 1 credit

709 SPECIAL TOPICS: BIOLOGY/NEUROCOM 1-6 credits

710 POLYMER CHEMISTRY I 3 credits

711 POLYMER CHEMISTRY II 3 credits

712 PRINCIPLES OF CHEMISTRY OF POLYMERS 3 credits

713 SCALING IN CHEMISTRY 3 credits

714 SPECIAL TOPICS 1-3 credits

715 SPECIAL TOPICS 1-3 credits

716 SPECIAL TOPICS 1-3 credits

717 SPECIAL TOPICS 1-3 credits

718 SPECIAL TOPICS 1-3 credits

719 SPECIAL TOPICS 1-3 credits

720 ADVANCED BIOCHEMICAL TECHNIQUES 3 credits

722 ENZYMATIC REACTIONS 3 credits

723 POLYMER CHEMISTRY I 2 credits

740 WORKSHOP IN CHEMISTRY 1 credit
745 BIOINORGANIC CHEMISTRY 3 credits
Prerequisites: 410/1501, 401/2002, and 473/572. Survey of the structure and properties of metal ion complexes with amino acids, nucleotides, and macromolecules; metal ion metabolism; metals in medicine.

726 ADVANCED METABOLISM 3 credits
Prerequisites: 410/1501 and 420/2002. Study of advanced pathways in carbohydrate, lipid, and protein metabolism with emphasis placed on metabolic dysfunction.

699 DOCTORAL RESEARCH CHEMISTRY 1-16 credits
Open to qualified student accepted as a candidate for Doctor of Philosophy in Chemistry. Supervised original research undertaken in organic, inorganic, physical, analytical, or biochemical.

CLASSICS

3200:

501,2 EGYPTOLOGY AND II 3 credits each
The history and antiquities of ancient Egypt.

504,5 ASYRIOLOGY 3 credits each
(May be repeated for credit with another cuneiform language) Prerequisite: permission of instructor. The Akkadian language.

507,8 ANCIENT NEAR EASTERN ARCHAEOLOGY 3 credits each
(May be repeated for credit with change of subject) Prerequisite: permission of instructor. Palestine, Mesopotamia, Asia Minor, adjacent lands. Old Testament in light of material evidence.

550 SELECTED TOPICS IN ANCIENT CULTURES 3 credits
(May be repeated with change of subject) Varies offerings in literature, art and archaeology and religion. No foreign language necessary.

590 WORKSHOP IN CLASSICS 4 credits
Group study of special topics in Classics. Cannot be used to fulfill undergraduate major requirements in Classics; for elective credit only.

597,8 READING AND RESEARCH IN THE ANCIENT NEAR EAST 3 credits
Prerequisite: permission of instructor. Advanced work in various aspects of Ancient Near Eastern Studies (Archaeology, Assyriology, Egyptology, etc.).

GREEK

3210:

597,8 GREEK READING AND RESEARCH 3 credits each
(May be repeated for credit with change of subject) Prerequisite: permission of instructor. Homer, Sophocles, Plato or the like.

LATIN

3220:

597,8 LATIN READING AND RESEARCH 3 credits each
(May be repeated for credit with change of subject) Prerequisite: permission of instructor. Generally Latin epigraphy, prose composition or philology; numismatics or certain other archaeological topics may be offered.

ECONOMICS

3250:

508 STATE AND LOCAL PUBLIC FINANCE 3 credits
Prerequisite: 410/1501. Examines economic rationale and problems for provision of goods and services by different governmental units. Considers alternative revenue sources and special topics.

527 ECONOMIC FORECASTING 3 credits
Prerequisite: 3470/460, 461. Study of methods for building identifying, fitting and checking dynamic economic models and the use of these models for forecasting. Emphasis on the application of available computer software systems.

530 LABOR MARKET POLICY 3 credits
Prerequisites: 330 or 333. Intensive study of current labor market policy issues (e.g., discrimination, poverty, the changing industrial structure, and the economics of education).

535 THE DEVELOPMENT OF AMERICAN CORPORATE STRUCTURE 3 credits

584 SPECIAL TOPICS: ECONOMICS 3 credits
Prerequisite: permission. Opportunity to study special topics and current issues in economics.

550 COMPARATIVE ECONOMIC SYSTEMS 3 credits
Prerequisites: 201, 202 or permission of instructor. Systems of economic organization, ranging from the theoretical extreme of a perfectly free market economy to the socialist variant. Historical evolution of economic systems covering problems in theory and practice.

560 ECONOMIC DEVELOPMENT AND PLANNING FOR UNDEVELOPED COUNTRIES 3 credits
Prerequisites: 201, 202. Basic problems in economic development. Theories of development. Government planning for development. Trade and development of underdeveloped countries. No credit for graduate majors in economics.

575 DEVELOPMENT OF ECONOMIC THOUGHT 3 credits
Prerequisites: 201, 202. Evolution of theory and method, relation of ideas of economists contemporary to conditions.

581 MONETARY AND BANKING POLICY 3 credits
Prerequisites: 395, 400. Control over currency and credit, policies of control by central banks and governments. United States, the Federal Reserve System.

591 WORKSHOP IN ECONOMICS 1-3 credits
(May be repeated) Group studies of special topics in economics. May not be used to meet undergraduate or graduate major requirements in economics. May be used for elective credit only.

600 FOUNDATIONS OF ECONOMIC ANALYSIS 3 credits

610 FRAMEWORK OF ECONOMIC ANALYSIS 3 credits
Prerequisite: graduate standing. Development of theoretical and analytical framework for decision making. Discussion of applications of the framework to situations concerning demand, cost, supply, production, price, employment and wage.

611 MICROECONOMIC THEORY I 3 credits

612 MICROECONOMIC THEORY II 3 credits
Prerequisite: 611. Continuation of 611. Covers multivariate equilibrium, general equilibrium and welfare economics. The applications in public choice and applied welfare theory.

615 INDUSTRIAL ORGANIZATION 3 credits
Prerequisite: 611 or permission. Examines link between market structure, firm conduct and economic performance. Measurement and effects of monoply power, industrial concentation and changes.

616 ANTITRUST ECONOMICS 3 credits
Prerequisite: 615 or permission of instructor. Economic rationale behind legislative and judicial decisions affecting mergers, vertical, horizontal restraints, monopolization, collusion, price discrimination.

617 THE ECONOMICS OF REGULATION 3 credits
Prerequisites: 615 or permission of instructor. Examines rationale, methods and success of government regulation of public utility, transportation and communications industries.

620 APPLICATIONS OF MATHEMATICAL MODELS TO ECONOMICS 3 credits
Prerequisites: courses in calculus, intermediate microeconomics or permission of the instructor. Review of selected topics of differential and integral calculus and their applications to economic analysis. Theory of optimization in production and consumption, static microeconomic analysis, and methods of analysis of growth and stability.

621 APPLICATION OF LINEAR MODELS IN ECONOMIC ANALYSIS 3 credits
Prerequisites: courses in intermediate microeconomics. Review of selected topics of linear algebra, application to economic theory. Static, open and closed input-output tables, dynamic models, consumption technology and theory of demand, linear programming, general equilibrium analysis.

626 STATISTICS FOR ECONOMETRICS 3 credits
Prerequisite: 625 or equivalent. Formulation of functional relations among economic variables suitable for statistical estimation from observational data and construction of multivariate econometric models and methods of estimation.

628 SEMINAR IN RESEARCH METHODS 3 credits
Prerequisite: permission of instructor. A seminar in the research use of applied mathematical economics or econometrics. Emphasis is on individual development of a theoretical proposi­tion, research statement, empirical examination and policy implications.

633 THEORY OF WAGES AND EMPLOYMENT 3 credits
Analytical approach to integration of economic theory with observed labor market phenomena. Discussion of wage and employment theories, effects of unions, collective bargaining theories and effects of government regulation.

634 COLLECTIVE BARGAINING 3 credits
Economic issues and implications involved in hours of work, employment and unemployment, impact of trade unions upon basic institutions of a free private enterprise economy.

635 LABOR LAW 3 credits
Evaluation of labor relations law. Public policy affecting public, private worker organizations; collective bargaining; strikes; testing.

636 COLLECTIVE BARGAINING II 3 credits
Prerequisite: 635 or permission of instructor. Examination of process of negotiation. Course core is an actual contract negotiation. Student decides on issues, positions and tactics, then negotiates contract.

672 EMPLOYMENT LAW 3 credits
Study of selected aspects of legislation and case decisions affecting employer-employee relations. Topics include employment-at-will, health and safety, wage, hours, benefits, and discrimination.

693 PUBLIC SECUTOR MARKETS 3 credits
Prerequisite: 635 or permission of instructor. Examination of unique problem of public employees under collective bargaining agreements. Focus on legal framework, impact of negotiations and special situations facing public employees.

684 SEMINAR ON ECONOMIC GROWTH AND DEVELOPMENT 3 credits
Review of main theories of economic growth since age of classical economics. Problems in development of emerging countries and discussion of aggregate macroeconomic models of capital formation, investment, technology and foreign trade.

685 SEMINAR ON ECONOMIC PLANNING 3 credits
Topics, methods and applications of planning. Planning for growth. Application of input-output, linear programming, computer simulations and other statistical and mathematical methods of planning.
ENGLISH

3300:

500 ANGLO SAXON 3 credits
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor. Emphasis on Offa's poetry and prose. Study of the major works, all related to the context of the study of English for the modern day learner. The course will be taken repeatedly for credit.

501 MIDDLE ENGLISH LITERATURE 3 credits
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor. An introduction to the study of Middle English. Major works include Chaucer's "The Canterbury Tales" and Tudd's "Crye" in Middle English.

512 SPENSER 3 credits
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor. Close reading of Middle English works, all related to the context of the study of English for the modern day learner.

516 METAPHYSICAL POETS 3 credits
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor. An introduction to the study of the metaphysical poets. Major works include Herbert, Crashaw, Vaughan, Marvell, Cowley, Cleveland, Southwell and King.

518 MILTON 3 credits
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor. An introduction to the study of Milton's poetry. Major works include "Paradise Lost," "Paradise Regained," and "Aeolus's Pipes." The course will be taken repeatedly for credit.

521 SWIFT AND POPE 3 credits
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor. An introduction to the study of the major works of Swift and Pope. Major works include "Gulliver's Travels" and "The Rape of the Lock." The course will be taken repeatedly for credit.

524 EARLY ENGLISH FICTION 3 credits
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor. An introduction to the study of early English fiction. Major works include Defoe's "Robinson Crusoe." The course will be taken repeatedly for credit.

525 STUDIES IN ROMANTICISM 3 credits
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor. An introduction to the study of romanticism in English literature. Major works include Wordsworth's "The Prelude." The course will be taken repeatedly for credit.

530 VICTORIAN POETRY AND PROSE 3 credits
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor. An introduction to the study of Victorian poetry and prose. Major works include Tennyson's "The Idylls of the King" and Browning's "The Ring and the Book." The course will be taken repeatedly for credit.

531 VICTORIAN FICTION 3 credits
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor. An introduction to the study of Victorian fiction. Major works include Thackeray's "Vanity Fair." The course will be taken repeatedly for credit.

534 CHARLES DICKENS 3 credits
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor. An introduction to the study of Dickens. Major works include "Great Expectations." The course will be taken repeatedly for credit.

535 20TH CENTURY BRITISH POETRY 3 credits
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor. An introduction to the study of 20th century British poetry. Major works include Auden's "The Age of Anxiety." The course will be taken repeatedly for credit.

536 20TH CENTURY BRITISH FICTION 3 credits
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor. An introduction to the study of 20th century British fiction. Major works include Orwell's "1984." The course will be taken repeatedly for credit.

537 BRITISH FICTION SINCE 1925 3 credits
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor. An introduction to the study of British fiction since 1925. Major works include Lawrence's "Women in Love." The course will be taken repeatedly for credit.

538 BRITISH FICTION: 1900-1925 3 credits
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor. An introduction to the study of British fiction from 1900 to 1925. Major works include Dickens's "Little Dorrit." The course will be taken repeatedly for credit.
GEOGRAPHY AND PLANNING

3350:

505 GEOGRAPHIC INFORMATION SYSTEMS
3 credits
Prerequisite: Six credits of advanced geography courses at the 300 level or above, but not including regional courses, or permission. Requirements and techniques for using all types of Geographic Information Systems (GIS). For students wishing to become applied geographers, physical and social scientists, resource managers, planners, and environmental analysts.

522 TRANSPORTATION SYSTEMS PLANNING
3 credits
Prerequisite: 310 or permission. Study and analysis of transportation systems from a geographic perspective. Emphasis on transportation planning and problems, elements of transportation planning.

582 INDUSTRIAL AND COMMERCIAL SITE LOCATION
3 credits
Prerequisite: 320 or permission. Relationship between land, resources, population, transportation, and industrial and commercial processes.

582 URBAN, REGIONAL AND RESOURCE PLANNING
3 credits
Prerequisite: 330 or permission. Role of geographic information in city, regional, and resource planning.

583 URBAN LAND USE ANALYSIS
3 credits
Prerequisite: 330 or permission. Land use classification systems and spatial analysis in urban areas. Land use data are collected by student fieldwork and analyzed to identify the associations and structure of subregions.

584 WORLD METROPOLITAN AREAS
3 credits
Prerequisite: 330 or permission. Comparative analysis of metropolitan regions. Urban land use, housing, transportation, population, and role of cities in economic development in different cultures.

582 THEMATIC CARTOGRAPHY
3 credits
Prerequisite: 341 or permission. Principles and techniques used in thematic mapping. Stress uses of maps to indicate certain characteristics of classes of information both qualitative and quantitative.

584 MAP COMPOSITION AND Reproduction
3 credits
Prerequisite: 341 or permission. Production of new/improved maps from existing maps, aerial photographs, surveys, new data and other sources. Includes special cartographic considerations for photography, lithography and printing.

591 INTRODUCTION TO REMOTE SENSING
3 credits
Prerequisite: 341 and permission. Study of aerial photography and non-photographic imagery developed by radar, thermal, multispectral and satellite scanners. Emphasis on use in (May be repeated for a maximum of six credits total) Group studies of special topics in geography.

594 GEOGRAPHIC RESEARCH METHODS
3 credits
Prerequisite: Required knowledge of geography. Techniques in geographic research. Library resources, techniques of professional writing.

583 SPATIAL ANALYSIS
3 credits
Prerequisite: 481/581 or permission. Analysis of mapped statistical surfaces. Principles for use of map as model for statistical evidence, prediction, hypothesis testing.

598 SPECIAL TOPICS IN GEOGRAPHY
1-3 credits
(May be repeated) Selected topics of interest in geography.

594 WORKSHOP IN GEOGRAPHY
1-3 credits
(May be repeated) Group studies of special topics in geography.

595 SOIL AND WATER FIELD STUDIES
3 credits
Prerequisite: 310 or permission. Properties, origins and uses of major soil and water regime landscapes. Scales relationships between soil and the hydrologic cycle, urbanization, suburbanization and agriculture. Field trips required.

596 FIELD RESEARCH METHODS
3 credits
Prerequisite: 481/581 or permission. Field work enabling student to become competent in hypothesis testing, organizing and analysis of data while carrying out field research projects.

600,1 SEMINAR
2 credits each
(May be repeated for a maximum of six credits each) Prerequisite: permission. Investigation and analysis of selected topics in particular fields of geography. Specialization indicated by second portion of title.

632 LAND USE PLANNING LAW
3 credits
Prerequisite: permission. Current student work and present approaches to land use control in the United States and examine the public, economic, social and legal forces which have shaped existing land use legislation.

637 FIELD METHODS IN URBAN AND REGIONAL PLANNING
3 credits
Prerequisite: 630. Taught jointly with 638 to provide students with extensive experience in applying the quantitative methods and analytic procedures of urban planning to actual public policy issues.

640 ADVANCED SPATIAL ANALYSIS
3 credits
Prerequisite: 483/583 or permission. Advanced concepts and methodologies in geographic research and emphasis on quantitative revolution in geographical analysis including multivariate procedures as factor, discriminant and canonical analyses, and multidimensional scaling.

665 PLANNING: FIELD EXPERIENCE
2 credits
Prerequisite: permission. Individual experience in selected planning agencies for supervised performance in professional planning work.

687 HISTORY OF GEOGRAPHIC THOUGHT
3 credits
Prerequisite: 481/581 or permission. Critical review of major developments in geographic concepts from ancient times to present.

689 INDIVIDUAL READING AND RESEARCH
1-3 credits
(May be repeated for a total of six credits) Prerequisite: permission. Reading and investigation of selected topics under guidance of faculty member.

693 THERESIS
2 credits
(May be repeated twice) Prerequisite: permission of department head. Supervised original research.
GEOLOGY

504 ASTROGEOLOGY 3 credits
Prerequisite: 3370/3371 or permission. Relations of planet earth to the solar system. Analysis and implications of data from lunar and space probes.

510 REGIONAL GEOLOGY OF NORTH AMERICA 3 credits
Prerequisites: 101, 102, 231 or permission. Recommended: 300. Examination of physiographic provinces of North America emphasizing structure, tectonic setting, stratigraphy, and processes responsible for landforms in each province. Laboratory.

511 GLACIAL GEOLOGY 3 credits
Prerequisite: 210 or permission. Causes and effects of Pleistocene expansion of polar ice masses with emphasis on glacial deposits and world climatic changes.

521 COASTAL GEOLOGY 3 credits
Prerequisites: 101, 324 or permission of instructor. Study of the origins and evolution of coasts and coastal deposits with special attention paid to the interaction of waves and currents with sediment and the development of associated sedimentary features.

525 ADVANCED STRATIGRAPHY 3 credits
Prerequisites or corequisites: 360, 324 or permission. Emphasis on correlation, depositional systems, sedimentation and tectonics, seismic stratigraphy, and paleo-environments. Field in the field.

532 OPTICAL MINERALOGY—INTRODUCTORY PETROGRAPHY 3 credits
Prerequisites: 230 and 231 or equivalent. Optical techniques for identification, characterization, and classification of minerals and rocks using the petrographic microscope. Laboratory.

533 ADVANCED PETROGRAPHY 3 credits
Prerequisite: 532. Petrology of igneous, metamorphic and sedimentary rocks as determined by microscopic studies of textures and mineral assemblages through thin section. Laboratory.

535 PETROLEUM GEOLOGY 3 credits
Prerequisites: 350 or permission; recommended: 324. Natural occurrences of petroleum. Characteristics, origin, entrapment and exploration methods. Laboratory.

536 COAL GEOLOGY 3 credits
Prerequisites: 101, 102, recommended: 324. Origin, composition and occurrence of coal with emphasis on depositional environments, coalification processes, exploration, evaluation and exploitation. Laboratory.

537 ECONOMIC GEOLOGY 3 credits
Prerequisites: 231 and 350. Study of metallic and nonmetallic mineral deposits emphasizing paragenesis and exploration. Laboratory.

541 FUNDAMENTALS OF GEOPHYSICS 3 credits
Prerequisites: 3450, 223 or permission and 3600, 292. Fundamental concepts in solid earth geophysics, planetary physics, and magnetism. Contributions of geophysics to recent major developments in geoscience.

546 EXPLORATION GEOPHYSICS 3 credits
Prerequisites: 3450, 223, 3600, 292 or permission. Basic principles and techniques of geophysical exploration with emphasis on gravimetric, magnetic, seismic and electrical methods and application to geological problems. Laboratory.

550 ADVANCED STRUCTURAL GEOLOGY 3 credits
Prerequisite: 350 or permission. Fundamental and advanced concepts of structural geology with emphasis on current and developing concepts. Laboratory.

553 MICROPALEONTOLOGY 3 credits
Prerequisite: 360 or permission. Introduction to techniques of micropaleontology evolution and paleoecology of selected microfossil groups. Laboratory.

570 GEOCHEMISTRY 3 credits
Prerequisites: 101, 230, 310, 312, 133, or permission. Application of chemical principles to the study of geologic processes. Laboratory.

574 GROUNDWATER HYDROLOGY 3 credits
Prerequisite: 101. Origin, occurrence, regimen and utilization of groundwater. Qualitative and quantitative presentation of geological and geochemical aspects of groundwater hydrology. Laboratory.

590 WORKSHOP (May be repeated) Group studies of special topics in geology. May not be used to meet undergraduate or graduate major requirements in geology. May be used for elective credit only.

596 GEOLOGY FIELD CAMP 6 credits
Prerequisites: 350 and permission; recommended: 231, 324, 395. Emphasis on collection, recording and interpretation of field data; detailed structural and stratigraphic field study.

608 REMOTE SENSING IN GEOLOGY 3 credits
Prerequisite: 3350, 4475 or equivalent. Techniques for analysis and processing of remotely sensed data from conventional and satellite sensing systems. Applications to local, regional and global geologic and environmental geology problems. Laboratory.

610 APPLIED QUANTITATIVE GEOMORPHOLOGY 3 credits
Prerequisite: 210. Quantification of geomorphic processes and associated landforms. Application of statistical methods and evaluation of validity of these methods. Examination of these methods in practical problems. Laboratory.

623 CARBONATE PETROLOGY 3 credits
Prerequisites: 324 and 3450 or permission of instructor. Detailed examination of selected carbonate suites with emphasis on depositional facies and diagenetic alteration. Laboratory.

624 SILICICLASTIC SEDIMENTOLOGY 3 credits
Prerequisites: 324 and 3450 or permission of instructor. Basic processes that transport and deposit sediments and the stratification associated with these processes. Emphasis, the study of depositional systems and associated facies architecture. Laboratory.

631 ROCKS AND MINERALS 4 credits
Prerequisite: 101 and permission. Intensive course integrating crystallography, mineralogy and petrology for the science teacher and graduate student from disciplines other than geology. Laboratory.

632 IGNEOUS PETROLOGY 3 credits
Prerequisite: 3450, 333. Origin and paragenesis of igneous rocks. Theory, petrochemistry and occurrences of major igneous rock types. Selected rock suites studied. Laboratory.

633 METAMORPHIC PETROLOGY 3 credits
Prerequisite: 3450, 333. Textures, chemistry of metamorphic reactions, phase diagrams and occurrences of metamorphic rocks. Selected rock suites studied. Laboratory.
507 UNITED STATES DIPLOMACY TO 1919 3 credits
Establishment of basic policies, diplomacy of expansion and emergence of a world power.

508 UNITED STATES DIPLOMACY SINCE 1914 3 credits
Responses of government and public to challenges of war, peace making and power politics.

510 HISTORICAL AGENCY ADMINISTRATION 3 credits
Organization and administration of non-academic historical agencies (e.g., societies, museum, libraries, etc.). Some field experience in a local historical agency.

511 FUNCTIONS OF HISTORICAL AGENCIES 3 credits
Prerequisite: 410/510 or permission. The functions and programs of historical agencies. Student will develop a project that involves participating in an agency function.

514 HISTORY OF CANADA 3 credits
Survey of Canadian history from the age of the explorers to the present. Special emphasis will be placed on the history of French-Canadians, on economic development and on Canadian-American relations.

515 LATIN AMERICA 3 credits
Pre-Columbian civilizations, discovery and conquests: colonization, struggle for independence and formation of new societies.

516 LATIN AMERICA: THE TWENTIETH CENTURY 3 credits
Social revolution, political ideology and contemporary problems.

517 THE UNITED STATES, LATIN AMERICA AND IMPERIALISM 3 credits
Inter-American relations, militarism, dependency, Marxism and recent international and ideological trends.

518 MEXICO 3 credits
History of Mexico from Indian civilizations to present with emphasis on relations with United States, social and political ramifications of the 20th Century Mexican revolution.

519 CENTRAL AMERICA AND THE CARIBBEAN 3 credits
Selected aspects of the histories of Central American and Caribbean countries with emphasis on popular and peasant movements, political reform, social revolution, economic and under development, and relations with the United States.

521 THE AMERICAN COLONIES IN THE 17TH CENTURY, 1607-1713 3 credits
Establishment of European colonies in America with special emphasis on English settlements and evolution of the first British Empire to 1713.

522 THE 18TH CENTURY AND FOUNDING OF THE UNITED STATES, 1713-1800 3 credits
Colonial life from the Glorious Revolution to the founding of the United States. Major movements (wars, religious revivals, economic growth) and political controversies.

524 AGE OF JEFFERSON AND JACKSON, 1800-1850 3 credits
The evolution of the republic in its formative stages from Jefferson through Jackson to the Compromise of 1850. Emphasis upon political, social, intellectual and Constitutional developments.

525 THE CIVIL WAR AND RECONSTRUCTION, 1860-1877 4 credits
Sectionalism, slavery and the causes of the Civil War, wartime activities of the Union and Confederate armies, leading personalities, problems of reconstruction and the new Union and Confederate States.

526 THE ORIGINS OF MODERN AMERICA, 1777-1917 3 credits
United States from Reconstruction Era to World War I (1897-1920); emphasis on political responses to rise of an industrialized-urbanized society, the populist and progressive movements.

529 AMERICA IN WORLD WARS AND DEPRESSION, 1917-1945 3 credits
World War I and Versailles; the 1920s; the Great Depression and the New Deal; World War II.

530 RECENT AMERICA: THE UNITED STATES SINCE 1945 3 credits
Nuclear age, cold war, foreign policy and domestic affairs to present. Social, political, constitutional, diplomatic, cultural and economic changes since 1945.

531 HISTORY OF AMERICAN TRANSPORTATION 2 credits
A survey of development of major transportation forms, water, road, rail and air. Special emphasis on technological change, social and economic trends, and government support and control.

532 AMERICAN ECONOMY TO 1900 3 credits
Survey of economic developments from colonial era: including agriculture, commerce, labor. Special emphasis on role of big business and evolution of monetary and fiscal policy.

533 AMERICAN ECONOMY SINCE 1900 3 credits
Survey of economic developments since 1900; topics include agriculture, commerce, labor. Special emphasis on role of big business and evolution of monetary and fiscal policy.

534 AMERICAN ENVIRONMENTAL HISTORY 3 credits
Utilization, conservation of natural resources from beginnings of American society to present: combination of economic, technological history of extensive treatment of public policy, environmental issues.

535 OHIO HISTORY 3 credits
Political, social, economic and intellectual history of Ohio, with special emphasis on Ohio’s relationship to Old Northwest and to the nation.

536 THE AMERICAN CITY 3 credits
Development of urbanization and its consequences from colonial period to present.

537 AMERICAN FAMILY HISTORY 3 credits
Evolution of American family, colonial times to present, including developments in structure and roles of family members, and status of the aged. Exploration of methods for historical study of the family.

538 BRONZE AGE AND ARCHAIC GREECE 3 credits
An intensive survey of the history of Greece from the Neolithic period to the Persian Wars. Attention will be given to the nature of the source material, ancient historiography, text criticism and the like.

539 CLASSICAL AND HELLENISTIC GREECE 3 credits
Prerequisite: 435/535. An intensive survey of the history of Greece from 480 BC to the Hellenistic Age. Attention will be given to the nature of the source material, ancient historiography, text criticism and the like.

540 ROMAN REPUBLIC 3 credits
An intensive survey of the Roman Republic. Attention will be given to the nature of the source material, ancient historiography, text criticism and the like.

541 ROMAN EMPIRE 3 credits
Prerequisite: 440/540. An intensive survey of the Roman Empire. Attention will be given to the nature of the source material, ancient historiography, text criticism and the like.

542 MEDIEVAL EUROPE, 400-1200 3 credits
Migration of peoples, Carolingian revival, renewed invasions, social, economic and intellectual stirrings leading to "birth of Europe.”

543 MEDIEVAL EUROPE, 1200-1500 3 credits
Middle Ages and the middle class, economic and political change, international wars, social unrest and religious crosscurrents.

544 CHURCHILL’S ENGLAND 3 credits
An examination of the changes that Britain experienced during the life of Winston Churchill, 1874-1965. Emphasis is on social, cultural, and political developments.

545 THE RENAISSANCE 3 credits
The age of transition from the Middle Ages to modern times (1330-1600). Special emphasis on intellectual trends, the development of humanism, and the fine arts.

546 THE REFORMATION 3 credits
Europe in 16th Century; its religious, cultural, political and diplomatic development, with special emphasis on Protestant, Anglican and Catholic reforms.

547 EUROPEAN ABSOLUTISM AND THE ENLIGHTENMENT, 1648-1789 3 credits
Constitutional, diplomatic, cultural, intellectual and social developments of 17th Century Europe.

548 EUROPE IN THE FRENCH REVOLUTIONARY ERA, 1789-1815 3 credits
Discussion of Revolution, Napoleon’s regime and satillies.

549 NAZI GERMANY 3 credits
This course covers the social, economic, and political history of Germany from World War II to 1945 with emphasis on the Third Reich.

551 19TH CENTURY EUROPE, 1815-1871 3 credits
Europe in the century of change, revolution, romanticism, industrialization, democratization, and the first wars of the Industrial Age.

552 19TH CENTURY EUROPE, 1871-1914 3 credits
Socialism, imperialism, nationalism, and the great war. The belle époque and contemporary artistic and intellectual currents.

553 20TH CENTURY EUROPE, 1914-1939 3 credits
Europe between world wars; Russian revolution, fascism and national socialism; plight of democracies.

555 20TH CENTURY EUROPE SINCE 1939 3 credits
Europe in World War II, the cold war and attempts at unity.

558 RUSSIA TO 1801 3 credits
Survey of Russian history from Kievan period to death of Paul I; emphasizing development of autocratic government, Russian culture, reigns of Peter and Catherine.

559 RUSSIA SINCE 1801 3 credits
Survey of 19th and 20th Centuries. Special emphasis on problems of modernization, the revolution and development of communism.

560 WAR AND WESTERN CIVILIZATION 3 credits
War and society in Europe, America and beyond from ancient world to present with special emphasis on period since 1740.

570 ENGLAND TO 1688 3 credits
Survey of English history from the Anglo-Saxon conquest to the Revolution of 1688. Medieval and early modern institutions, social and cultural life.

571 ENGLAND SINCE 1688 3 credits
Survey of English history from 1688 to the present. The reform of English institutions and the modernization of the economy, the welfare state, society, and war.

572 TUDOR AND STUART ENGLAND, 1485-1714 3 credits
Emphasis on social, economic and cultural topics, including literature, art and architecture.

577 WESTERN SCIENCE TO 1600 3 credits
Science in Greek, Roman, Islamic, European societies with special emphasis on the scientific revolution of the 16th and 17th Centuries.

578 WESTERN SCIENCE SINCE 1600 3 credits
Continuing development of physical, medical, biological sciences in European and American societies. Atomic, physics, and evolution, genetics, modern medicine.

579 WESTERN TECHNOLOGY 3 credits
Technology in Mesopotamia, Egypt, Greece, Rome, Islam, medieval Europe; first and second industrial revolutions in Europe, America.

582 IMPERIALISM IN ASIA 3 credits
An examination of the East Asian relations in the modern period; highlighting China’s response to British, Russian, and Japanese imperialism in the 19th and 20th centuries.

585 MODERN INDIA 3 credits
History of the Indian subcontinent from c.1500 with emphasis on Indian society and culture, British imperialism, and the emergence of Indian nationalization.

590 WORKSHOP IN HISTORY 1-3 credits
(May be repeated) Group studies of specific subjects pertaining to history. May be used for elective credit only. May not be used to meet undergraduate or graduate major requirements in history.

622 READING SEMINAR IN ANCIENT HISTORY 4 credits
Study of historical literature; sources of materials and major interpretations of ancient history, especially Greek and Roman periods.

623 WRITING SEMINAR IN ANCIENT HISTORY 4 credits
Prerequisite: 527. Research and writing in selected topics of ancient history, particularly Greek and Roman era.

625 READING SEMINAR IN MEDIEVAL HISTORY 4 credits
Study of historical literature; sources of materials and major interpretations of medieval European history.

626 WRITING SEMINAR IN MEDIEVAL HISTORY 4 credits
Prerequisite: 525. Research and writing in selected topics of European medieval history from barbarian invasions through later Middle Ages.

631 READING SEMINAR IN MODERN EUROPEAN HISTORY TO 1815 4 credits
Study of historical literature; sources of materials and major interpretations of early modern European history to Napoleonic era.

632 WRITING SEMINAR IN MODERN EUROPEAN HISTORY TO 1815 4 credits
Prerequisite: 531. Research and writing in selected topics of modern European history, occasionally including social, economic and intellectual subjects.

634 READING SEMINAR IN MODERN EUROPEAN HISTORY SINCE 1815 4 credits
Study of historical literature; sources of materials and major interpretations of modern European history since early 19th Century.
591 WORKSHOP IN COMPUTER SCIENCE 1 credits
Group studies of special topics in computer science. May not be used to meet graduate or undergraduate requirements in mathematics, statistics or computer science.

597 INDIVIDUAL READING IN COMPUTER SCIENCE 3 credits
May be repeated. Prerequisite: Permission. Course may be repeated. Directed study as designed to meet professional needs, under guidance of designated faculty member.

610 SYMBOLIC AND NUMERICAL METHODS 3 credits

612 THEORETICAL STATISTICS I AND II 3 credits
Prerequisite: 515 and 171. Introduction to the theory of statistics. Topics include probability theory, distributions, sampling distributions, hypothesis testing, regression and correlation. Prerequisite: 515 and 171.

615 MATHEMATICAL CONCEPTS FOR STATISTICS 4 credits
Prerequisites: 150, 202, or 305. Topics include probability, statistical inference (parametric and nonparametric), descriptive statistics, regression, correlation, and analysis of variance.

620 APPLICATIONS OF STATISTICS 3 credits
Prerequisite: 615 or permission. Designed to meet undergraduate and graduate requirements in mathematics and computer science. May not be used to meet graduate or undergraduate requirements in mathematics and computer science majors.

621 ACTUARIAL SCIENCE I 3 credits
Prerequisite: 521 or 522. Probability theory and mathematical statistics. Prerequisite: 515. Probability theory and applications to insurance mathematics.

622 ACTUARIAL SCIENCE II 3 credits
Prerequisite: 521 or 522. Probability theory and mathematical statistics. Prerequisite: 515. Probability theory and applications to insurance mathematics.

623 RELIABILITY MODELS 3 credits
Prerequisite: 615. Introduction to the reliability modeling of parametric and non-parametric models, competing models of failure, censored data and accelerated life models.

628 STATISTICAL COMPUTER APPLICATIONS 3 credits
Prerequisite: 615. Development of a statistical computer program. Topics include computer programming, statistical computations and their applications in insurance theory, risk management models, and life insurance.

630 COMPUTER ORGANIZATION 3 credits
Prerequisite: 500. An introduction to the hardware organization of computers at the register and processor level. Theory of machine levels and instruction set.

635 ADVANCED COMPUTER PROGRAMMING AND INTERFACING 3 credits
Prerequisite: 500. Detailed study of the architecture of a particular computer system. Topics include assembler language, operating systems, and computer organization.

636 COMPUTER LABORATORY 3 credits
Prerequisite: 500. A practical course in computer organization and programming. Topics include assembly language, operating systems, and computer organization.

637 MICROPROCESSOR PROGRAMMING AND INTERFACING 3 credits
Prerequisite: 500. Detailed study of the architecture of a particular microprocessor system. Topics include assembly language, operating systems, and computer organization.

638 COMPUTER ORGANIZATION 3 credits
Prerequisite: 500. An introduction to the hardware organization of computers at the register and processor level. Theory of machine levels and instruction set.

639 ADVANCED COMPUTER PROGRAMMING AND INTERFACING 3 credits
Prerequisite: 500. Detailed study of the architecture of a particular computer system. Topics include assembler language, operating systems, and computer organization.

640 COMPUTER ORGANIZATION 3 credits
Prerequisite: 500. An introduction to the hardware organization of computers at the register and processor level. Theory of machine levels and instruction set.

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Prerequisite: 500. An introduction to the hardware organization of computers at the register and processor level. Theory of machine levels and instruction set.
655 LINEAR MODELS
Prerequisites: 3452:312 and 651 or equivalent. General linear model in matrix notation, general linear hypothesis, regression models, experimental design models, analysis of variance and covariance, variance components. 3 credits

663 EXPERIMENTAL DESIGN
Prerequisites: 562 or equivalent. Selected topics in experimental design including random and fixed effects, nested designs, split plot designs, confounding, fractional factorial, Latin squares, and analyses of covariance. 3 credits

664 STATISTICS FOR THE HEALTH SCIENCES
(May not be used to meet degree requirements for mathematical sciences majors) Prerequisite: college algebra and equivalent. Descriptive statistics, probability and probability distribution, tests of hypotheses and confidence intervals, nonparametric statistics, regression and correlation. 4 credits

665 REGRESSION AND CORRELATION
Prerequisites: 560 or 561 or 664 or equivalent. Analytical theory: least squares — matrix notation, methodology; multiple regression; orthogonal polynomials; correlation; partial correlation; stepwise regression; model building; response surfaces. 3 credits

666 NONPARAMETRIC STATISTICS-METHODS
Prerequisites: 560 or 561 or equivalent. Theory and practice using techniques requiring less restrictive assumptions. Nonparametric analogues to t- and F-tests, ANOVA, regression and correlation. Computer applications. 3 credits

667 FACTOR ANALYSIS
Prerequisite: 560 or 561 or 664. Theory and techniques for identifying variables through use of principal components and factor analysis. Identification of groups using cluster analysis. Computer applications. 3 credits

668 MULTIVARIATE STATISTICAL METHODS
Prerequisite: 562 or equivalent. Multivariate techniques including distance concept, Hotelling T², multivariate ANOVA, regression and correlation. Linear factor analysis, linear discriminant analysis, canonical correlation, application. 3 credits

675 RESPONSE SURFACE METHODOLOGY
Prerequisite: 462/562 or equivalent. Variable order response design, efficient, experimental plans, methods for the analysis, and optimization of response functions. 3 credits

689 ADVANCED TOPICS IN STATISTICS
(May be repeated a total of six times.) (May be repeated a total of six times.) Prerequisite: 561. Selected topics in statistics including concepts in order statistics, advanced inference, sequential analysis, stochastic processes, reliability theory, Bayesian statistics and regression. 1-3 credits

692 STATISTICS AND MATHEMATICS SEMINARS
Prerequisites: For permit or qualified candidate for master’s degree in Statistics and Mathematics. (May be repeated a total of four credits.) Seminar type discussions involving special problems dealing with statistics and mathematics. Includes a supervised research project. 2 credits

695 PRACTICUM IN STATISTICS AND MATHEMATICS
(May be repeated a total of four credits.) Prerequisite: graduate teaching assistant or permission. Training and experience in college teaching of statistics. May not be used to meet degree requirements. May be taken only on a credit/credit basis. 1-3 credits

697 INDIVIDUAL READING
(May be repeated a total of four credits.) Prerequisites: graduate standing and permission. Directed studies in statistics under guidance of selected faculty member. 2 credits

699 THESIS RESEARCH
(May be repeated a total of four credits.) Prerequisite: Permission. Properly qualified candidates for master’s degree may obtain 2-4 credits for research experience which culminates in presentation of faculty-supervised thesis. 2 credits

MODERN LANGUAGES
3500:

590 WORKSHOP
(May be repeated.) Group studies of special topics in modern languages. 2 credits

FRENCH
3520:

502 ADVANCED FRENCH GRAMMAR
Prerequisite: 332 or equivalent. Advanced study of normative French grammar with emphasis on syntax, morphology, grammatical structure and phonetic principles. 3 credits

507 FRENCH LITERATURE OF THE MIDDLE AGES AND THE RENAISSANCE
Prerequisite: 305 or 306 or equivalent. Reading and discussion of selected Medieval and Renaissance literary works. Conducted in French. 4 credits

511 17TH CENTURY FRENCH LITERATURE
Prerequisite: 305 or 306 or equivalent. Reading and discussion of selected works in poetry, drama and novels. Conducted in French. 4 credits

515 18TH CENTURY FRENCH LITERATURE
Prerequisite: 305 or 306 or equivalent. Reading and discussion of selected authors emphasis on the philosophers. Conducted in French. 4 credits

519 19TH CENTURY FRENCH LITERATURE
Prerequisite: 305 or 306 or equivalent. Reading and discussion of selected works pertaining to romantic, realist and naturalistic movements. Conducted in French. 4 credits

527 20TH CENTURY FRENCH LITERATURE
Prerequisite: 305 or 306 or equivalent. Reading and discussion of the most representative works of period. Conducted in French. 4 credits

529 FRANCOPHONE CANADIAN LITERATURE
Prerequisites: 305 or 306 or equivalent. A study of selected literary works from Haiti, Guadeloupe, and Martinique in light of their geographic, historic, socioeconomic, and cultural determinants. 3 credits

580 SELECTED THEMES IN FRENCH LITERATURE
(May be repeated.) Prerequisite: 305 and 306 or equivalent. Reading and discussion of literary works selected according to an important theme. 3 credits

SPANISH
3580:

505 SPANISH LINGUISTICS: PHONOLOGY
Prerequisite: permission. Descriptive study of Spanish phonetics and morphology, comparison of Spanish and English sounds, historical aspects, regional accents and sociolinguistic variation. Conducted in Spanish. 4 credits

506 SPANISH LINGUISTICS: SYNTAX
Prerequisite: permission. Descriptive study of Spanish syntax; introduction to theories of grammar, overview of Spanish semantics and pragmatics. Conducted in Spanish. 4 credits

509 MEDIEVAL AND RENAISSANCE SPANISH LITERATURE
Prerequisites: 407 or 408 or permission. Study of representative works that mark beginnings of Spanish literature in poetry, prose and drama, with emphasis given to major works. Conducted in Spanish. 4 credits

511 SPANISH LITERATURE OF THE GOLDEN AGE
Prerequisites: 407 or 408 or permission. Reading and discussion of representative novels and short stories with special emphasis on works of Miguel de Cervantes. Conducted in Spanish. 4 credits

512 CERVANTES: DON QUIJOTE
Prerequisite: 407 or 408 or permission of the Instructor. Reading and analysis of Don Quijote as the first modern novel in the historical context of Renaissance and Baroque aesthetics. Conducted in Spanish. 4 credits

515 18TH AND 19TH CENTURY SPANISH DRAMA AND POETRY
Prerequisites: 407 or 408 or permission. Reading, discussion and lectures. Study of Realism, Naturalismo and La Generacion del 98. Conducted in Spanish. 4 credits

516 19TH CENTURY SPANISH PROSE
Prerequisites: 407 or 408 or permission. Reading, discussion and lectures. Study of Realismo, Naturalismo and La Generacion del 98. Conducted in Spanish. 4 credits

571 FRENCH LANGUAGE READING PROFICIENCY
Prerequisite: 332 or 305. Designed to develop proficiency in reading comprehension. Prepares students for graduate reading examination. Does not count toward French major. 4 credits

604 ROMANCE AND APPLIED LINGUISTICS
History of French language from 840 to present. Second semester deals with application of linguistic research to teaching of French. 4 credits

607A SELECTED TOPICS IN THE MOVEMENT OF IDEAS IN FRENCH LITERATURE
Study of ideas instrumental in shaping French thought and culture. 4 credits

619 FRENCH CULTURE EXPRESSED IN LITERATURE
Prerequisites: 407 and 408. Eighteenth century French culture, its history and its reflection in literature. 4 credits

641 SEMINAR: FRANCOPHONE LITERATURE, CULTURE AND CIVILIZATION
Study of various aspects of culture, civilization and literature of French expression outside of France. Conducted in French. 2 credits

642 SEMINAR: THE IMAGE OF THE WOMAN IN FRENCH LITERATURE
Prerequisites: French 305. Study of the woman as characterized in French literature from Middle Ages to present. Conducted in French. 2 credits

661 FRENCH TEACHING PRACTICUM
Prerequisite: teaching assistantship or permission. Observation and practice of particular aspects of teaching language and culture. Periodic review and evaluation. Credits may not be applied toward degree requirement. 2 credits

697A INDIVIDUAL READING AND RESEARCH SEMINAR
Prerequisite: permission. Independent study and research in specific areas. Considerable reading and writing required. 1-4 credits

699 THESIS WRITING
Prerequisite: Permission. Independent study and research in specific areas. Considerable reading and writing required. 2 credits

GERMAN
3530:

519 THE AGE OF GOETHE I
Prerequisite: 302 or 306 or permission. Enlightenment and generation of Spurz und Drang, including works of Wieland, Lessing, Klopstock, Herder, the young Goethe and others. Conducted in German. 3 credits

520 THE AGE OF GOETHE II
Prerequisite: 302 or 306 or permission. Faust, selections from parts i and ii. Ballads of Goethe and Schiller. Conducted in German. 4 credits

531 200 YEARS OF GERMAN DRAMA
Prerequisite: 302 or 306 or permission. Representative works of major classical dramas including Lessing, Goethe, Schiller, Kleist, Galswinckel. Conducted in German. 3 credits

532 200 YEARS OF GERMAN DRAMA II
Prerequisite: 302 or 306 or permission. Representative works of major dramatists. Buchner, Hebbel, Hauptmann and Wedekind. Conducted in German. 4 credits

535 GERMAN SHORT STORY
Prerequisite: 302 or 306 or permission. Reading and discussion of representative works of German romanticism, including those of Tieck, Kleist, E. T. A. Hoffman, Brentano, Eichendorff. Conducted in German. 3 credits

536 GERMAN SHORT STORY II
Prerequisite: 302 or 306 or permission. Reading and discussion of representative works of German romanticism, including those of Tieck, Kleist, E. T. A. Hoffman, Brentano, Eichendorff. Conducted in German. 3 credits

539 20TH CENTURY LITERATURE I
Prerequisite: 302 or 306 or permission. Clash of the old and the new at the turn of the century. Works of T. Mann, Hauptmann, Kase, Hoffmannsthal, Rehe, Wedekind and others. Conducted in German. 3 credits

540 20TH CENTURY GERMAN LITERATURE II
Prerequisite: 302 or 306 or permission. Impact of modernity. Reading and discussion of writings of Heine, Kafka, Doblin, Werfel and others. Conducted in German. 3 credits

571 GERMAN LANGUAGE READING PROFICIENCY
Designed to develop proficiency in reading comprehension. 4 credits
518 20TH CENTURY SPANISH PROSE
Prerequisite: 407 or 408 or permission of the instructor. Reading and analysis of representative works of prose fiction with a selection of works that illustrates major developments and themes. Conducted in Spanish.
4 credits

519 20TH CENTURY SPANISH DRAMA/POETRY
Prerequisite: 305 or permission of the instructor. Reading and analysis of representative works of drama and poetry with a selection of works that illustrates the major developments and themes in both genres. Conducted in Spanish.
4 credits

522 SPECIAL TOPICS IN HISPANIC CULTURE
(May be repeated) Reading and discussion of significant works in literature or culture in Spain and Latin America, not studied in other courses.
1-4 credits

523 SPANISH-AMERICAN LITERATURE BEFORE 1900
Prerequisite: 407 or 408 or permission of instructor. Reading of representative Spanish-American literature from 1492 to 1900. Oral and written reports. Conducted in Spanish.
4 credits

524 20TH CENTURY SPANISH-AMERICAN LITERATURE
Prerequisite: 407 or 408 or permission. Reading and analysis of selected works from the 20th Century that depict women in Hispanic countries. Methodologies of feminist criticism will be studied. Conducted in Spanish.
4 credits

525 20TH CENTURY SPANISH-AMERICAN NOVEL
Prerequisite: 305 or permission. Reading and discussion of representative contemporary Latin American novels. Conducted in Spanish.
4 credits

527 SPANISH AND SPANISH-AMERICAN CULTURE AND CIVILIZATION
Prerequisite: 302 or permission. Emphasis on customs, traditions, literary trends and artistic tendencies that constitute Spain’s specific contribution to civilization. Study of Spanish-speaking world. Conducted in Spanish.
4 credits

529 CULTURE AND LITERATURE OF THE HISPANIC CARIBBEAN
Prerequisite: 302 or permission. Emphasis on customs, traditions and literature, including lectures, films, slides, and analysis of selected works by contemporary Hispanic authors from the Caribbean. Conducted in Spanish.
4 credits

530 WOMEN IN 20TH CENTURY HISPANIC LITERATURE
Prerequisite: 407 or 408 or permission. Reading and analysis of selected works from the 20th Century that depict women in Hispanic countries. Methodologies of feminist criticism will be studied. Conducted in Spanish.
4 credits

571 SPANISH LANGUAGE READING PROFICIENCY
Designed to develop proficiency in reading comprehension.
4 credits

601 SEMINAR ON MEDIEVAL SPANISH LITERATURE
Reading and discussion of monumental medieval literary works of Spain such as Poema del Milagro, El Conde Lucanor, El Libro de Buen Amor. Conducted in Spanish.
4 credits each

609,10 SEMINAR ON SPANISH LITERATURE OF THE GOLDEN AGE:
SEMINAR ON 16TH AND 17TH CENTURIES SPANISH LITERATURE
Reading and discussion of representative works from Renaissance to late Baroque period. Studies in essay, novel, theatre, poetry and philosophical writings. Conducted in Spanish.
4 credits each

613 SEMINAR ON SPANISH-AMERICAN LITERATURE
Studies in representative writers preceding the “Boom.” Reading and discussion of various genres and authors representing significant literary developments. Conducted in Spanish.
4 credits each

617 SEMINAR ON 20TH CENTURY SPANISH-AMERICAN LITERATURE
Reading and discussion of contemporary writers with emphasis on novel, theatre and short story. Conducted in Spanish.
4 credits

621 SEMINAR ON 20TH CENTURY SPANISH LITERATURE
Studies in representative present-day writers with analyses and discussions of novel, theatre, poetry and short stories. Conducted in Spanish.
4 credits

661 SPANISH TEACHING PRACTICUM
Prerequisite: 407 or 408 or permission of instructor. Orientation and practice of particular aspects of teaching Spanish language and culture. Student teaching experiences are periodically reviewed and evaluated. These credits may not be applied toward degree requirements.
2 credits

697B INDEPENDENT READINGS IN SPANISH
Independent reading program taken from course content approved for graduate work in Spanish. Conducted in Spanish.
1-4 credits each

699 THESIS WRITING
Conducted in Spanish.
4 credits

PHILOSOPHY
3600:

511 LATER DIALOGUES OF PLATO
Prerequisite: 401 or permission of instructor. Readings of dialogues in translation, commencing with Theaetetus including: Parmenides, Sophist, Statesman, Philebus.
3 credits

518 ANALYTIC PHILOSOPHY
Prerequisite: 211, 312 and 313 or permission of instructor. Study of ideal and ordinary language movements in 20th Century British and American philosophy. Study of such figures as Russell, Carnap, Ayer, Moore, Wittgenstein, Ryle and Austin.
3 credits

519 BRITISH EMPIRICISM
Prerequisite: one introductory course and 313 or permission of instructor. Intensive analysis of selected major writings of Locke, Berkeley and Hume.
3 credits

521 PHILOSOPHY OF LAW
Prerequisite: one course in philosophy or permission of instructor. Philosophical inquiry into the nature of law and legal institutions.
3 credits

522 CONTINENTAL RATIONALISM
Prerequisite: one introductory course or 313 or permission of instructor. Intensive analysis of selected major works of Descartes, Spinoza and Leibniz.
3 credits

524 EXISTENTIALISM
Prerequisite: one introductory course in philosophy. 314 or permission of instructor. Critical inquiry into the thought of Kierkegaard, Jaspers, Heidegger, Sartre, Titch and other existentialists with their concern for the human condition.
3 credits

526 PHENOMENOLOGY
Prerequisite: one introductory course, 314 or permission of instructor. Critical inquiry into methodology of Husserl and Heidegger and their influence upon Western European and American thought.
3 credits

532 ARISTOTLE
Prerequisite: 211, 312 and 313 or permission of instructor. Detailed study of Aristotle’s metaphysics, philosophy of nature, philosophy of mankind and ethics. Taught in alternate years.
3 credits

534 KANT
Prerequisite: 313 or permission of instructor. Study of Kantian system of thought and its relation to history of philosophy. Includes thorough investigation of one or more of Kant’s philosophical works.
3 credits

544 PROBLEMS IN PHILOSOPHY
Prerequisite: two courses in philosophy or permission of instructor. Thorough, critical examination of one major philosophical problem.
3 credits

562 THEORY OF KNOWLEDGE
Prerequisite: three courses in philosophy. Examination of nature of knowledge, theories of perception, conception and truth, problem of induction and relation of language to knowledge.
3 credits

564 PHILOSOPHY OF SCIENCE
Prerequisite: 401 or permission of instructor. Nature of scientific inquiry, types of explanation, laws and causality, theoretical concepts and reality. Also considers critics of hypothetico-deductive view of science, e.g., Hanson and Kuhn.
3 credits

571 METAPHYSICS
Prerequisite: 311, 312 and 313 or permission of instructor. Theories about ultimate nature and ultimate explanation of reality. Uses readings from classical and contemporary sources.
3 credits

580 SEMINAR
(May be repeated) Prerequisite: permission of instructor.
3 credits

581 PHILOSOPHY OF LANGUAGE
Prerequisites: 101 and 110 or permission of instructor. Contemporary philosophy about nature of language and its relation to reality and human thinking. Includes discussion of views of linguists such as Chomsky.
3 credits

597 INDIVIDUAL STUDY
(May be repeated for a total of six credits) Prerequisite: completion of required courses of philosophy. Permission of instructor and department head. Directed independent study of philosophy: philosophy or philosophical problem under guidance of selected faculty member. Subject matter determined by selected faculty member in consultation with student. Graduate credit requires significant additional work which may include additional research paper.
1-3 credits

615 SEMINAR: HISTORY OF PHILOSOPHY
(May be repeated for a total of 12 credits) Prerequisite: permission of instructor. Study in philosophical works of one major philosopher.
3 credits

626 ETHICAL THEORY
Examination of problems related to conduct and decision making in light of the Western tradition as well as contemporary insights of postivism, phenomenology, existentialism, logical analysis, naturalism and pragmatism.
3 credits

676 LOGICAL THEORY
Advanced topics in logic such as modal logics and axiomatics. Recommended for law student, as logic of normative systems is treated. It is suggested that a graduate student be familiar with material covered in a course like 374 before taking this course.
3 credits

680 SEMINAR
(May be repeated for a total of nine credits)
3 credits

699 SEMINAR: THESIS SUPERVISION
(May be repeated)
2 credits

PHYSICS
3650:

500 HISTORY OF PHYSICS
Study of origin and evolution of major principles and concepts characterizing contemporary physics.
3 credits

506 WAVES
Study of wave phenomena, including free oscillations, forced oscillations, traveling waves, reflection, polarization, interference and diffraction. Wave, sound, electromagnetic, seismic and seismograph waves examined.
3 credits

531 MECHANICS I
3 credits

532 MECHANICS II
Prerequisite: 436/536. Advanced mechanics at the senior or beginning graduate level, moving coordinate systems, mechanical continuous media, Lagrange’s equations, tensor algebra and stress analysis, rotation or rigid bodies, vibration theory.
3 credits

533 ELECTROMAGNETISM I
Prerequisites: 262, 3450:235 or permission of instructor. Electrostatics and magnetostatics, electric field, scalar potential, electric circuits, Laval’s and Poisson’s equations, current, magnetic field, vector potential, magnetic materials, induction.
3 credits

534 ELECTROMAGNETISM II
Prerequisite: 436/536. Special relativity, four vectors, Maxwell’s equations in covariant form, polarization, reflection and refraction of electromagnetic waves, multipole radiation.
3 credits

541 QUANTUM PHYSICS I
Prerequisites: 301 and 3450:235. Laboratory course stressing measurement techniques with contemporary laboratory apparatus. Experiment design, instrument calibration and reporting emphasized. Modern physics experiments and measurements of fundamental natural constants.
3 credits

542 QUANTUM PHYSICS II
Prerequisite: 436/536. Applications of quantum mechanics to atomic, nuclear and solid state physics. Tunneling and alpha decay, periodic potential, Hydrogen and Helium atoms, intermediate level.
3 credits

552 ADVANCED LABORATORY I AND II
2 credits each

Prerequisite: 323 or permission of instructor. Applications of electronic, solid state devices, techniques to research-type projects in contemporary physics. Introduction to resonance techniques, nuclear magnetic resonance, electron spin resonance, nuclear quadrupole resonance. Scintillation spectrometry, Alpha- and beta-ray spectrometry.
POLITICAL SCIENCE 3700:

502 POLITICS AND THE MEDIA 3 credits
Examination of relationships between the press, the news media and political decision-making

505 POLITICS IN THE MIDDLE EAST 3 credits
The rise of the state system in the Middle East after World War I; an analysis of the socio-cultural, ideological forces influencing the political behavior of the people of the Middle East. In-depth study of selected political systems

510 INTERNATIONAL DEFENSE POLICY 3 credits
Prerequisite: At least one of the following: 220, 310; 340, 340, 340, 340, 426, 426, or permission. Introduction to military policy. Major areas include: methodological, conceptual, and ethical dimensions in military decision-making and implementation of military policy

511 THEORIES OF INTERNATIONAL POLITICAL ECONOMY 3 credits
Prerequisite: 310 or permission. This course examines the predominant competing theories of international political economy, including liberalism, world systems analysis, long-wave theory, neo-Marxism, and neo-realist

512 GLOBAL ENVIRONMENT POLITICS 3 credits
Prerequisite: 300 or permission of Instructor. This course examines the major global environmental challenges, including the roles played by technology and the structure of global governance

515 COMPARATIVE FOREIGN POLICY 3 credits
Prerequisite: 310 or 220 or permission. Study of foreign policies of selected nations, with special attention to processes and instruments of decision making of the major powers

520 ISSUES AND APPROACHES IN COMPARATIVE POLITICS 3 credits
Prerequisite: 300 or permission of instructor. Detailed examination of approaches to the study of comparative politics, political parties, elites and various theories of revolution

525 LATIN AMERICAN POLITICS 3 credits
Prerequisite: 300 or permission of instructor. Examination of patterns of government and politics in Latin American area

540 PUBLIC OPINION AND POLITICAL BEHAVIOR 4 credits
Prerequisites: 100 or 120 or permission. Nature and role of public opinion in political process. Topics include political participation and performance of the voting public, and political surveys

561 THE SUPREME COURT AND INSTITUTIONAL LAW 3 credits
Prerequisite: 100 or permission. Interpretation of the Constitution by the Supreme Court with emphasis on federal judicial, legislative and executive power; separation of powers; and federalism

562 THE SUPREME COURT AND CIVIL LIBERTIES 3 credits
Prerequisite: 100 or permission. Interpretation of the Constitution by the Supreme Court with emphasis on freedom of speech and press, freedom of religion, criminal rights and right to privacy

570 CAMPAIGN MANAGEMENT 3 credits
Prerequisite: Six credits of political science or permission. Reading, research and practice in campaign management decision making

571 CAMPAIGN FINANCE 3 credits
Prerequisite: Six credits of political science or permission. Reading and research in theina torino decision making in political campaigns

572 AMERICAN INTEREST GROUPS 3 credits
Prerequisite: Six credits of political science or permission. Reading and research on the development and operation of interest groups in the United States

573 AMERICAN POLITICAL PARTIES 3 credits
Prerequisite: Six credits of political science or permission. Reading and research on the development and function of parties in the United States

580 POLICY PROBLEMS 3 credits
May be repeated for a total of six credits. Prerequisite: 330 or permission. Intensive study of selected problems in public policy

590 RESEARCH 1-3 credits
May be repeated. Group studies of special topics in political science. May not be used to meet undergraduate or graduate requirements in political science. Elective credit only

600 SCOPE AND THEORIES OF POLITICAL SCIENCE 3 credits
Prerequisite: Six credits of political science or permission. Instructor. Emphasizes the nature, scope and content of political theory; theory construction and validation in political science

601 RESEARCH METHODS IN POLITICAL SCIENCE 3 credits
Prerequisite: Six credits of political science or permission. Includes 440 (or a satisfactory equivalent) or permission of instructor. Techniques of quantitative research methodology in political science; utility and limitations of quantitative analysis

610 SEMINAR IN INTERNATIONAL POLITICS 3 credits
Prerequisite: Six credits of political science or permission. Analysis of current problems in theory and practice of politics and organization

620 SEMINAR IN COMPARATIVE POLITICS 3 credits
Prerequisite: Six credits of political science or permission. Research on selected topics in comparative politics.

625 SEMINAR IN POLITICAL DEVELOPMENT NATIONS 3 credits
Prerequisite: Six credits of political science or permission. Selected topics investigat1-Emphasis on the theories of political development

626 SEMINAR IN NATIONAL POLITICS 3 credits
Prerequisite: Six credits of political science or permission. The rise of the state system in the Middle East after World War I; an analysis of the socio-cultural, ideological forces influencing the political behavior of the people of the Middle East. In-depth study of selected political systems

626 SEMINAR IN INTERGOVERNMENTAL RELATIONS 3 credits
Prerequisite: Six credits of political science or permission. Reading and research on negotiation, formulation and implementation of national policy in one or more areas of contemporary significance

641 THE THEORIES OF POLITICAL SCIENCE 3 credits
Prerequisite: Six credits of political science or permission. Instructor. Emphasizes the nature, scope and content of political theory; theory construction and validation in political science
668 SEMINAR IN PUBLIC POLICY AGENDAS AND DECISIONS 3 credits
Prerequisites: Six credits of political science or permission. Reading and research on the development of public policy issues and methods of decision making by policy makers.

670 SEMINAR IN THE ADMINISTRATIVE PROCESS 2 credits
Prerequisites: Six credits of political science or permission. Intensive examination of administrative implementation of public policies. Readings and research on selected topics.

680 SEMINAR IN URBAN AND REGIONAL POLITICS 3 credits
Prerequisites: Six credits of political science or permission. Focus on processes of policy formulation and execution in modern metropolitan community, with emphasis on structural functional control.

690 SPECIAL TOPICS IN POLITICAL SCIENCE 1-3 credits
Prerequisites: Six credits of political science or permission. Graduate level examination of selected topics in American politics, comparative politics, international politics or public policy.

699 INDEPENDENT STUDY IN GOVERNMENT OR POLITICAL SCIENCE 1-6 credits
(May be repeated for a total of six credits.) Prerequisite: Permission of department head. Supervised individual placement with political office holders, party groups, governmental agencies, law firms and other organizations providing professional level work.

697 INDEPENDENT RESEARCH AND READINGS 1-4 credits
(May be repeated, but no more than six credits toward the master's degree in political science or permission.)

698 POLITICAL SCIENCE PRACTICUM 2 credits
Prerequisite: permission of instructor. Professional seminar required of new graduate students. May be applied toward degree requirements. Covers disciplinary subfields, teaching, research methods, career tracks and program selections. Graded credit/no credit.

699 THESIS 2-6 credits

700 PERSONALITY 4 credits
Prerequisites: 100, 335 or instructor's permission. Consideration of current conceptualizations of the normal personality with emphasis on methods of measurement, experimental findings, and research techniques.

710 PSYCHOLOGICAL TESTS AND MEASUREMENTS 4 credits
Prerequisites: 100, 110 or permission. Consideration of methods of measurement and tests and their application in industry, government and education. Includes attitudes and achievement, aptitude tests, rating scales, attitude and opinion analysis.

720 ABNORMAL PSYCHOLOGY 4 credits
Prerequisites: 100 and four credits of psychology or instructor's permission. Survey of symptoms, etiology, diagnosis and treatment of major psychological conditions ranging from transient maladjustments to psychoses.

730 PSYCHOLOGICAL DISORDERS OF CHILDREN 4 credits
Prerequisites: 100 and 720 or permission. Survey of syndromes, etiologies and signs of behavioral disorders in children from standpoint of developmental psychology. Behavioral and medical treatment approaches emphasized.

753 HUMAN RESOURCE MANAGEMENT 4 credits
Prerequisites: 240 and a statistics course or instructor's permission. The application of psychological theory to the effective management of human resources in an organization, including recruitment, selection, training and retention of personnel.

754 ORGANIZATIONAL THEORY 4 credits
Prerequisites: 240 or instructor's permission. The application of psychological theory to macro-level processes in organizations, including leadership, motivation, task performance, organizational processes and development.

755 PSYCHOLOGY OF SMALL GROUP BEHAVIOR 4 credits
Prerequisites: 100 and four credits of psychology or instructor's permission. Intensive consideration of factors affecting behavior and performance in small groups, including effects of personality, social structures, tasks, situational and social-cognitive variables.

756 PSYCHOLOGY OF DEVELOPMENT 4 credits
Prerequisite: 145 or instructor's permission. Theory and research on life-span changes in cognitive processes including concept formation, categorization, information processing and Piagetian phases of intellectual development.

757 HISTORY OF PSYCHOLOGY 3 credits
Prerequisite: 100 and four credits of psychology or instructor's permission. Psychology in pre-scientific period and development of systematic views in 19th and 20th Centuries.

760 WORKSHOP IN PSYCHOLOGY 1-6 credits
(May be repeated) Group studies of special topics in psychology. May not be used by major undergraduate or graduate major requirements in psychology.

601 PSYCHOLOGICAL RESEARCH USING QUANTITATIVE AND COMPUTER METHODS I and II 4 credits each
Prerequisite: Graduate standing in psychology, or the joint doctoral program in counseling psychology or special permission with permission. Psychological research applying quantitative and computer methods. Topics include research design, sampling, controls, threats to validity, hypotheses testing, psychological measurement, error, robustness and power of tests.

610 PSYCHOLOGY CORE I: ORGANIZATIONAL, SOCIAL AND APPLIED 4 credits
Prerequisites: Graduate standing in psychology, or the joint doctoral program in counseling psychology or permission based on a psychological undergraduate major or an appropriate background for the course as determined by the instructor. Survey of the major topics of behavioral process systems theory and motivation, application of industrial/organizational psychology to industry, business and government including organizational theory, differential psychology, person selection, on-the-job training, consumer behavior and engineering psychology. Search methodology applied. Psychometrics, professional and ethical issues. Topics are covered within an historical context.

620 PSYCHOLOGY CORE II: DEVELOPMENTAL, PERCEPTUAL AND COGNITIVE 4 credits
Prerequisites: Graduate standing in psychology or the joint doctoral program in counseling psychology or permission based on a psychological undergraduate major or an appropriate background for the course as determined by the instructor. Survey of theoretical, methodological and empirical aspects of human development, perception and learning and memory, cognition and information processing including brain and psychological correlates. A background for the course as determined by the instructor. Survey of certain topics from an historical perspective. May be repeated. Vacuum

630 PSYCHOLOGY CORE III: COUNSELING, INDIVIDUAL AND ABNORMAL 4 credits
Prerequisites: Graduate standing in psychology or the joint doctoral program in counseling psychology or permission based on a psychological undergraduate major or an appropriate background for the course as determined by the instructor. Survey of certain topics from an historical perspective. May be repeated. Vacuum

640 PSYCHOLOGY CORE IV: SENSORY, BIOPSYCHOLOGICAL AND EXPERIMENTAL 4 credits
Prerequisite: Graduate standing in psychology or the joint doctoral program in counseling psychology or permission based on a psychological undergraduate major or an appropriate background for the course as determined by the instructor. Survey of the biological foundations of behavior including psychological, physiological, neuroendocrine, behavior, learning, perceptual, sensory, motor, emotion, motivation, and cognitive aspects of behavior. Prerequisites: 100, 104, 105 or permission. Topics are covered within a historical perspective.

651 PSYCHOPHARMACOLOGY 4 credits
Prerequisites: 671, 740 or 6500/643, 645, or permission of instructor. Emphasis is placed on understanding the biological mechanisms underlying behavior and on the use of pharmacological agents to modify behavior. Prerequisites: 100, 104 or permission.

653 PSYCHOPHARMACOLOGY 4 credits
Prerequisites: 671, 740 or 6500/643, 645, or permission of instructor. Emphasis is placed on understanding the biological mechanisms underlying behavior and on the use of pharmacological agents to modify behavior. Prerequisites: 100, 104 or permission.

657 DEVELOPMENTAL DISORDERS 4 credits
Prerequisites: 671, 740 or 6500/643, 645, or permission of instructor. Emphasis is placed on understanding the biological mechanisms underlying behavior and on the use of pharmacological agents to modify behavior. Prerequisites: 100, 104 or permission.

671 PRACTICUM IN PSYCHOLOGY 3 credits
Prerequisites: 630, graduate standing in psychology and permission of instructor. Introduction to and training in skills used in process of counseling and psychotherapy. This course is a preparation for actual client contact in subsequent practica.

672 PRACTICUM IN COUNSELING PSYCHOLOGY 4 credits
Prerequisites: 671, 672 graduate standing in psychology and permission of instructor. Extension and development of therapeutic skills and intervention techniques, with supervised training in setting with counseling clients in the psychology department Counseling Clinic.

673 COUNSELING PRACTICUM II 4 credits
Prerequisites: 671, 672, graduate standing in psychology and instructor's permission. Supervised experience with clients in the psychology department Counseling Clinic. Taying includes counseling, assessment and case management skills.

674 PERSONNEL PRACTICUM 4 credits
(May be repeated) Prerequisites: 671, graduate standing in psychology. 14 credits of graduate psychology and counseling experience. Supervised field experience in industrial organizational psychology in settings including business, government or social organizations. The field experience requires the application of industrial/organizational psychological theories and techniques.

675 APPLIED COGNITIVE AGING PRACTICUM 4 credits
(May be repeated) Prerequisites: 671 graduate standing in psychology. 14 credits of graduate psychology and departmental permission. Supervised field experience in development psychology to provide the student with the opportunity to apply skills and knowledge learned in the academic setting and to obtain knowledge about community programs and agencies that focus on development in the elderly.

679 THESIS RESEARCH (May be repeated) Prerequisite departmental permission. Research analysis of data and preparation of thesis for master's degree.

700 SURVEY OF PROJECTIVE TECHNIQUES 4 credits
Prerequisites: 630 or instructor's permission. Reproduction of techniques to facilitate assumptions analysis and research of projective testing. Elementary administration, scoring and interpretation. Research and survey of important contemporary projective instruments.

701 PSYCHODIAGNOSTICS 3 credits
Prerequisites: 700. Application of psychological testing to problems of diagnosis and evaluation. Practical experience in administration, scoring and interpretation. Integration of projective techniques with other assessment techniques in variety of settings.

706 CURRENT ISSUES IN PSYCHOLOGY 4 credits
Prerequisite: 671. Advancement study of the background, theoretical foundations, technical research and applications of counseling psychology as a science and profession.

707 SUPERVISION IN PSYCHOLOGY 3 credits
Prerequisite: Doctoral standing or permission of instructor. Introduction and experience in supervising a graduate student in counseling.

710 THEORIES OF COUNSELING AND PSYCHOTHERAPY 4 credits
Prerequisite: 620 or departmental permission. Major systems of individual psychotherapy explored within a philosophy of science framework. Freudian, Rogersian, cognitive, and other approaches. Research, contemporaneous problems and ethics.

711 VOCATIONAL BEHAVIOR 4 credits
Prerequisite: 630 or departmental permission. Theories and research on vocational behavior and professional counseling. Topics include major theories of vocational behavior. Critical research on these theories, applied work in vocational counseling and applied research.

712 PRINCIPLES AND PRACTICE OF INDIVIDUAL INTELLIGENCE TESTING 4 credits
Prerequisites: 630 or graduate standing in school psychology and instructor's permission. Principles, history and methodology of intelligence testing, supervised practice in administration, scoring and interpretation of individual intelligence tests for children and adults.

713 ADVANCED SEMINAR IN COUNSELING PSYCHOLOGY 3 credits
Prerequisite: Doctoral standing or permission. Examination of major issues in the field such as the counselor as a professional and as a person, issues and problems and trends in counseling.

714 OBJECTIVE PERSONALITY EVALUATION 4 credits
Prerequisites: Completion of 400/500, 420/520, and 750 or 6500/643, or permission of instructor. Study of the development, administration, and interpretation of objective instruments for personality assessment (MMPI, CPI, MBIT, 16 PF and selected additional inventories).

715 RESEARCH DESIGN IN COUNSELING I 3 credits
Prerequisite: Doctoral standing or permission. Study of research designs, evaluation procedures, statistical analysis, and interpretation of current research.

716 CHILD PSYCHOLOGY 4 credits
Prerequisite: 650 or permission. Current research in child psychology covered with some emphasis on cognitive development. Topics include language, memory, intelligence, hyperactivity and selected aspects of behavior and development.

717 PSYCHOLOGY OF ADULTHOOD AND AGING 4 credits
Prerequisite: 620 or permission. Aspects of development, aging with emphasis on life-span methodology and research design including age-related changes in intelligence, personality, perception, learning, memory, emotion, motivation and social interaction.

718 SOCIAL DEVELOPMENTAL PSYCHOLOGY 4 credits
Prerequisite: 620 or permission. Examination of selected theoretical and methodological issues in study of social psychology from developmental perspective. Topics include altruistic formation, sex roles, moral development, altruism, aggression, attribution, attribution processes, nonverbal behavior, and cultural effects.
ORGANIZATIONAL MOTIVATION 4 credits
Prerequisites: 610 and 620. Study of motivation, group performance and attributions. Focus on leadership and change. May be repeated. Prerequisite: permission of 1 instructor.

ADVANCED PSYCHOLOGICAL TESTS AND MEASUREMENTS 4 credits
Prerequisites: 630. Emphasis on theories of motivation and behavior and their application in selection, counseling, and training. May be repeated. Prerequisite: permission.

ORGANIZATIONAL PSYCHOLOGY 4 credits
Prerequisites: 610 and 620. Focus on the psychology of organizations and the processes of organizations, and the analysis of organizational change. May be repeated. Prerequisite: permission.

PERSONNEL SELECTION AND PERFORMANCE EVALUATION 4 credits
Prerequisites: 610 and 620. Study of selection and performance evaluation for other students who have completed 610. Analysis of test construction techniques and statistical analyses of test scores. Also covers computer simulation of decision making. May be repeated. Prerequisite: permission.

TRAINING AND ORGANIZATIONAL DEVELOPMENT 4 credits
Prerequisites: 610 and 620. Emphasis on training in psychology or permission for other students who have completed 610. Review of industrial training methods and techniques in terms of learning. May be repeated. Prerequisite: permission.

RESEARCH METHODS IN PSYCHOLOGY 2-4 credits
Prerequisites: 610 and 620. Laboratory course in methods of research in psychology. Special topics include experimental design, data analysis, and the use of statistical analysis. May be repeated. Prerequisite: permission.

COMPUTER APPLICATIONS IN PSYCHOLOGICAL RESEARCH 4 credits
Prerequisites: 610 and 620. Study of the use of computer technology in psychological research including data collection, analysis, and interpretation. Also covers computer simulation of decision making. May be repeated. Prerequisite: permission.

ROLE OF ATTITUDES AND VALUES IN INDUSTRIAL ORGANIZATIONAL PSYCHOLOGY 4 credits
Prerequisites: 610 and 620. Advanced study of psychology of attitude and values relative to management and employee behavior. May be repeated. Prerequisite: permission.

ENGINEERING PSYCHOLOGY AND JOB DESIGN 4 credits
Prerequisites: 610 and 620. Emphasis on the psychology of work and the design of jobs. May be repeated. Prerequisite: permission.

JOB EVALUATION AND EQUAL PAY 4 credits
Prerequisites: 610. Major job evaluation systems will be reviewed and critiqued. Issues and case studies will be addressed. May be repeated. Prerequisite: permission.

ORGANIZATIONAL CHANGE AND TRANSFORMATION 4 credits
Prerequisites: 610 or permission. Survey of theories and applications to practical methods of organizational change and transformation used to increase organizational effectiveness and improve employee quality of work life.

APPLIED COGNITIVE AGING PSYCHOLOGY 4 credits
Prerequisites: 610, 620, 630, and 640. Coverage of current topics in cognitive psychology and application to traditional concerns of industrial/organizational psychology such as performance appraisal or motivation.

GRADUATE SEMINAR IN PSYCHOLOGY 1-4 credits
(Not to be repeated) Prerequisites: graduate standing in psychology and permission. Special topics in psychology.

ADVANCED COUNSELING PRACTICUM 4 credits
(May be repeated) Prerequisites: 671, 672, 673 and permission of instructor. Course provides graduate students in counseling with actual client experiences and supervision. Corequisite: 620.

COUNSELING PSYCHOLOGY PRACTICUM 4 credits
(May be repeated) Prerequisites: 610 (eight hours) or 5600.075 (five hours). Advanced counseling psychology students will have supervised training with clients in a variety of settings and will focus on supervision and development of specialized theoretical applications.

INDEPENDENT READING AND RESEARCH 1-3 credits
(Not to be repeated) Prerequisite: permission. Individual readings and/or research on a topic under supervision of faculty member with whom specific arrangements have been made.

DISSERTATION RESEARCH 1-12 credits
Prerequisites: Open to a properly qualified student. Required minimum 12 credits; maximum subject to departmental approval. Supervised research on topic deemed suitable by the dissertation committee.

SOCIology 3850:

HISTORY OF SOCIOLOGICAL THOUGHT 3 credits
Prerequisites: 100 or permission. Examination of major thinkers in the classical sociological tradition.

CONTEMPORARY SOCIOLOGICAL THEORIES 3 credits
Prerequisites: 403 or permission. Examination of critical evaluation of works of modern sociological theorists, emphasizing current theoretical approaches to issues of social order and social change.

STRUCTURES AND PERSONALITY 3 credits
Prerequisites: 100 or permission. Emphasis on class structure and process. Lecture.

SOCIAL INTERACTION 3 credits
Prerequisites: 100 or permission. Intensive study of advanced theory and research in social psychology, particularly how social interaction and self-conception affect one another. Lecture.

SOCIALIZATION: CHILD TO ADULT 3 credits
Prerequisites: 100 or permission. Theoretical and empirical analysis of processes of socialization. Lecture/discussion.

Racial and Ethnic Relations 3 credits
Prerequisites: 100 or permission. Examination of structure and dynamics of race and ethnic relations from a variety of perspectives embracing both historical and contemporary issues. Lecture.

SOCIOLOGY OF WOMEN 3 credits
Prerequisites: 100 or permission of instructor. Examination of research and theories pertaining to women’s status in society, including economic conditions, the relationship between structure and experience, and other gender-related issues.

SOCIOLOGY OF URBAN LIFE 3 credits
Prerequisites: 100 or permission. Enlarges and develops understanding of urban social structure from neighborhood to metropolitan, the problems and prospects. Emphasis on various lifestyles of urban subcultures. Lecture/discussion.

THE VICTIM IN SOCIETY 3 credits
Prerequisites: 100 or permission of instructor. Study of the nature, causes, and consequences of victimization of individuals and groups with special focus on crime victimization.

PROBATION AND PAROLE 3 credits
Prerequisites: 330 or 430 or permission. Analysis of how probationers and parolees are selected, supervised and then released into private life. Emphasis on current and past social research. Lecture/discussion.

JUVENILE DELINQUENCY 3 credits
Prerequisites: 100 or permission. Analysis of social structure and process from which delinquency emerges. Emphasis on current and past research. Lecture/discussion.

CORRCTIONS 3 credits
Prerequisites: 330 or 430. Theories, belief systems, correctional practices and effectiveness as related to offender groups. Lecture/discussion.

SOCIOLOGY OF DEVIANT BEHAVIOR 3 credits
Prerequisites: 100 and at least six additional credits of sociology courses or permission. Survey of theories of deviant behavior and relevant empirical research. Special emphasis given to interaction processes and social control. Lecture.

RELIGION AND SOCIETY 3 credits
Prerequisites: 100 or permission. Emphasis on study of forms of religion and their social functions in American society. Lecture.

SOCIOLoGY OF LAw 3 credits
Prerequisites: 100 and at least six additional credits of sociology courses or permission. Social origins and consequences of law and legal processes. Emphasis on uses of law, social change and aspects of legal professions. Lecture.
SOCIETY OF EDUCATION
Prerequisite: 100 or permission. Analysis of education from an organizational and social psychological perspective. Topics include: desegregation, busing, neighborhood schools; impact of family, peers, and teachers on learning. School organization. Lecture.

INDUSTRIAL SOCIOLOGY
3 credits
Prerequisite: six credits of sociology or industrial management. Comparison of formal and informal structures in industrial organizations; analysis of role and status systems; communication processes of work plant to community and society. Lecture.

SOCIAL ISSUES IN AGING
3 credits
Prerequisite: 100 or permission. A look into the major issues and problems facing older persons. Special attention is given to the unmet needs of the elderly as well as an examination of current social policy and programs to meet these needs.

SOCIOLOGY OF MENTAL ILLNESS
3 credits
Prerequisite: 100 or permission. The social history of the mental hospital. Theories and epidemiology of mental illness, community-based treatment models, the organization of mental health services, the role of national and international social networks and mutual support groups. Lecture.

WORKSHOP IN SOCIOLOGY
1-3 credits (May be repeated)
Group studies of special topics in sociology. May not be used to meet departmental undergraduate or graduate major requirements. May be used for elective credit only.

FUNDAMENTALS OF SOCIOLOGY
2 credits
Accelerated introduction to sociology for the graduate student deficient in background or from other disciplines who intends to take further graduate courses in sociology. Lecture.

SOCIOLOGICAL RESEARCH METHODS
1 credit
Advanced research methods including advanced statistical techniques. Lecture/ laboratory.

SOCIAL RESEARCH DESIGN
3 credits
Intensive analysis of problems in research design, i.e., those encountered in thesis preparation. Seminar or dissertation.

COMPUTER APPLICATIONS IN SOCIAL SCIENCES
3 credits
Prerequisite: elementary statistics course or permission of instructor. Introduction to computer applications in social sciences. (Same as SOCIOL 7214) Seminar.

SOCIOLOGY OF PROGRAM EVALUATION AND PROGRAM IMPROVEMENT
3 credits
Prerequisite: permission. Program evaluation as a specialty in different social programs. Topics include history of evaluation, value assumptions, political dimensions, ethical issues, social change, use of intervention and alternatives and the use for program development. Seminar.

EPIDEMIOLOGIC METHODS IN HEALTH RESEARCH
3 credits
Prerequisite: permission. Designed to introduce the student to methods of developing and understanding information concerning the distribution of illness and injury in society and evaluation of interventions to reduce the burden.

SOCIOLOGICAL THEORY
3 credits
Examination of the classical theoretical statements that form the foundation of sociological theory. Emphasis on classical sociological theory and its contributions to contemporary theory and research. Seminar.

GENERAL SYSTEMS THEORY
3 credits
Analysis of general systems theory as a basis for a model of society and as heuristic framework for theory and research. (Same as KSU 72108) Seminar.

SOCIAL PSYCHOLOGY
3 credits

SMALL GROUP THEORY
3 credits
Prerequisite: permission. Perceptual, theoretical and applied aspects of small group dynamics. Topics include leadership emergence, effective group development and functioning, power, norms and individual behavior, among others. (Same as KSU 72435) Seminar.

PERSONALITY AND SOCIAL SYSTEMS
3 credits
Examination of contemporary theories and research on linkages between personality and social systems. Some applications in studies of modernization, social class and occupations and sex roles. (Same as KSU 72433) Seminar.

SOCIOLOGY OF COMMUNICATION
3 credits
Examination of communication media, content, audiences and impact within sociocultural context. (Same as KSU 72434) Seminar.

CRITIQUE OF MASS COMMUNICATIONS RESEARCH
3 credits
Prerequisite: permission. Systematic evaluation of theoretical, methodological and empirical aspects of significant studies of mass communication. (Same as KSU 72397) Seminar.

SOCIOLOGY OF SEX ROLES
3 credits
Prerequisite: permission. Advanced review of theories and research on origins, characteristics and changes in sex roles. Emphasis on recent empirical research on sex role patterns and processes in Western industrial societies. Seminar.

SOCIAL ORGANIZATION
3 credits
General survey of major theories, concepts and problems pertaining to creation, alteration and dissolution of social organization at various levels of size and complexity. (Same as KSU 72340) Seminar.

SOCIAL STRATIFICATION
3 credits
Prerequisite: permission. Seminar dealing with social class and caste with special reference to American social structure. (Same as KSU 72346) Seminar.

COMPLEX ORGANIZATIONS
3 credits
Prerequisite: permission. Organizations as systems, their effect on individuals. Problems of professions in bureaucracies. (Same as KSU 72354) Seminar.

SOCIOLOGY OF WORK
3 credits
Prerequisite: permission. Examination of work as behavioral phenomenon in human societies. Contrasts with non-work and leisure; significance of occupations, professions and work types in organization of work. (Same as KSU 72342) Seminar.

SEMINAR IN RACE RELATIONS
3 credits
Prerequisite: permission. Analysis of the structure and dynamics of race and ethnic relations with attention given to both historical and contemporary issues. (Same as KSU 72370) Seminar.

CONFLICT
3 credits
Prerequisite: permission. Current conceptualization of conflict. Discussion of vital concepts and principles for understanding conflict phenomena. Power, values, ideology, role, revolution and war. (Same as KSU 72374) Seminar.

MEDICAL SOCIOLOGY
3 credits
Prerequisite: permission of instructor. A general survey of the field of medical sociology with special emphasis on application of sociological concepts and methods as tools to aid in the analysis of health and health care in the contemporary urban United States. (Same as KSU 72323) Seminar.

URBAN HEALTH CARE
3 credits
Prerequisite: permission. Relationships between urban social structures and processes and health-care delivery systems in urbanized nations. Seminar.

FIELD RESEARCH IN URBAN LIFE STYLES
3 credits
Prerequisite: permission. Examination of various life styles in contemporary urban society. Examination of theories and methodology in urban life styles research through evaluation of both classic and contemporary studies. Includes application of concepts and techniques in actual field research. Seminar.

DEVIANCE AND DISORGANIZATION
3 credits
Prerequisite: permission. Examination of norms and types of deviance. Problems and issues in theory and research. (Same as KSU 72760) Seminar.

SOCIOLOGY OF CRIMINAL-beHAVIOR
3 credits
Analysis of relationship of crime and deviancy to social structure and social processes. Responses by criminal justice agencies. Seminar.

SOCIOLOGY OF CORRECTIONS
3 credits
Prerequisite: permission. Analysis of corrections as a social system, its formal structure and informal processes. Analysis of present state of corrections research. Seminar.

FAMILY ANALYSIS
3 credits
Analysis and evaluation of sociological theories and research in the family. Concentration on techniques of theory construction and research design in sociological study of the family. (Same as KSU 72543) Seminar.

SOCIAL GERONTOLOGY
3 credits
Prerequisite: permission. Impact of aging upon individuals and society. Reaction of individuals and society to aging. (Same as KSU 72871) Seminar.

POLITICAL SOCIOLOGY
3 credits
Description, analysis and interpretation of political behavior through application of sociological concepts. (Same as KSU 72544) Seminar.

SOCIOLOGY OF EDUCATION
3 credits
Prerequisite: permission. Emphasis on recent empirical research in the social psychology of learning. Emphasis on sociological determinants of learning as classes, race, family and peer subcultures. (Same as KSU 72547) Seminar.

CROSS CULTURAL PERSPECTIVES IN AGING
3 credits
Prerequisite: permission. A comparison of aging in various cultures and societies around the world.

POPULATION
3 credits
Analysis of basic population theory and methods. Trends and differentials in fertility, mortality, migration and selected social demographic variables also considered. (Same as KSU 72856) Seminar.

SOCIAL CHANGE
3 credits
Advanced seminar in theories of social change. (Same as KSU 72320) Seminar.

HUMAN ECOLOGY
3 credits
Selected problems in analysis of social behavior in relation to physical environment. Overview of theory, methods and applications of human ecology. (Same as KSU 72650) Seminar.

URBAN ECOLOGY
3 credits
Seminar in theory and measurement of social ecology of urban areas. Emphasis on trends and differentials in distribution of social and organizational behavior in urban America. Seminar.

READINGS IN CONTEMPORARY SOCIOLOGICAL LITERATURE
3 credits
Prerequisites: seven credits of sociology and permission of adviser, instructor, and head of department. Intensive reading and interpretation of written material in student's chosen field of interest. Regular conferences with instructor.

DIRECTED RESEARCH
1-3 credits (May be repeated)
Prerequisite: permission. Empirical research to be conducted by the student under graduate faculty supervision.

THESIS
2-6 credits (May be repeated for a total of six credits) Prerequisite: permission. Supervised thesis writing.

SOCIOLOGY OF WORK
3 credits
Examination of work as behavioral phenomenon in human societies, contrasts with non-work and leisure; significance of occupations, professions and work types in organization of work. (Same as KSU 72542) Seminar.

SEMINAR IN RACE RELATIONS
3 credits
Prerequisite: permission. Analysis of the structure and dynamics of race and ethnic relations with attention given to both historical and contemporary issues. (Same as KSU 72370) Seminar.

CONFLICT
3 credits
Prerequisite: permission. Current conceptualization of conflict. Discussion of vital concepts and principles for understanding conflict phenomena. Power, values, ideology, role, revolution and war. (Same as KSU 72375) Seminar.

MEDICAL SOCIOLOGY
3 credits
Prerequisite: permission of instructor. A general survey of the field of medical sociology with special emphasis on application of sociological concepts and methods as tools to aid in the analysis of health and health care in the contemporary urban United States. (Same as KSU 7233) Seminar.

URBAN HEALTH CARE
3 credits
Prerequisite: permission. Relationships between urban social structures and processes and health-care delivery systems in urbanized nations. Seminar.

FIELD RESEARCH IN URBAN LIFE STYLES
3 credits
Prerequisite: permission. Examination of various life styles in contemporary urban society. Examination of theories and methodology in urban life styles research through evaluation of both classic and contemporary studies. Includes application of concepts and techniques in actual field research. Seminar.

DEVIANCE AND DISORGANIZATION
3 credits
Prerequisite: permission. Examination of norms and types of deviance. Problems and issues in theory and research. (Same as KSU 72760) Seminar.

SOCIOLOGY OF CRIMINAL BEHAVIOR
3 credits
Analysis of relationship of crime and deviancy to social structure and social processes. Responses by criminal justice agencies. Seminar.
ANALYSIS OF SOCIOLICAL MULTIVARIATE TECHNIQUES IN SOCIOLOGY

686 SOCIAL GERONTOLOGY
3 credits
Prerequisite permission. Analysis of selected sociological data. Emphasis on the social determinants of aging and its effects on society and aging. (Same as KSU 726547 Seminar.)

687 SOCIAL CHANGE
3 credits
Advanced seminar in theories of social change. (Same as KSU 72320 Seminar.)

688 HUMAN ECOLOGY
3 credits
Selected problems in the field of human ecology. Emphasis on concepts and theories of the family. (Same as KSU 72655 Seminar.)

689 URBAN SOCIOLOGY
3 credits
Seminar in theory and methodology of urban sociology. Emphasis on current trends and theoretical orientations of urban sociology. (Same as KSU 72543 Seminar.)

690 READINGS IN CONTEMPORARY SOCIOLOGICAL LITERATURE
1-3 credits
Prerequisite: Senior standing. Directed reading and research on significant contemporary issues, theories and methodological developments in sociology. (Same as KSU 7254 Seminar.)

691 DIRECTED RESEARCH
1-3 credits
May be repeated. Prerequisite permission. Research topic to be arranged between student and instructor. Seminar.

692 COLLEGE TEACHING SOCIOLICAL ATTITUDES
2 credits
Prerequisite permission. Preparation and teaching assistant or permission. Seminar.

693 THEORY AND MEASUREMENT OF SOCIAL ATTITUDES
3 credits
Prerequisite: 692 or permission. Seminar in theories of social attitudes and measurement for their measurement. (Same as KSU 7211 Seminar.)

694 MULTIVARIATE TECHNIQUES IN SOCIOLOGY
3 credits
Prerequisites: 693 and 604, or permission. A graduate level course on statistical techniques. (Same as KSU 72217 Seminar.)

695 MEASUREMENT IN SOCIOLOGY
3 credits
Prerequisite: 706 or permission. Theory and methods of measurement reliability and validity in social data. Topics include reliability and validity, scale and item design, alternative procedures, measurement, and statistical models. Seminar.

696 ADVANCED TOPICS IN SOCIOLOGY
1-3 credits
Prerequisite permission. Selected topics in advanced, multivariate statistical analysis and in strategies of sociological research. Emphasis on current trends and innovations in research techniques. (Same as KSU 7240 Seminar.)

697 ANALYSIS OF SOCIOLICAL DATA
3 credits
Prerequisite: 706 or permission. Critical examination of data analysis techniques having particular relevance to research problems in sociology. (Same as KSU 72118 Seminar.)

698 SOCIAL SAMPLING
3 credits
Prerequisites: 603 and 604 or permission. Theory and methods of sampling in sociology. Topics include sample design, sampling efficiency, nonresponse, sample design and estimation. Seminar.

699 SURVEY RESEARCH METHODS
3 credits
Prerequisites: 603 and 604, or permission. In-depth study of design and administration of social surveys. (Same as KSU 72220 Seminar.)

700 EXPERIMENTAL AND QUASI-EXPERIMENTAL RESEARCH IN SOCIOLOGY
3 credits
Prerequisites: 603 and permission. Application of experimental and quasi-experimental methods in sociological research with special attention to appropriate design, statistical analyses and empirical methodology. (Same as KSU 7211 Seminar.)

701 QUALITATIVE METHODOLOGY
3 credits
Prerequisites: 603, 604, or permission. Theory, method, and practice of conducting scientific research. Emphasis on writing skills and philosophy of science and application of these skills to the development of sociological theories. (Same as KSU 72107 Seminar.)

702 SPECIAL TOPICS IN SOCIOLOGY THEORY
1-3 credits
Open course in current area not readily amenable to other headings. Content of course to be determined by instructor. (Same as KSU 72195 Seminar.)

703 EARLY SOCIOLOGICAL THOUGHT
3 credits
Prerequisite: 617 or permission. Two to four major sociological thinkers prior to 1900 examined in depth. Specific persons considered will be chosen by instructor but will be announced in advance of beginning of class. (Same as KSU 72191 Seminar.)

704 SCHOOLS OF SOCIOLOGICAL THOUGHT
3 credits
(May be repeated once for credit) Prerequisite: 617 or permission. Two distinct schools of sociological thought will be selected by the instructor for in-depth reading and comparative analysis. (Same as KSU 72105 Seminar.)

705 SMALL GROUP RESEARCH TECHNIQUES
3 credits
Prerequisite: 632. Application and implications of research in small groups. Focus on both laboratory and field studies. Seminar.

706 CONTEMPORARY TRENDS IN SOCIAL PSYCHOLOGY
1-3 credits
Selected topics on significant contemporary issues, theories and methodological developments in social psychology. (Same as KSU 72493 Seminar.)

707 RESEARCH IN SOCIAL PSYCHOLOGY
1-3 credits
Prerequisite: 631. Design and development of a research project oriented to empirically examining selected concepts in social psychology or to testing selected propositions in social psychology. (Same as KSU 72431 Seminar.)

708 URBAN SOCIOLOGY
3 credits
Analysis of theories of urban process and review of major contributions to empirical analysis of urban life. (Same as KSU 72659 Seminar.)

709 RESEARCH IN COMMUNITY AND AREA PROBLEMS
3 credits
Prerequisite permission. Research problems concerning community, area, or regional problems. Design and execution of small projects. (Same as KSU 72655 Seminar.)

710 SPECIAL TOPICS IN SOCIOLOGICAL ORGANIZATION
3 credits
Topics to be determined. Seminar dealing with current and special topics in process and organizational problems. (Same as KSU 72595 Seminar.)

711 ISSUES IN URBAN ANALYSIS
1-3 credits
Prerequisite: 645. Directed reading and research on significant contemporary issues, theories and methodological developments in urban sociology. (Same as KSU 72514 Seminar.)

712 SEMINAR IN URBAN PROCESSES
3 credits
Prerequisite: 645 or permission. Examination of current research and theory related to urban life. Special topic on current issue in urban environment. (Same as KSU 72891 Seminar.)

713 SPECIAL TOPICS IN EVANescence and DISORGANIZATION
1-3 credits
Prerequisite: 687. Examination of current research and theory related to urban life. Special topic on current issue in urban environment. (Same as KSU 72839 Seminar.)

714 RESEARCH IN SOCIAL CHANGE
1 credit
Prerequisite: 687. Continuation of 687. Study of current research and theory related to social change. Special topic on current issue in social environment. (Same as KSU 72896 Seminar.)

715 INDIVIDUAL INVESTIGATION
1-3 credits
May be repeated. Prerequisite: 687 or permission. Research on selected aspect of social theory by individual student. Seminar.

716 DISSERTATION
1-10 credits
Must be repeated for minimum of 9 credits. (Same as KSU 82799 Seminar.)
URAL STUDIES AND PUBLIC ADMINISTRATION

3980:

590 WORKSHOP
(May be repeated) Group studies of special topics in urban studies. May not be used to meet departmental undergraduate or graduate major requirements. May be used for elective credit only. 1-3 credits.

600 BASIC ANALYTICAL RESEARCH
Prerequisite: permission. Examines basic frameworks of social science research methodologies and basic complementary statistical techniques, including probability and sampling most useful in urban studies. 3 credits.

601 ADVANCED RESEARCH AND STATISTICAL METHODS
Prerequisite: 600. Extends study of social science to include more advanced research designs and multivariate statistical techniques. 3 credits.

602 AMERICAN URBAN DEVELOPMENT
Examination of major processes of urbanization in United States and selected facets of urban institutional development. 3 credits.

610 LEGAL FOUNDATIONS OF PUBLIC ADMINISTRATION
Prerequisite: permission. Introduction to the legal foundations and context of public administration, including the interaction of the course, public organizations, public administration and the public. 3 credits.

611 INTRODUCTION TO THE PROFESSION OF PUBLIC ADMINISTRATION
Prerequisite: permission. Introduction to the theory and practice of the field of public administration. Foundation course for later MPA study. 3 credits.

612 NATIONAL URBAN POLICY
Prerequisite: permission. Major federal policies that relate to urban problems examined in regard to policy-making processes, implementation and impact. 3 credits.

613 INTERGOVERNMENTAL MANAGEMENT
Prerequisite: permission. Examines the field of intergovernmental relations as it applies to urban administration and management. 3 credits.

614 ETHICS AND PUBLIC SERVICE
Prerequisite: permission. Examination of the ethical problems and implications of decisions and policies made by those whose actions impact on the broad public. Case studies of decision making in both the public (government) and private (business and the professions) spheres are studied in relation to classical literature in ethical theory. 3 credits.

615 PUBLIC ORGANIZATION THEORY
Prerequisites: 611 and 610 or equivalent. Examines the development of public organizational theory, and the current status of theoretical developments in the field of public administration. 3 credits.

616 PERSONNEL MANAGEMENT IN THE PUBLIC SECTOR
Fundamental issues and principles of public sector personnel administration, including recruitment, selection, training, motivation, supervision, evaluation, labor relations and affirmative action. 3 credits.

617 LEADERSHIP AND DECISION-MAKING
Examination of the context of organizational management including relevant organizational theories, strategic management and planning and public sector leadership. 3 credits.

618 Citizen Participation
The fundamental theory, background, techniques, and issues of citizen participation in urban policy making. 3 credits.

620 SOCIAL SERVICES PLANNING
Prerequisite: permission. In-depth analysis of total social services requirements and various ways in which social services planning function is carried out in urban communities. 3 credits.

621 URBAN SOCiETY AND SERVICE SYSTEMS
Prerequisite: permission. Analysis of social bases of urban society; hierarchies, social problems, relationships to planning, public services. 3 credits.

622 URBAN PLANNING AND HEALTH CARE
Basic knowledge of the health service delivery system is provided for planners and administrators in the public sector. 3 credits.

630 INTRODUCTION TO PLANNING PRACTICE AND THEORY
Introduction to the history, theories and forms of urban planning. 3 credits.

631 FACILITIES PLANNING
Study of need, process and limitation of urban facilities planning. 3 credits.

633 COMPARATIVE PLANNING
A survey of national, regional, and local planning institutions, plans and planning implementation mechanisms in use in the developed world. Particular attention will be given to the planning experiences of European nations and their impact on American planning theory and practice. 3 credits.

388 PArKS AND RECREATION
Prerequisite: permission. Deals with theory, practice, evaluation of recreational administration, parks planning. 3 credits.

480 FISCAL ANALYSIS
Prerequisite: permission. Study of revenue and expenditure patterns of the city's government. 3 credits.

481 URBAN ECONOMIC GROWTH AND DEVELOPMENT
Prerequisite: permission. Examination of urban economic unit and its susceptibility to social, economic, political and physical change. 3 credits.

482 PUBLIC BUDGETING
Prerequisite: permission. Current professional practice and theoretical issues in public budgeting and management of capital and operating budgets. 3 credits.

483 INTRODUCTION TO PUBLIC POLICY
Prerequisite: permission. Introduction to models of public policy formulation, identification of major policy issues, and the analysis of policy implementation and policy impact. 3 credits.

484 COMPARATIVE URBAN SYSTEMS
Prerequisite: permission. Conceptual schemes and methodology for comparative urban analysis among a number of major cities selected from each continent. 3 credits.

485 RESEARCH FOR FUTURE PLANNING
Prerequisite: 600 and 601 and completion of eight credits of core curriculum in urban studies. An overview of the techniques associated with the field of futures research and their applicability to long-term urban planning. 3 credits.

486 PROGRAM EVALUATION IN URBAN STUDIES
Prerequisite: 600 or equivalent. Major considerations appropriate for conducting evaluations of a wide variety of human service programs and policies affecting urban and metropolitan areas. 3 credits.

487 ALTERNATIVE URBAN FUTURES
Survey of topics and issues associated with alternative urban futures and their implications for planning and public policy in urban communities. 3 credits.

488 COMPUTER APPLICATIONS IN PUBLIC ORGANIZATIONS
Prerequisite: 600 and 601. Introduction to microcomputer applications in the public sector, including data entry, statistical analysis, report writing, graphical representation and spreadsheets. 3 credits.

489 ANALYTICAL TECHNIQUES FOR PUBLIC ADMINISTRATORS
Prerequisite: 600. Public sector applications of five methods, including decision analysis, queueing theory, mathematical programming, and simulation. 3 credits.

490 SELECTED TOPICS IN URBAN STUDIES
Prerequisite: permission. Selected topics in specific areas of urban planning, in various developmental processes of cities, or in various urban policy and administrative issues. A maximum of 37 credits may be earned in 680 and 681. 3-11 credits.

491 URBAN STUDIES SEMINAR
Prerequisite: 600. Analysis of urban studies core plus quantitative methods. Urban research methods applied to specific urban research area. Comprehensive paper required. 3 credits.

492 INTERNSHIP
Prerequisite: permission. (May be repeated for a total of three credits) Internship. Faculty supervised work experience in which student participates in policy planning, administrative operations in selected urban, state and federal governments and urban agencies. 3 credits.

493 INDIVIDUAL STUDIES
Prerequisite: permission. (May be repeated for a total of four credits) Directed individual readings or research on specific area or topic. 1-9 credits.

494 THESIS
Prerequisite: permission. Supervised thesis writing. (May be repeated for a total of nine credits.) 1-9 credits.

495 ADVANCED RESEARCH METHODS I
Prerequisite: master’s level statistics or permission. Introduction to statistical techniques and methodologies in doctoral and postdoctoral research. Emphasis on conceptual and methodological interactions. 3 credits.

496 ADVANCED RESEARCH METHODS II
Prerequisite: 700 or equivalent. Continuation of 700. Emphasis places upon conceptual and methodological interactions of multivariate statistical techniques as well as application of these techniques through computer analysis of urban data sets. 3 credits.

497 URBAN THEORY I
Prerequisite: permission. Review of major theoretical traditions examining urban problems; for students entering the doctoral program in urban studies (first in two-course sequence). 3 credits.

498 URBAN THEORY II
Prerequisite: 702. Review of major professional disciplines dealing with urban problems; for students entering the doctoral program in urban studies (second in two-course sequence). 3 credits.

499 PUBLIC BUREAUCRACY
Prerequisite: permission. Analysis of bureaucratic operations in the implementation of public policy, including special attributes of human service organizations and the democratic theory debate. 3 credits.

500 MACROECONOMICS OF URBAN POLICY
Prerequisite: master’s level knowledge of macroeconomics and microeconomics or special permission. Use of research tools of economic analysis in seminar format to examine available urban policy makers in operation of public services and economic development of cities. 3 credits.

501 PROGRAM EVALUATION
Prerequisite: permission. Advanced treatment of topics in program evaluation. 3 credits.

502 URBAN PLANNING AND MANAGEMENT STRATEGIES
Prerequisite: permission. Analysis of urban planning policy issues and strategies for implementation in public policy formulation. Emphasis on use of planning process as integrative mechanism. 3 credits.

503 URBAN POLICY: THE HISTORICAL PERSPECTIVE
Prerequisite: permission. Critical examination of major ideas about the city from Aristotle to the 20th Century and of the impact on urbanization on society and public policy. 3 credits.

504 SYSTEMS AND PROCESSES OF POLICY ANALYSIS
Prerequisite: permission. Analysis of administrative processes within public organizations, federal, state and local in the United States, emphasis on urban community. 3 credits.

505 SEMINAR IN PUBLIC ADMINISTRATION
Prerequisite: permission. In depth review and critique of major intellectual traditions, concepts and theories underlying public administration in the United States. 3 credits.

506 SEMINAR IN POLICY ANALYSIS AND EVALUATION
Prerequisite: permission. In depth review and critique of major intellectual traditions, concepts and theories underlying policy analysis and evaluation in the United States. 3 credits.

507 SEMINAR IN URBAN AND REGIONAL PLANNING
Prerequisite: permission. In depth review and critique of major intellectual traditions, concepts and theories underlying urban and regional planning in the United States. 3 credits.

508 COMPARATIVE PLANNING STRATEGIES
Prerequisite: 715 or permission. Review and analysis of alternative planning theories, institutions, and implementation strategies in a variety of national settings. 3 credits.

509 URBAN TUTORIAL
Prerequisite: permission. Intensive study of a particular approved field or topical area of urban studies under the supervision of a tutor. 1-9 credits.

510 DISCUSSION RESEARCH
(May be repeated) Open to properly qualified student accepted as candidate for Doctor of Philosophy degree. Student must register for at least three credits each semester until dissertation is accepted. Minimum of 15 credits required. 1-15 credits.
656 TRAFFIC ENGINEERING
Prerequisite: 311. Vehicle and urban travel characteristics, traffic flow theory, traffic studies, accidents and safety, traffic signs and marking, traffic signal planning. Traffic control and transportation administration.

658 HIGHWAY MATERIALS
Prerequisites: 301, 319, or permission. Properties of aggregates, manufacture and properties of Portland cement concrete, properties of asphaltic materials, design and testing of mix asphalt pavement mixtures, surface treatments. Laboratory practice. Specimen preparation and determination of properties. Graduate student laboratory. Graduate students will be required to perform an additional cement asphalt laboratory (Asphalt recovery of asphalt from foil sample) and to prepare a paper on a highway materials topic.

574 UNDERGROUND CONSTRUCTION
Prerequisite: 314. Description of practices and techniques of underground construction. Selection of special equipment and materials for special civil engineering projects. Use of underground computer programs, helpers in field supervision, and administration of construction activities.

604 DYNAMICS OF STRUCTURES

605 STRUCTURAL STABILITY
Prerequisite: 552. Buckling of bars, beams-columns and frames. Laterally buckling of columns. Double and tangent modulus theories. Stability methods.

606 ENERGY METHODS AND ELASTICITY

607 PRESTRESSED CONCRETE

608 MULTISTORY BUILDING DESIGN
Prerequisite: 401. Frame systems; Design of double-deck roof, shear, development length, support column, piles, design of highway bridge girder; prestressed, post-tensioned, continuous girders, concrete, volume-change forces, connections.

609 FUNDAMENTAL ELEMENT ANALYSIS I
Prerequisite: 554 or equivalent. Introductory development of finite element methods as applied to various topics from continuum mechanics. Such areas as plane, axisymmetric and 3D stress analysis, finite deformations, fluid mechanics, transient problems and geometric and material nonlinearity.

610 INTRODUCTION TO COMPOSITE MATERIALS
Prerequisite: 524 or equivalent. Fundamental concepts of composites, composite micro-layer and laminate theory discussed from geometric relationship to design laminates for stiffness and strength. The geometric, mechanical, hygrothermal and thermal behavior of composites with an emphasis in terms of corresponding properties of the constituents. Emphasis placed on the physics of composite behavior. Design and analysis of fiber composite laminates subjected to mechanical and environmental loading conditions.

611 FUNDAMENTALS OF SOIL BEHAVIOR
Prerequisite: 314. In-depth examination of structure and fundamental physico-chemical and mechanical properties of engineering soils viewed as particle matter.

612 ADVANCED SOIL MECHANICS
Prerequisite: 314. Study of mechanics of behavior of soil as continuum. Principles of stress, strain, deformation, strength and pore water pressure as applied to mechanical behavior of soil masses.

613 ADVANCED GEOTECHNICAL TESTING
Prerequisite: 516, 612. Theory and practice of static and dynamic in situ and laboratory soil testing. Testing procedures, applicability, limitations. General evaluation of geotechnical parameters for routine and special site conditions. One lecture, two laboratories per week.

614 FOUNDATION ENGINEERING I
Prerequisite: 513 or permission. Foundation bearing capacity and settlement analysis. Theory and design of earth retaining structures including retaining walls, tiebacks and bulkheads.

615 FOUNDATION ENGINEERING II
Prerequisite: 614. Soil-strata interaction theory and applications to under ground structures including foundations, tunnels and shafts. Advanced foundation construction methods and problems including dewatering, soil stabilization, underpinning and cofferdams. Slope stability analysis.

618 ROCK MECHANICS
Prerequisite: 514 or permission. Mechanical nature of rocks; Linear elasticity and application to rock problems; Inelastic behavior of rocks; Time dependence and effects of pore pressure; Experimental characterization of rock properties; Failure theory and crack propagation.

620 SANITARY ENGINEERING PROBLEMS
Prerequisite: 323. Application of laboratory methods and theory to solution of sanitary engineering problems involving water pollution, stream protection, special industrial wastewaters, and dredgers and others.

621 WATER AND WASTEWATER LABORATORY
Prerequisite: 519. Credit applies to either 321 or 625. Students will conduct laboratory experiments related to the design and operation of water and wastewater treatment processes. Experimental design, data collection and report preparation.

622 WATER TREATMENT PLANT DESIGN
Prerequisite: 621. Design of water treatment plants for potable, industrial and commercial uses. Development of water sources, treatment methods and financing used to design best practical methods in terms of cost benefits. Analysis program.

623 WASTEWATER TREATMENT PLANT DESIGN
Prerequisite: 621. Application of theory and fundamentals to design of wastewater treatment plants. System design methods used for biological and chemical stabilization of wastewater to meet water quality criteria. System analysis made to determine best practical design to be utilized.

624 ENGINEERING MANAGEMENT OF WATER UTILITIES
Prerequisite: permission. Comprehensive study of various functions of water utility and engineering management operations pertaining to intake and complex processes. Fundamentals of responsibility and duties applicable to water utility systems.

625 WATER AND WASTEWATER PROCESSES I
Prerequisite: 523. Theory, current research associated with physical chemical processes, the impact on design coagulation/floculation, sedimentation, filtration, absorption processes and treatments.

626 WATER AND WASTEWATER PROCESSES II
Prerequisite: 523. Theory, current research associated with biological processes, related physical chemical processes, the impact on design activated sludge firm processes, gas transfer and wastewater treatment processes emphasized.

627 WATER POLLUTION PRINCIPLES
Prerequisite: 523 or permission. Principles of water chemistry, microbiology, and chemical reaction engineering as applied to testing and solving environmental problems.

628 ADVANCED FLUID MECHANICS

629 OPEN CHANNEL HYDRAULICS
Prerequisite: Basic principles of fluid mechanics, open-channel problems. Criteria for analysis of uniform, gradually varied and rapidly varied flows. Study of movement and transportation of suspended materials. Design problems utilizing numerical techniques.

635 APPLICATION HYDROLOGY
Prerequisite: Discussion of water cycle such as precipitation, evaporation, stream flow, floods, infiltration. Methods of analysis and their application to studies of water demand, storage, transportation including mathematical modeling of urban runoff and statistical hydrology.

638 COASTAL ENGINEERING
Prerequisite: Characteristics of linear and nonlinear wave theories. Interactions of structures, waves; design analysis of shore, offshore structures. Movement and sedimentation of sediments in lake shore areas.

681 ADVANCED ENGINEERING MATERIALS
Prerequisite: Selection of mechanical behavior of materials with respect to plastic and creep responses, stress, rupture, low and high cyclic and thermal fatigue. Failure theories and fracture phenomena in brittle and ductile materials. Crack propagation and life prediction of engineering materials.

682 ELASTICITY

683 PLASTICITY
Prerequisite: 502. 4600:622 or equivalent. Mathematical formulation of constitutive equations with focus on their use in prediction of stress-strain field and failure. Analysis by STRESS analysis by FEA.

684 EXPERIMENTAL METHODS IN STRUCTURAL MECHANICS

687 LIMIT ANALYSIS IN STRUCTURAL ENGINEERING
Prerequisites: 454554, 682. Fundamental theorems of limit analysis. The lower and upper bound theorems and applications. Solutions to frames, plates, plane stress and plane strain problems. Design considerations. Mathematical programming and computer implementation.

688 ADVANCED SEMINAR IN CIVIL ENGINEERING
Prerequisite: permission. Advanced projects, reading, studies, or experimental in various areas of civil engineering.

697 MASTER'S RESEARCH
Prerequisite: permission. Research on some suitable topic in civil engineering as approved by the department. Grade as credit/penalty and can be repeated. Credit cannot be applied towards master's degree.

699 SPECIAL PROBLEMS
Prerequisite: permission. Research as in student's major field. Topic selected by student subject to approval by adviser and graduate committee. Individual research should lead to a final report will be graded by the adviser and graduate committee.

699 MASTER'S THESIS
Prerequisite: permission. Research and thesis on some suitable topic in civil engineering as approved by department. Defense of thesis is by final examination.

701 EARTHQUAKE ENGINEERING

702 PLATES AND SHELLS

708 VISCOELASTICITY AND VISCOPLASTICITY
Prerequisite: 503. Formulation of constitutive relations for viscoelastic and viscoplastic materials. Main topics: Viscoelasticity and viscoplasticity; Statistical mechanics; Thermodynamics of viscoelasticity; Elastic-plasticity.

746 FINITE ELEMENT ANALYSIS II

751 ADVANCED COMPOSITE MATERIALS
Prerequisite: 610. Analysis of fiber-reinforced composites and statistical variables bending, buckling and vibration of laminated plates and shells. Advanced topics including stress concentration, residual stress, fatigue, fracture toughness, nonlinear and viscoelastic stress-strain formulations, solution of nonlinear problems.
ELECTRICAL ENGINEERING

4400:

521 ENGINEERING ECONOMY
Prerequisites: 3250, 244 and senior standing in engineering. Presents engineering economics as distinguished from classical economic theory.

549 DIGITAL COMMUNICATION
Prerequisite: 445. Introduction to digital communication systems, coding of analog and digital information, digital modulation techniques. Introduction to information theory.

553 VIBRATION THEORY
Prerequisite: 354 or equivalent. Theory of EM radiation, wire antennas, array receiving antennas, reciprocity. Integral equations for induced currents, self and mutual impedances. Equivalent principle, radiation from aperture antennas.

555 MICRO WAVES
Prerequisite: 354. Dynamic fields, Maxwell's equation and wave analysis. Field analysis of wave guides, microwave components, techniques and systems.

565 COMPUTER CIRCUITS
Prerequisite: 363. Electronic circuit considerations in logic circuits, methods of sequential, threshold logic analysis, synthesis, development of computer arithmetic elements, memory, logic gates, design of digital computer. Experiments include hybrid, AC control system, digital computer control.

572 CONTROL SYSTEMS II
Prerequisite: 371. State variable analysis, design of control systems. Discrete systems, analysis, digital computer control. Experiments include hybrid, AC control system, digital computer control.

580 SYMMETRICAL COMPONENTS
Prerequisite: 381. Per unit method as applied to power system calculations. Fundamental principles of symmetrical components as applied to analysis of electrical circuits and machines.

583 POWER ELECTRONICS I
Prerequisite: 381. Elements of power electronics circuits, Recorders, converters, inverters, analysis and design.

584 POWER ELECTRONICS LABORATORY AND DESIGN PROJECT
Prerequisite: 483/583 or equivalent. Experiments on different types of power electronic converters: AC/DC, DC/DC, DC/AC, AC/AC. Design project to include design, simulation, building, and testing of a power electronic circuit.

585 ELECTRIC MOTOR DRIVES
Prerequisite: 381. Application of electric machines, choice of motor for particular drive. Application of power semiconductor circuits in electric machinery.

589 TOPICS IN ELECTRICAL ENGINEERING
Prerequisite: 381. May be taken more than once: prerequisite: permission of department head. Special topics in electrical engineering.

600 ADVANCED MICROCOMPUTER SYSTEMS
Prerequisite: 365 or permission. Discussion of multiprocessing, numerical data processing, multitasking, system utilities, 16-bit and 32-bit microprocessor architectures, 16-bit and 32-bit microprocessor software, multitasking and virtual memory as supported by commercial microprocessors.

631 CIRCUIT ANALYSIS
Prerequisite: 371. Graduate standing. Operational methods, time domain analysis, state variable methods and matrix techniques in circuit analysis. Relaxation and synthesis of driving point impedances and transfer functions.

641 RANDOM SIGNAL ANALYSIS
Prerequisite: 444. Analysis, interpretation and smoothing of engineering data through application of statistical and probability methods.

643 INFORMATION THEORY AND CODING
Prerequisite: 641. Sources, channels, entropy, mutual information, source coding theorem and channel coding theorem, techniques for error control coding, including block, cyclic, and convolutional codes.

646 DIGITAL SIGNAL PROCESSING
Prerequisite: 320. Computer algebraic and discrete-time Fourier analysis. Sampling, aliasing, sampling rate conversion. Operational concepts in signal processing, digital signal processing, FFT, digital filter design.

647 SPECTRAL ANALYSIS AND SIGNAL MODELING
Prerequisite: 646 or permission of instructor. Methods and theory of spectral analysis and signal modeling are investigated in detail. Applications of theory include speech processing, digital filtering, biomedical systems, digital communications.

648 DETECTION AND ESTIMATION THEORY

650 ELECTROMAGNETIC THEORY I
Prerequisite: permission of instructor. Electromagnetics, uniqueness theorem, boundary value problems, constructions of Green's functions. Magnetostatics, Electrostatics, energy and charge. Basic principles of circuit theory. Integration of EM potentials, radiation from thin wires, horn antennas, examples of antennas.

651 ELECTROMAGNETIC THEORY II
Prerequisite: 660 or permission of instructor. Electromagnetics, uniqueness theorem, boundary value problems, constructions of Green's functions. Magnetostatics, Electrostatics, energy and charge. Basic principles of circuit theory. Integration of EM potentials, radiation from thin wires, horn antennas, examples of antennas.

652 ADVANCED ELECTROMAGNETICS
Prerequisite: 611. Application of Maxwell's equations. Propagation equations and antenna analysis.

655 ADVANCED ANTENNA THEORY AND DESIGN
Prerequisite: 453/553 or equivalent. Basic properties and recent advances in microstrip antennas. Analysis and design of reflector antennas. Analysis and synthesis of linear and planar antenna arrays.

661 DESIGN OF DIGITAL SYSTEMS
Prerequisite: 465. Applications of circuit design techniques in modern digital communications and digital computer systems. Consideration of logic design, selection, optimization, and interfacing procedures.

662 TOPICS IN ELECTRONICS
Prerequisite: permission of department head. Discussion of recent advances in electronics.

663 VLSI CIRCUITS AND SYSTEMS
Prerequisite: 611. An introductory course designed to provide a broad understanding of very-large-scale-integrated (VLSI) systems, circuits, and devices. Topics include design, simulation, layout, fabrication, and test procedures.

664 INTEGRATED CIRCUIT DEVICES
Prerequisite: 353, 360, or equivalent. Develops physical and analytical descriptions of solid-state electronic devices as emerging technology today. Focus will be on MOS devices and bipolar transistors.

671 DISCRETE CONTROL SYSTEMS
Prerequisite: 472/572 or permission. Theory, techniques for analysis, design of discrete control systems. Z-transform technique, stability analysis, frequency response, optimization. Digital computer control.

673 NONLINEAR CONTROL
Prerequisite: 670 or instructor permission. Designed to provide students with qualitative insight into nonlinear systems, emphasizing techniques for controlling such systems. Topics include discrete-time systems, Lyapunov theorem, bifurcation of systems, and chaos.

674 CONTROL SYSTEM THEORY
Prerequisite: 371 or permission of the instructor. Advanced course in control theory for linear systems. Controllability, observability, minimality relations of multivariate systems, stability, state variable feedback, estimation, and an introduction to optimal control.

675 SYSTEM SIMULATION
Prerequisite: 472 or permission of the instructor. The course is designed to provide the control engineer with tools necessary to simulate continuous systems on a digital computer. Topics include numerical methods, software, and use of simulation languages.

676 RANDOM PROCESS ANALYSIS
Prerequisite: 674. Analysis and design of control systems with stochastically defined input.

677 OPTIMAL CONTROL I
Prerequisite: 674. Formulation of optimal control problems; application of variational calculus, maximum principle and optimality principle to control problems. Computational techniques in optimization.

680 DYNAMICS AND CONTROL OF POWER ELECTRONIC CIRCUITS
Prerequisite: 483/583 or equivalent. Advanced and sampled-data models for rectifiers and DC-DC converters. Synchronous and unsynchronous models for the dynamic behavior of power electronics systems. Important parameters include: switching frequency, power flow, and circuit behavior.

681 POWER SYSTEM ANALYSIS
Prerequisite: 482. Short-circuit and load flow analysis of power systems with emphasis on computer solution. Transient network analysis.

682 POWER SYSTEM STABILITY
Prerequisite: 481. Steady-state and transient stability of power systems with emphasis on computer solution.

683 ECONOMICS OF POWER SYSTEMS
Prerequisite: 481. Analysis and operation of power systems with emphasis on computer solution.

684 PROTECTIVE RELAYING
Prerequisite: 480. Principles and application of relays as applied to protection of power systems.

685 SURGE PROTECTION
Prerequisite: 480. Phenomena of lightning and switching surges, control of electrical systems, protection of systems and apparatus by line design, application of protective devices and insulation coordination.

686 DYNAMICS OF ELECTRIC MACHINES
Prerequisite: 651. Graduate status in Electrical Engineering. Voltage and mechanical differential equations of electric machines, analytical and numerical methods for solution of a system of differential equations.

687 POWER ELECTRONICS II
Prerequisite: 651. Graduate status in Electrical Engineering. Voltage and mechanical differential equations of electric machines, analytical and numerical methods for solution of a system of differential equations.

698 POWER SEMICONDUCTOR DEVICES
Prerequisite: 683/583 or equivalent. Effects of the nonlinearity of the power semiconductor devices, amplifiers and rectifiers, thyristor commutation circuits, temperature and thermal stability. Analysis of power devices and circuits.

82 CONTROL SYSTEMS
Prerequisite: 470 or permission of the instructor. The course is designed to provide the control engineer with tools necessary to simulate continuous systems on a digital computer. Topics include numerical methods, software and use of simulation languages.

821 PROTECTIVE RELAYING
Prerequisite: 480. Principles and application of relays as applied to protection of power systems.

825 POWER SYSTEMS
Prerequisite: 481. Analysis and operation of power systems with emphasis on computer solution.

826 SPECIAL PROBLEMS
Prerequisite: 481. May be taken more than once: prerequisite: permission of department head. For a qualified graduate student. Supervised research on a major field of interest.

Credits depend upon nature and extent of project.
ENGINEERING

COMPUTER SCIENCE

4450:

520 SOFTWARE ENGINEERING
Prerequisites: 3460.209 and instructor's permission. Software life cycle, specification, design and implementation of lean projects. 3 credits

570 INTEGRATED SYSTEM DESIGN
Prerequisite: 470, 4450.465. Prerequisite for 570, 4450.565. Introduction to computer structures, design methods, and development tools for VLSI systems. AMD devices, fabrication, processing, and construction design. Layout methods and tools. Design systems. 3 credits

597 SPECIAL TOPICS: COMPUTER SCIENCE
(May be taken more than once) Prerequisite: permission of department head. Special topics in computer engineering. 1-3 credits

606 COMPUTER ARCHITECTURE
Prerequisite: 4400.303 or equivalent. Historical development of computer architecture. Design methodology. Processors, organization and design of instruction sets, parallel processing, control section implementations, memory organization, system configuration. 3 credits

610 COMPUTER ALGORITHMS I
Prerequisites: 4400.266 and 3450.235. Organization of scientific and engineering problems for computer solutions. Analysis of error and convergence properties of algorithms. 3 credits

611 COMPUTER ALGORITHMS II
Prerequisite: 610 or permission. Data structures and algorithm design for minimum execution time and memory requirements. 3 credits

639 SPECIAL PROBLEMS
(May be taken more than once) Prerequisite: permission of department head. For a qualified graduate student. Supervised research or investigation in student's major field. Credit depends upon nature and extent of project. 1-3 credits

794 ADVANCED SEMINAR
(May be taken more than once) Prerequisite: permission of department head. Advanced level coverage of various topics intended for student seeking Ph.D. in engineering. 1-3 credits

916 HEATING AND AIR CONDITIONING
Prerequisites: 301.315. Thermodynamics of gas mixtures. Design and selection of air conditioning equipment. Control of gas mixtures, heating, cooling and humidity. 3 credits

511 COMPREHENSIVE FLUID MECHANICS
Prerequisites: 301.310. Study of compressible flow in nozzles, diffusers and ducts. One-dimensional reactive gas dynamics. Prandtl-Meyer theory. Applications to design and analysis of compressors, turbines, and propulsion devices. 3 credits

512 FUNDAMENTALS OF FLIGHT
Prerequisites: 4450.101 or instructor's permission. Introduction to basic aerodynamics, airplane performance, stability and control, and astronautics and propulsion. Design considerations are emphasized. 3 credits

513 INTRODUCTION TO AERODYNAMICS
Prerequisites: 300 and 310 or permission. Introduction to aerodynamic concepts, conformal transformations, theory of lift and drag, 2-dimensional airfoil theory, winds of finite span, lifting line elements, lumped vortex, vortex lattice, and panel methods. 3 credits

514 INTRODUCTION TO AEROSPACE PROPULSION
Prerequisites: 300 and 310 or permission. Introduction to propulsion systems currently used in the aerospace field. Propulsion principles for turbomachinery, turbines, rockets, chemical rockets, and electrical rocket propulsion. 3 credits

517 ENERGY CONVERSION
Prerequisites: 301, 315. Topics from fields of internal combustion engines, cycle analysis, modern control theory and design. 3 credits

518 HEAT TRANSFER PROCESSES
Prerequisite: 315. Analysis of extended surfaces. Natural convective, combined models of heat transfer and heat transfer with a change of phase. Heat transfer in magnetohydrodynamic systems. 3 credits

532 EXPERIMENTAL STRESS ANALYSIS I
Prerequisite: 436 or 4300.202. Experimental methods of determining stresses and strains: brittle fracture, strain gages, photelasticity. 3 credits

533 FLUID DYNAMICS
Prerequisite: 321. Static and dynamic forces in machines, products of inertia, dynamic equivalence, flow. Balancing of rotating, reciprocating, cyclic plane motion. Computer simulation of transient mechanical systems. Other topics in advanced dynamics. 3 credits

551 FUNDAMENTALS OF MECHANICAL VIBRATIONS
Prerequisites: 203 and 3450.235. Undamped and forced vibrations of systems having one or two degrees of freedom. 3 credits

552 VEHICLE DYNAMICS
Applications of dynamic system analysis techniques to road vehicles. Newtonian and Lagrangian models. Tire-road interface. Rollover characteristics, handling and stability. Digital simulation methods. 3 credits

540 SYSTEM DYNAMICS AND CONTROL
Prerequisites: 315, 431, or permission. Laplace transforms. Mathematical modeling of physical systems. transient response and stability. Error analysis and system accuracy. Root locus methods in design. Frequency analysis and design. Compensation techniques. 3 credits

541 CONTROL SYSTEMS DESIGN
Prerequisites: 315, 431, 340. Methods of feedback control design such as minimum error, robustness, frequency domain. Compensation techniques. Multivariable and nonlinear design methods and computer-aided control design. 3 credits

542 INDUSTRIAL AUTOMATIC CONTROL
Prerequisite: 4450.440 or equivalent. Operation of basic control mechanisms. Study of mechanical, hydraulic, pneumatic, fluidic control systems, including application areas. Tuning of control devices for optimum performance of system. Case studies on control applications from industrial, e.g., boilers, turbines, process heaters. 3 credits

543 OPTIMIZATION METHODS IN MECHANICAL ENGINEERING
Prerequisite: 350. Development and implementation of optimization methods in mechanical engineering. The use of dynamic programming and operational research methods for optimal design and computer aided design applications. 3 credits

544 ROBOT DESIGN, CONTROL AND APPLICATION
Prerequisites: 321, 440 or equivalent. Robot design and control. Kinematic transformations, vector operations and isomorphisms, path trajectories and dynamics, control and sensing in robotics. The automated factory with robot applications. 3 credits

555 INTRODUCTION TO COMPUTATIONAL FLUID FLOW AND CONVECTION
Prerequisites: 315, 360, or permission of instructor. Numerical modeling of fluid dynamics, numerical solution of the momentum and thermal boundary layer equations, flow simulation using advanced heat transfer/flow techniques packages. 3 credits

542 PRESSURE VESSEL DESIGN
Prerequisite: 336 or 4300.262. Introduction to modern pressure vessel technology. Topics include basic structural considerations, materials and their environment and design construction features. 3 credits

583 COMPUTER AIDED DESIGN AND MANUFACTURING
Prerequisite: 460 or permission. The use of computer systems to assist in the creation, modification, analysis, or optimization of engineering designs, and to plan, manage, and control manufacturing plants. 2 credits

600 GAS DYNAMICS
Prerequisite: 3450.1111. Derivation of equations for multi-dimensional inviscid flows of a compressible fluid. Method or small perturbations Method of characteristics. Ideal flow theory. Transonic flow. One-dimensional unsteady flow. 3 credits

602 THERMODYNAMICS
Prerequisites: 301, 310 or equivalent. Extension and generalization of basic laws of thermodynamics with application to a variety of physical and biological systems. Introduction to irreversible thermodynamics, the third law and statistical thermodynamics. 3 credits

607 FINITE ELEMENT ANALYSIS I
Prerequisite: 622. Introductory development of finite element method as applied to various topics from continuum mechanics. Topics covered include plane stress, plane strain, and 3-D stress analysis; computational fluid mechanics, transient problems; and geometric and material nonlinearities. 3 credits

615 DYNAMICS OF VISCOUS FLOW
Prerequisites: 301, 310 or equivalent. Derivation and solution of equations governing laminar viscous flow. Applications include unsteady flow, slow viscous flows, parallel flows, lubrication theory and laminar boundary layers. 3 credits

616 COMPUTATIONAL FLUID MECHANICS
Prerequisite: 460 or permission of instructor. Study of numerical methods in fluids, numerical errors and stability, finite difference, nonconvergent, nonlinear convection terms, Prewson equations, boundary conditions, turbulence, spectral and finite element techniques. 3 credits

500 THERMAL SYSTEM COMPONENTS
Prerequisites: 301, 310, 315. Performance analysis and design of basic components of thermal energy exchange and conversion systems. Components studied include heat exchangers, pumps, compressors, turbines and expansion engines. 3 credits

505 THERMAL SYSTEM COMPONENTS II
Prerequisites: 301, 310, 315. Performance analysis and design of basic components of thermal energy exchange and conversion systems. Components studied include heat exchangers, pumps, compressors, turbines and expansion engines. 3 credits

506 THERMAL SYSTEM COMPONENTS III
Prerequisites: 301, 310, 315. Performance analysis and design of basic components of thermal energy exchange and conversion systems. Components studied include heat exchangers, pumps, compressors, turbines and expansion engines. 3 credits

507 THERMAL SYSTEM COMPONENTS IV
Prerequisites: 301, 310, 315. Performance analysis and design of basic components of thermal energy exchange and conversion systems. Components studied include heat exchangers, pumps, compressors, turbines and expansion engines. 3 credits
620 NEURAL NETWORKS 3 credits
Examination of highly parallel, distributed architectures for computing that are, to varying degrees, derived from structures observed in biological nervous systems. After an overview of how real neurons operate, the course will examine both traditional and modern neural computing architectures. Comparisons will be made with traditional serial machines and applications for which neural networks seem most promising will be examined.

621 SENSOR SYSTEMS ANALYSIS 3 credits
Prerequisite: 4400:371 or equivalent, or by permission. Study of various sensor modalities from a systems engineering perspective. Techniques from linear and nonlinear systems analysis are applied to aspects of vision, hearing, touch, and position sensing in humans. Comparisons are made with artificial emulations of these senses.

630 BIOMEDICAL COMPUTING 3 credits
Prerequisite: 4100:306 or equivalent. Computer applications in health care, clinical laboratories, AMTI, medical records, direct order entry, A.D.A., D.A., computer-automated test, computer-automated test, patient monitoring, peripherals and interfaces, diagnostic algorithms, automated EEG, ECG, systems.

632 PROCESSING OF BIOMEDICAL SIGNALS 3 credits
Prerequisite: graduate standing in the College of Engineering and 611 or equivalent. Concepts for the analysis of biological continuous signals and point processes including discriminating and principal component analysis. Wave forms, histograms, correlograms and data displays.

634 MEDICAL IMAGING DEVICES 3 credits
Imaging modality including radiation, magnetic resonance, ultrasound, gamma cameras and PET.

635 PHYSIOLOGICAL CONTROL SYSTEMS 3 credits
Prerequisite: 4400:371 or equivalent, or by permission. Analyses of motor control, homeostatic, and other physiological functions are carried out from the perspective of control theory, both linear and nonlinear. Both similarities to and differences from traditional engineering systems will be presented. Computer simulations of several physiological systems will be developed.

638 IMAGE PROCESSING FOR BIOMEDICAL DATA 3 credits
Image sampling, quantization and transforms. Enhancement including smoothing and sharpening. Restoration using inverse and Wiener filters. Edge detection and thresholding with region growing for segmentation.

640 SPINE MECHANICS 3 credits
Prerequisites: 3100:561 or equivalent, 4300:406 or equivalent, or permission. Physical properties and functional biomechanics of the spine. Kinematics and kinetics of the human spine. Biomechanics of spondylolisthesis, instability, pain, and arthritis. Mechanics and design of surgical implants.

641 SOFT CONNECTIVE TISSUE BIOMECHANICS 3 credits
Prerequisites: 3100:561 or equivalent, 4300:407 or equivalent, or permission. Physical properties and functional biomechanics of ligament, tendons, periarticular insertions, myofascial, (kinesiology, articular cartilage and meniscus. The mechanics of injury, repair, and replacement for accelerated repair and improved function.

642 HARD CONNECTIVE TISSUE BIOMECHANICS 3 credits
Prerequisites: 3100:561 or equivalent, 4300:407 or equivalent, or permission. Physical properties and functional biomechanics of bone. The biology and mechanics of fractures and fracture healing. Mechanics of external and internal fixation. Total joint implants and reconstruction techniques.

645 MECHANICS IN PHYSIOLOGY AND MEDICINE 3 credits
Prerequisites: 4600:310 and 4300:202 or equivalent. Blood rheology, mechanics of microcirculation, finite deformation theory, soft tissue mechanics, mechanics of blood and lymph circulation, kinetics and kinematics of orthopedic joints. Clinical applications.

650 CARDIOVASCULAR DYNAMICS 3 credits
Prerequisite: 3100:561, 562, or equivalent, 4600:310 or equivalent. Analysis of blood pumping action, measurement, waveform transmission and blood rheology factors. Use of modeling and direct measurement techniques. Clinical implications of disease.

651 CARDIOVASCULAR DIAGNOSTIC AND THERAPEUTIC TECHNIQUES 3 credits
Prerequisites: 3100:561, 2 or equivalent. Cardiovascular disease conditions, instrumentation and techniques for diagnosis and surgical procedures, and services for treatment. Direct interaction with active clinical laboratories.

652 EXPERIMENTAL METHODS IN BIOMECHANICS 3 credits
Prerequisite: graduate standing in the College of Engineering or permission. Principles of testing and measuring devices commonly used for biologic and biomedical studies. Laboratories for demonstration and hands-on experience.

653 TRANSPORT PHENOMENA IN BIOLOGY AND MEDICINE 3 credits
Prerequisites: 4200:372, 322 or 4600:310, 315 or equivalent. Basic definitions, cardiovascular mass and momentum transport, compartment modeling, mass transfer in physiological systems and artificial kidney and lung devices. Design optimization. Analysis of human thermal system.

660 BIOMATERIALS AND LABORATORY 4 credits
Concurrent with Biomaterials Laboratory. Material used in biological applications. Effect of physical environment and sterilization on materials. Controlled and uncontrolled degradation. Effect of materials on soft tissue, hard tissue and blood. Laboratory experiments using materials designed for biomedical use and demonstrations of biological/materials interactions.

663 ARTIFICIAL ORGANS 3 credits
Prerequisite: graduate standing in the College of Engineering or permission of instructor. Study of the rationale for the engineering and clinical aspects required for the design and variety of artificial organs, with emphasis on the artificial heart and artificial kidney.

697 SPECIAL TOPICS 1-4 credits
(May be repeated) Prerequisite: permission of instructor. Current topics or supervised study in the area of biomedical engineering. Credit hours depend upon the nature and extent of the course or the project.

699 MASTER'S THESIS 1-6 credits
Prerequisite: permission of advisor. Supervised research in the specific area of biomedical engineering.

899 PRELIMINARY RESEARCH 1-15 credits
(May be repeated) Prerequisite: approval of the dissertation director. Preliminary investigations prior to the submission of a dissertation proposal to the Interdisciplinary Doctoral Committee.

899 DOCTORAL DISSERTATION 1-15 credits
Prerequisite: acceptance of research proposal by the Interdisciplinary Doctoral Committee and approval of the dissertation director. Original research by the doctoral student.
EDUCATIONAL FOUNDATIONS

5100:

512 DESIGN AND PRODUCTION OF INSTRUCTIONAL MATERIALS 3 credits (20 clinical hours) Covers design, adaptation and preparation of media materials. Student produces media materials including overhead projection, transparency, audio-visual aids, slide sequences and opaque materials. The student is offered project choices.

514 ORGANIZING AND SUPERVISING EDUCATIONAL MEDIA PROGRAMS 3 credits Prerequisite: 310 or permission of the instructor. Procedures for planning, organizing and evaluating educational media programs including media facilities and services.

520 INTRODUCTION TO COMPUTER-BASED EDUCATION 3 credits Prerequisite: graduate or senior standing. Techniques for developing, implementing and evaluating computer-based education. Emphasis on instructional design, programming and preparing instructional computer programs. Focus on hardware and software considerations associated with current applications examined.

590, 592 WORKSHOP 1-3 credits each Individual work under staff guidance on curriculum problems, utilization of community resources, planning of laboratory units.

594 EDUCATIONAL INSTITUTES 1-4 credits Special course designed as in-service upgrading programs.

600 PHILOSOPHIES OF EDUCATION 3 credits Examination of basic philosophical problems underlying broad educational questions that concern society. Provides foundation for understanding of questions of modern society and education.

620 COMPARATIVE AND INTERNATIONAL EDUCATION 3 credits Comparative study of selected national education systems with reference to forces that shape their characteristics. Different theoretical approaches used in study of comparative education also investigated.

624 SEMINAR: EDUCATIONAL PSYCHOLOGY 3 credits Prerequisite: 250 or equivalent. In-depth study of research in selected areas of learning, development, motivation, instruction.

625 SEMINAR: HISTORY OF EDUCATION IN AMERICAN SOCIETY 3 credits Prerequisite: 600 or equivalent. History of education related to social and economic development of United States and other countries.

703 SEMINAR: HISTORY AND PHILOSOPHY OF HIGHER EDUCATION 3 credits Prerequisite: 600 or equivalent. History and philosophy related to genesis and development of higher education in the Western world; with special emphasis given to higher education in the United States.

705 SEMINAR: SOCIAL-PHILOSOPHICAL FOUNDATIONS OF EDUCATION 3 credits Prerequisite: 600 or equivalent. Inquiry into selected sociological, economic and philosophical factors affecting educational development in United States and other countries.

711 LEARNING PROCESSES 3 credits Prerequisite: 700 or equivalent. In-depth study of research related to learning as a means of modifying pupil behavior: cognitive, motor, social and aesthetic. 

723 TEACHER BEHAVIOR AND INSTRUCTION 3 credits Prerequisite: 600. Intensive study of teaching as a form of behavior control. Emphasis on teaching techniques and methods for controlling behavior in the classroom.

743 ADVANCED EDUCATIONAL STATISTICS 3 credits Prerequisite: 741. Advanced course on statistical analysis in educational research. Emphasis on hypothesis testing.

798 RESEARCH PROJECT IN SPECIAL AREAS 1-3 credits Prerequisite: permission of department head and instructor. Critical and in-depth study of specific problem in educational foundations.

801 RESEARCH SEMINAR 3 credits Prerequisite: 741. Seminar in research methodology and practice. Emphasis on developing a research dissertation proposal.

807 INDEPENDENT STUDY 1-4 credits Prerequisite: permission of department head and instructor. Specific area of inquiry within humanistic and behavioral foundations of education determined in advance by student and faculty adviser.

ELEME NTARY EDUCATION

5200:

511 CREATIVE TECHNIQUES FOR LEARNING CHILDREN'S LITERATURE 2 credits Prerequisite: 269. Examination of techniques for interpretation of children's literature including storytelling, creative dramatics, reader's theatre and choral speaking.

535 ACTIVITIES TO INDIVIDUALIZE SOCIAL STUDIES 2 credits Prerequisite: 238. Development of materials and activities (learning games, simulation games, simulations, learning stations, programmed field trips and map activities) to provide teacher with variety of techniques in order to develop an individualized, student-centered social studies program.

536 GEOMETRY AND MEASUREMENT IN ELEMENTARY SCHOOLS 3 credits Prerequisite: 236. Development of materials and activities (learning games, simulation games, simulations, learning stations, programmed field trips and map activities) to provide teacher with variety of techniques in order to develop an individualized, student-centered social studies program.

538 STRUCTURE OF THE NUMBER SYSTEM IN ELEMENTARY SCHOOL MATHEMATICS 3 credits Prerequisite: 238. Development of materials and activities (learning games, simulation games, simulations, learning stations, programmed field trips and map activities) to provide teacher with variety of techniques in order to develop an individualized, student-centered social studies program.

539 MATERIALS AND LABORATORY TECHNIQUES IN ELEMENTARY SCHOOL MATHEMATICS 3 credits Prerequisite: 236. Applied mathematics. Construction and application of mathematical models for development of important mathematical concepts through the laboratory approach.

540 PROPERTIES OF NUMBERS IN ELEMENTARY SCHOOL MATHEMATICS 3 credits Prerequisite: 236. Applied mathematics. Construction and application of mathematical models for development of important mathematical concepts through the laboratory approach.

540 CONTEMPORARY ELEMENTARY SCHOOL 2 credits Prerequisite: 238. Contemporary elementary school curriculum critically analyzed and their processes developed and implemented in University classroom.

590, 592 WORKSHOP 1-3 credits each Elective work in articulation education major who would pursue further refinement of teaching skills. Emphasis on development and evaluation of suitable teaching techniques.

594 EDUCATIONAL INSTITUTES 1-4 credits Special courses designed as in-service upgrading programs. Frequently provided with the support of national foundations.

620 LITERATURE FOR YOUNG CHILDREN 2 credits Prerequisite: 593. Reading skills. Critical analysis of children's literature and evaluation of teaching techniques. 

630 ELEMENTARY SCHOOL CURRICULUM AND INSTRUCTION 2 credits Prerequisite: 593. Critical analysis of children's literature and evaluation of teaching techniques. 

640 THEORY AND PRACTICE IN ELEMENTARY SCHOOL MATHEMATICS 2 credits Prerequisite: 236. Critical analysis of children's literature and evaluation of teaching techniques.
641 DIAGNOSIS AND TREATMENT OF PERFORMANCE DIFFICULTIES IN ELEMENTARY SCHOOL MATHEMATICS 2 credits
Examination of implications of contemporary mathematics learning theory on diagnostic remedial process.

645 PROBLEMS IN ELEMENTARY SCIENCE EDUCATION 2 credits
Examination of influence of new curricular designs in elementary science. Emphasis on inquiry, investigation and discovery, and their impact on total elementary school curricula.

650 EDUCATION AND THE YOUNG CHILD 2 credits
Content centered on educational settings of young children from birth through five years.

665 INDIVIDUALIZED INSTRUCTION: LEARNING STYLE IDENTIFICATION AND RESOURCE PRESCRIPTION 3 credits
Prerequisite: permission of instructor and ESL. Individual learning style characteristics, practical approaches in individualization of instruction, multistrategy development and presentation.

695.6 FIELD EXPERIENCE: MASTER'S 1.2 credits each
Prerequisite: permission of adviser and department head. On-the-job experience related to student's study.

697 INDEPENDENT STUDY 1.2 credits each
Prerequisite: permission of advisor and department head. Selected areas of independent investigation as determined by adviser and related to student's academic needs.

698 MASTER'S PROBLEM 2.4 credits
Prerequisite: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in elementary education.

699 THESIS RESEARCH 4 credits
Prerequisite: 5100.640 and permission of advisor and department head. In-depth research investigation. Student must be able to demonstrate necessary competencies to deal with research problems in elementary education.

722 SUPERVISION OF INSTRUCTION IN THE ELEMENTARY SCHOOL 2 credits
Supervisory role of elementary principal and supervisory personnel.

780 SEMINAR IN ELEMENTARY EDUCATION 2 credits
Prerequisite: 5100.640. In-depth examination of specific teaching problems in the teaching of reading in the elementary school. Linguistic principles and their application in grades K-3. One-credit course at college level.

781 RESIDENCY SEMINAR 2 credits
Two-hour weekly meeting for elementary doctoral students in residence.

799 RESEARCH PROJECTS IN ELEMENTARY EDUCATION 1.2 credits
Prerequisite: permission of advisor and department head. In-depth investigation of specific problem pertinent to elementary education.

895.6 FIELD EXPERIENCE FOR ELEMENTARY DOCTORAL STUDENT 1.2 credits each
Prerequisite: permission of advisor and department head. Selected areas of independent investigation as determined by adviser and related to student's academic needs.

899 DISSERTATION 1.2 credits
Prerequisite: permission of advisor and department head. Study and in-depth analysis of a research problem in elementary education.

520 READING 5250:
511 MATERIALS AND ORGANIZATIONS FOR READING INSTRUCTION 3 credits
Prerequisite: 5200.335. Professional problems of selection and evaluation of reading materials and classroom organization explored.

540 DEVELOPMENTAL READING IN THE CONTENT AREAS- ELEMENTARY 3 credits
Prerequisite: 5200.337 or permission of instructor. Nature of reading skills relating to content subjects. Methods and materials stressing the development of reading ability in content subjects by the classroom teacher.

541 LANGUAGE AND ITS RELATIONSHIP TO READING IN THE ELEMENTARY SCHOOL 3 credits
Prerequisite: 5200.337 or permission of the instructor. An overview of the linguistic field in the teaching of reading in the elementary school. A discussion of major linguistic principles for class instruction in grades K-6.

542 TEACHING READING TO CULTURALLY DIFFERENT LEARNERS 3 credits
Prerequisite: 5200.337 or permission of the instructor. The course is designed to provide a study of the knowledge, attitudes and values which will enable employment of effective techniques of teaching reading to culturally different learners, and/or learners whose language patterns are non-standard.

580 TRENDS IN READING INSTRUCTION 2 credits
Prerequisite: 5200.335 or 5300.425. Survey course designed to update reading background of students who have not had a recent course in reading.

681 DIAGNOSIS AND CORRECTION OF READING PROBLEMS 5 credits
Prerequisite: 5200.652. Emphasis on growth to reading development and reasons for reading problems. Experiences in diagnosis of various types of problems and procedures for correcting such difficulties.

682 CLINICAL PRACTICES IN READING 5 credits
Prerequisite: 5200.652. Nature and etiology of reading difficulties experienced by selected children. Supervised practices in practice work with children in conjunction with other elementary schools.

683 READING DIAGNOSIS FOR SCHOOL PSYCHOLOGISTS AND SUPPORT PERSONNEL 3 credits
Prerequisite: 5200.652. Preparation of instruction. This course will survey developmental reading and its relationship to reading difficulties. Formal and informal procedures for diagnosing disabled readers and a discussion of corrective strategies will be included.

692 ADVANCED STUDY AND RESEARCH IN READING INSTRUCTION 3 credits
Survey of research concerns and evaluation of projects in the design and development of projects in reading through group/individual study.

697 SUPERVISION AND CURRICULUM DEVELOPMENT IN READING INSTRUCTION 2 credits
Relative to total curriculum development and other techniques of presenting reading instruction to classrooms within the total curriculum. Examination of children's literature and the instruction of reading by supervisors and consultants.

SECONDARY EDUCATION 5300:
525 ADVANCED MICROCOMPUTER APPLICATIONS IN THE SECONDARY SCHOOLS 3 credits
Prerequisite: knowledge of BASIC programming is required. Advanced programming techniques reviewed, applied in program development appropriate for the secondary schools. Hardware/software, computer potential and limitations, program types will be evaluated according to research findings and criteria applicable to secondary schools.

535 CONCEPTS AND CURRICULUM DESIGNS IN ECONOMIC EDUCATION 3 credits
Economic education concepts appropriate for grade levels K-12 and adult education courses. Economic education materials developed to teach the concepts utilized.

57B VOCATIONAL BUSINESS EDUCATION 3 credits
Prerequisite: senior status or permission. Principles of program construction, organization, implementation, evaluation, improvement, and development of program guides for both intensive and cooperative vocational business education.

590.1,2 WORKSHOP 1.3 credits each
Prerequisite: individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

594 EDUCATIONAL INSTITUTES 1.2 credits
Special courses designed as in-service upgrading programs, frequently provided with the support of national foundations.

599 SECONDARY SCHOOL CURRICULUM AND INSTRUCTION 2 credits
Prerequisite: 5200.640. Application of findings of recent research to curriculum-building and procedures in teaching.

695 FIELD EXPERIENCE: MASTER'S 1-6 credits
(May be repeated a total of six credits) Prerequisites: permission of advisor and supervisor. On-the-job experience related to student's program of study.

697 INDEPENDENT STUDY 1-6 credits
(May be repeated a total of six credits) Prerequisites: permission of advisor and supervisor. Area of study determined by student's needs.

698 MASTER'S PROBLEM 2-4 credits
Prerequisite: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in secondary education.

699 THERAPY TECHNIQUES IN BOOKKEEPING 3 credits
Prerequisite: permission of instructor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in secondary education.

711 SUPERVISION OF INSTRUCTION IN THE SECONDARY SCHOOL 2 credits
Prerequisite: 5200.652. Principles of supervision of instruction in the secondary school. Emphasis on leadership role in improving instruction at secondary school level and development of practical theory of secondary school supervision.

710 SEMINAR IN SECONDARY EDUCATION 2 credits
(May be repeated) Intensive examination of a particular area of secondary education.

712 RESIDENCY SEMINAR 1 credit
(Must be repeated) One-hour weekly meeting for secondary education doctoral students in residence.

842 RESIDENCY SEMINAR 1 credit
(Must be repeated) One-hour weekly meeting for secondary education doctoral students in residence.

895 FIELD EXPERIENCE: DOCTORAL 1-6 credits
(May be repeated for a total of six credits) Prerequisites: permission of advisor and director of field experience. On-the-job experience related to student's needs. Student must be able to demonstrate skills and leadership abilities in an on-the-job situation.

897 INDEPENDENT STUDY 1-3 credits
(May be repeated for a total of six credits) Prerequisites: permission of advisor and director of independent study. Area of study determined by student's needs.

898 RESEARCH PROJECT IN SPECIAL AREAS 1-2 credits
Prerequisite: permission of advisor. Critical and in-depth study of specific problem in secondary education.

899 DISSERTATION 1-20 credits
Prerequisite: permission of advisor. Specific research problem that requires students to apply research skills and techniques pertinent to problem being studied.
TECHNICAL AND VOCATIONAL EDUCATION

5400:

500 THE POSTSECONDARY LEARNER
3 credits
Describes characteristics of the postsecondary learner; studies issues, factors, and strategies pertinent to successful facilitation of learning in a variety of postsecondary learning environments.

555 OCCUPATIONAL EDUCATION FOR YOUTH AND ADULTS
3 credits
History and operations of current vocational education for youth and adults. Includes study of social, economic, and political influences that stimulate growth and expansion of vocational education.

510 THE TWO-YEAR COLLEGE
3 credits
Designed to introduce student to nature, purpose and philosophy of the two-year college. Includes examination of types of institutions offering two-year programs.

515 TRAINING IN BUSINESS AND INDUSTRY
3 credits
Examines the role and development of the training function in the modern industrial setting. Provides a foundation for a student planning to become an industrial trainer or training supervisor of technicians and other occupational skill development levels.

521 INSTRUCTIONAL TECHNIQUES IN TECHNICAL EDUCATION
4 credits
Selected topics in instructional techniques appropriate to post-secondary technical education. Emphasis on instructional methods, techniques in classroom, laboratory including tests, measurements.

530 CURRICULUM DEVELOPMENT IN TECHNICAL EDUCATION
2 credits
Procedure of breaking down an occupation to determine curriculum for laboratory and classroom, developing this content into an organized sequence of instructional units.

531 CURRICULUM DEVELOPMENT FOR TECHNICAL EDUCATION LAB
1 credit
Prerequisite: admission to Technical Education program or permission of instructor. Coursework: 530. The development of a curriculum for a technical postsecondary program.

535 INSTRUCTIONAL TECHNIQUES IN TECHNICAL EDUCATION
4 credits
Prerequisite: 530. Selected topics of instructional techniques appropriate to postsecondary technical education. Emphasis is placed on instructional methods, techniques in the classroom, laboratory including tests, and measurements.

541 EDUCATIONAL GERONTOLOGY SEMINAR
3 credits
Designed for person practicing in field of gerontology or preparing for a specialization in educational gerontology, including person responsible for development and implementation of courses, seminars, occupational training programs and workshops for older persons.

551 HOME ECONOMICS JOB TRAINING
3 credits
Prerequisite: senior standing or permission of instructor. Concept development in vocational home economics. Job training, program development, operational procedures, skill and knowledge identification, training profiles, job description and analysis, individualized study guides. In School and on-the-job observations.

590,1,2 WORKSHOP
1-3 credits each
Individually arranged as on job study for students outside the University. Includes a seminar each week.

594 EDUCATIONAL INSTITUTES
1-4 credits
Special courses designed as in service upgrading programs, frequently provided with the support of national foundations.

610 COMMUNICATION WITH BUSINESS AND INDUSTRY
2 credits
Techniques of establishing better communications between education and business and industry. Emphasis on the advisory committee, coordination functions and working with local professional associations in this community.

681 CURRENT ISSUES IN HIGHER EDUCATION
2 credits
(May be repeated with change in topic) Examination of current problems and issues in institutions of higher education, adult education, technical institutes, community colleges, proprietary schools, undergraduate, graduate and professional education.

690 INTERNSHIP: TEACHING VOCATIONAL EDUCATION
2 credits
An internship in a public high school for the purpose of teaching vocational education. Supervision is provided by the University as well as by the cooperating school district.

691 INTERNSHIP: TEACHING TECHNICAL EDUCATION
2 credits
An internship in a technical high school for the purpose of teaching technical education. Supervision is provided by the University as well as by the cooperating school district.

695 FIELD EXPERIENCE: MASTER'S
1-6 credits (30-180 field hours)
Prerequisites: permission of advisor and supervisor of field experience. On-the-job experience related to student's program of studies.

697 INDEPENDENT STUDY
1-3 credits (30-90 field hours)
Prerequisites: permission of advisor and supervisor of field experience. On-the-job experience related to student's program of studies.

698 MASTER'S PROBLEM
2-4 credits
Prerequisite: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in technical and vocational education.

699 THESIS RESEARCH
4-6 credits
Prerequisite: permission of advisor. In-depth study of research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in vocational education.

542 THERAPEUTIC MODALITIES AND EQUIPMENT IN SPORTS MEDICINE
3 credits (30 clinical hours)
Purpose is to develop techniques and skills among sports medicine personnel in the selection and application of therapeutic modalities and the equipment used in the rehabilitation of injuries to athletes.

551 ASSESSMENT AND EVALUATION IN ADAPTED PHYSICAL EDUCATION
3 credits (20 clinical hours)
Prerequisite: 556 and/or permission of instructor. Assessment and evaluation of adapted physical education program including the selection of appropriate assessment instruments, as well as methodology for determining instructional objectives and activities for handicapped students. Three hour lecture.

555 MOTOR DEVELOPMENT OF SPECIAL POPULATIONS
3 credits
Prerequisites: 536 and 550. Task analysis essential to structuring activity sequences for motor skills and lifetime fitness activities for handicapped children. Three hour lecture.

590,1,2 WORKSHOP
1-3 credits each
Practical, intensive, and concentrated involvement with current curricular practices in areas related to physical education.

593 EDUCATIONAL INSTITUTES AND FOUNDATIONS
1-4 credits
Practical experience with current curricular practices involving expert resource person with physical education, and usually financed by private or public funding.

601 ADMINISTRATION OF HEALTH, PHYSICAL EDUCATION, AND RELATED WORK
3 credits
Prerequisites: permission of instructor. Techniques of organization, administration and evaluation of health, physical education and recreation programs. Administrative policies of athletic programs at elementary, secondary and collegiate levels.

603 CURRICULUM PLANNING IN HEALTH AND PHYSICAL EDUCATION
2 credits
Analysis of objectives, procedures and trends in curricula and principles for developing sound programs.

605 PHYSIOLOGY OF MUSCULAR ACTIVITY AND EXERCISE
2 credits
Functions of body systems and physiological effects of exercise. Laboratory experiences, lectures, discussions.

606 MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION
3 credits
Critical analysis of existing testing procedures and discussion and study of measurement and evaluation in terms of program needs.

608 SUPERVISION OF PHYSICAL EDUCATION
2 credits
Prerequisites: permission of instructor. Principles involved in supervision of physical education service programs. Procedures and techniques of supervision of service classes at elementary, junior high and senior high school levels.

606 MOTIVATIONAL ASPECTS OF PHYSICAL ACTIVITY
3 credits
Analysis of factors influencing motor performance with emphasis on competition, audience effects, aggression.

608 SPECIAL TOPICS IN HEALTH AND PHYSICAL EDUCATION
2-4 credits
Prerequisites: permission of instructor. Group study of special topics in health and physical education and sports medicine.

695 FIELD EXPERIENCE: MASTER'S
1-6 credits
Prerequisite: permission of advisor. Participation in a work experience related to physical education. The experience may not be part of current position. Documentation of project required.

697 INDEPENDENT STUDY
1-3 credits
Prerequisite: permission of advisor. In-depth analysis of current practicer's problems related to physical education. Documentation of the study required.

698 MASTER'S PROBLEM
2-4 credits
Prerequisite: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in physical education.

699 THESIS RESEARCH
4-6 credits
Prerequisite: permission of advisor. In-depth research investigation. Student must be able to demonstrate necessary competencies to deal with a research problem in physical education.

OUTDOOR EDUCATION

5560:

550 APPLICATION OF OUTDOOR EDUCATION TO THE SCHOOL CURRICULUM
4 credits
Provides knowledge, skills and techniques useful in application of outdoor education to school curriculum.

552 METHODS, MATERIALS AND RESOURCES FOR TEACHING OUTDOOR EDUCATION
3 credits
Methodologically unique to outdoor education which incorporate a multisensory approach to learning. Instructional materials and resources which permit appropriate assessment instruments, as methodology for determining instructional objectives and activities for handicapped persons in outdoor education.

558 OUTDOOR PURSUITS
4 credits
Investigation and participation in practical experiences in outdoor pursuits.

590 WORKSHOP: OUTDOOR EDUCATION
1-3 credits
Practical application of contemporary ideas, methodologies, knowledge relevant to outdoor education and activities on participant involvement in educational practices, utilizing the natural environment.

594 EDUCATIONAL INSTITUTES: OUTDOOR EDUCATION
1-4 credits
Practical experience with current research or curricular practices involving expert resource persons in outdoor education.

600 OUTDOOR EDUCATION: RURAL INFLUENCES
3 credits
Prerequisite: 550 or 552. Utilization of resources of rural area as a learning/teaching environment. Content and methodology appropriate to teaching school-age children in rural settings.

605 OUTDOOR EDUCATION: SPECIAL TOPICS
2-4 credits
Prerequisite: permission of instructor. Group study of special topics of contemporary concern in outdoor education.

690 INDEPENDENT STUDY
4 credits
Prerequisite: permission of advisor. In-depth study of current practicer's problems related to physical education. Documentation of the study required.

PHYSICAL EDUCATION

5550:

536 FOUNDATIONS AND ELEMENTS OF ADAPTED PHYSICAL EDUCATION
3 credits
Principles, components, and strategies necessary in providing motor activities for handicapped students via application and micro-teaching developmental model and alternative methods. Three hour lecture.

541 ADVANCED ATHLETIC INJURY MANAGEMENT
4 credits (30 clinical hours)
Prerequisites: 2100, 206, suggested sequence, 5560:20, 202, 340. Advanced athletic training techniques for the student desiring to become a certified athletic trainer according to the regulations of the National Athletic Trainers Association.
EDUCATIONAL GUIDANCE AND COUNSELING 5600:

528 CAREER EDUCATION 2 credits
Prerequisites: Junior or senior standing. Examination of current career education models and programs with emphasis on utilization of career education activities in elementary and secondary curriculum.

530 COUNSELING PROBLEMS RELATED TO LIFE-TREATING 3 credits
Illness and Death
Prerequisite: Permission. Consideration of the major issues in current research, coping behavior, support systems and family and individual needs in reference to life-threatening situations.

590.1, 2 WORKSHOP 1.3 credits each
Special instruction designed as in-service and/or upgrading individuals on current issues and practices in counseling.

593 WORKSHOP 1.4 credits
Special instruction designed as in-service and upgrading individuals on current issues and practices in counseling.

594 COUNSELING INSTITUTE 1.4 credits
In-service programs of counselors and other helping professionals.

600 SEMINAR IN COUNSELING 1 credit
Prerequisite: Counseling majors must elect 600 prior to electing 651 and/or between the first 10 credits of 500 course work. Structured group experience designed to help students select areas of specialization in counseling as a profession.

602 INTRODUCTION TO COUNSELING 2 credits
Understanding guiding counseling principles including organization, operation and evaluation of guidance programs (designed for non-counseling majors).

610 COUNSELING SKILLS FOR TEACHERS 2 credits
Prerequisite: 831 or 833 or permission. The study and practice of selected counseling techniques that can be applied by teachers in working with students, parents and colleagues.

620 TOPICAL SEMINAR 1.4 credits
Prerequisite: Permission of instructor. Seminar on a topic of current interest in the profession. Staffing will be by department faculty and other professionals in counseling and related fields. A maximum of eight credits may be applied to a degree.

631 ELEMENTARY SCHOOL GUIDANCE 3 credits
Introductory course: examination of guidance and counseling practices.

633 SECONDARY SCHOOL GUIDANCE 3 credits
Introductory course: examination of guidance and counseling practices.

635 COMMUNITY COUNSELING 3 credits
Overview of community and college counseling services, their evaluation, philosophy, organization, and administration.

643 COUNSELING: THEORY AND PHILOSOPHY 2 credits
Examination of major counseling systems including client-centered, behavioral and existential theories. Philosophical and theoretical dimension stressed.

645 GROUP TESTING IN COUNSELING 3 credits
Study of evaluation and measurement procedures in counseling including instrument development, selection and use of aptitude tests, interest and rating scales.

647 CAREER DEVELOPMENT AND COUNSELING ACROSS THE LIFE-SPAN 3 credits
Overview of career development and choice over the life-span. Personal, family, and societal characteristics that affect choice career choice, and implementation are discussed.

648 COUNSELING AND PERSONNEL SERVICES IN HIGHER EDUCATION 3 credits
Prerequisite: 635 or permission of instructor. Counseling services as related to psychological problems of the college student.

651 TECHNIQUES OF COUNSELING 3 credits
Prerequisite: 643 or permission. Study and practice of selected counseling techniques and principles of interviewing, structuring, training, teaching and establishing a counseling relationship.

653 GROUP COUNSELING 4 credits
Prerequisites: 643 and 645, or 3750 671 and 710 (703) or permission. Emphasis is placed on providing the student with the knowledge and understanding of theory, research and techniques necessary for conducting group counseling sessions.

655 MARRIAGE AND FAMILY THERAPY: THEORY AND TECHNIQUES 3 credits
An overview of the theory and techniques of marital and family therapy, including exposure to the theoretical and idiographic contributions of significant persons in the field.

657 CONSULTANT: COUNSELING 3 credits
Prerequisite: 633, 651 or permission. Examination of consultant models within focus on process and products.

660 ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES 3 credits
Prerequisite: 633 or 635 or permission. Development of a comprehensive counselor education and counseling program.

661 SEMINAR IN GUIDANCE 2 credits
Prerequisites: 643, 647, 653 and 657. Primary models for understanding and modifying children's behavior in classrooom including technique development and review of guidance materials and programs.

663 SEMINAR IN SCHOOL COUNSELING 3 credits
Prerequisites: 633, 643, 645 and 647. Study of specific guidance techniques and materials useful to counselors working with the secondary school student, teacher and parents.

665 SEMINARY: COUNSELING PRACTICE 2 credits
Prerequisite: 635 or permission. Study of topics of concern to a student specializing in community and college counseling. Topics may differ each semester according to students needs.

667 MARRITAL THERAPY 3 credits
Prerequisite: 651. In-depth study of theories and interventions which focus on the nature and quality of marital relationships.

669 SYSTEMS THEORY IN FAMILY THERAPY 3 credits
Prerequisite: 655. An in-depth exploration of systems theory in family therapy. Major assumptions of systems theory will be examined and the indications for interventions will be explored.

671 COUNSELING CLINIC 1.3 credits
Prerequisite: Permission. Close supervised application and integration of diagnostic, counseling and consultant skills in clinical setting.

675 PRACTICUM IN COUNSELING I 5 credits
Prerequisite: 653. Supervised counseling experience with individuals and small groups.

676 PRACTICUM IN COUNSELING II 2.5 credits
Prerequisite: 675. Advanced supervised counseling experience.

685 INTERNSHIP 1.4 credits
(May be repeated for a total of six credits.) Prerequisite: 676. Field or unaided supervised experience in counseling in a work setting. Must also take either 663 or 665 during this semester of internship.

689 FIELD EXPERIENCE: MASTER'S 1.3 credits
Prerequisites: Permission of advisor and department head. Placement in a selected setting for purpose of acquiring experiences and/or demonstrating skills related to student's counseling program.

697 INDEPENDENT STUDY 1.3 credits
(May be repeated for a total of nine credits.) Prerequisite: permission of advisor and department head. Specific area of investigation determined in accordance with student needs.

698 MASTER'S PROBLEM 2.4 credits
Prerequisite: Permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in educational guidance and counseling.

699 THESIS RESEARCH 4.6 credits
Prerequisites: permission of advisor and department head. In-depth study and analysis of counseling research.

702 ADVANCED COUNSELING PRACTICUM 4 credits
(May be repeated for a total of 12 credits.) Prerequisite: Doctoral residency or permission. Examination of theories of individual age group counseling along with supervised counseling experience in an area of counseling psychology under the direction of a faculty member.

707 SUPERVISION IN COUNSELING PSYCHOLOGY I, II 3 credits each
Prerequisite: Doctoral residency or permission. Instruction and experience in counseling a graduate student in counseling psychology.

710 THEORIES OF COUNSELING AND PSYCHOTHERAPY 4 credits
Prerequisite: 3750 630 or departmental permission. Major systems of individual psychotherapy explored within a philosophy of science framework. Freudian, behaviorist, Jungian, cognitive and others. Includes research, contemporary problems and ethics.

711 VOCATIONAL BEHAVIOR 4 credits
Prerequisite: 3750 630 or departmental permission. Theories and research on vocational behavior and vocational counseling. Topics include major theories on vocational behavior, empirical research on these theories, applied work in vocational counseling and applied research.

712 PRINCIPLES AND PRACTICE OF INDIVIDUAL INTELLIGENCE TESTING 4 credits
Prerequisite: 630 or graduate standing in school psychology and instructor's permission. Historical principles and methodology of intelligence testing, supervised practice in administration, scoring and interpretation of individual intelligence tests for children and adults.

713 ADVANCED SEMINAR IN COUNSELING PSYCHOLOGY 4 credits
Prerequisite: Doctoral residency or permission. Examination of major issues in the field such as: the counselor as a professional and as a person, and issues, problems and trends in counseling.

714 OBJECTIVE PERSONALITY EVALUATION 4 credits
Prerequisite: Complishment of 3750 4000, 3750 4200/5200, and 3750 750 or 5060 645 or permission of the development of administration, application and evaluation of objective assessment procedures for personality assessment (MMPI, CPT, RBT, 16PF and selected additional inventories).

715 RESEARCH DESIGN IN COUNSELING I 3 credits
Prerequisite: Doctoral residency or permission. Study of research designs, evaluation procedures and review of current research.

716 RESEARCH DESIGN IN COUNSELING II 3 credits
Prerequisite: 704. Computer analysis of data related to counseling problem. Development of research proposal.

720 TOPICAL SEMINAR: GUIDANCE AND COUNSELING 1.3 credits
Prerequisite: Permission of instructor. A topical study with a variety of disciplinary input. Staging will be by department faculty and other professionals in counseling and related fields. A maximum of six credits may be applied to a degree.

728 ASSESSMENT METHODS AND TREATMENT ISSUES IN MARRIAGE AND FAMILY THERAPY 3 credits
Prerequisite: Doctoral standing or permission. Provides advanced counseling students with the knowledge and skills in assessment methods, techniques and instruments relevant to the practice of marriage and family therapy.

735 OUTCOME RESEARCH IN MARRIAGE AND FAMILY THERAPY 3 credits
Prerequisite: 667 5100-640, 741. This course will provide an in-depth examination of marriage and family therapy outcome research.

796 COUNSELING PSYCHOLOGY PRACTICUM 4 credits
(May be repeated for a total of 12 credits.) Advanced counseling psychology students will have supervised training with clients in a variety of settings and will focus on supervised development of applied theoretical applications.

797 INDEPENDENT READING AND/or RESEARCH IN COUNSELING PSYCHOLOGY 1.5 credits
(May be repeated) Prerequisite: Permission of instructor. Independent readings and/or research in an area of counseling psychology under the direction of a faculty member.

799 FIELD EXPERIENCE: DOCTORAL 1.6 credits
(May be repeated) Prerequisite: doctoral candidate status. Placement in selected setting for purpose of acquiring experiences and/or developing skills related to student's doctoral program.
## SPECIAL EDUCATION 5610:

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<th>Course Code</th>
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<th>Credit Hours</th>
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<tr>
<td>540</td>
<td>DEVELOPMENTAL CHARACTERISTICS OF EXCEPTIONAL INDIVIDUALS</td>
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<tr>
<td>541</td>
<td>DEVELOPMENTAL CHARACTERISTICS OF THE MENTALLY RETARDED</td>
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<td>542</td>
<td>DEVELOPMENTAL CHARACTERISTICS OF THE SPECIFIC LEARNING DISABLED</td>
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<td>DEVELOPMENTAL CHARACTERISTICS OF INTELECTUALLY GIFTED INDIVIDUALS</td>
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<td>544</td>
<td>DEVELOPMENTAL CHARACTERISTICS OF ORTHOPEDICALLY HANDICAPPED INDIVIDUALS</td>
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<td>545</td>
<td>DEVELOPMENTAL CHARACTERISTICS OF THE SEVERE BEHAVIOR HANDICAPPED</td>
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<td>550</td>
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<td>552</td>
<td>SPECIAL EDUCATION PROGRAMMING: SECONDARY/VOCATIONAL</td>
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<td>555</td>
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<td>INTERDISCIPLINARY PROGRAMMING IN SPECIAL EDUCATION</td>
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<td>COMMUNICATION AND CONSULTATION WITH PARENTS AND PROFESSIONALS</td>
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<td>EDUCATING EXCEPTIONAL CHILDREN IN THE REGULAR CLASSROOM</td>
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<tr>
<td>564</td>
<td>NEUROMOTOR ASPECTS OF PHYSICAL DISABILITIES</td>
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<tr>
<td>565</td>
<td>RECREATIONAL PROGRAMS FOR EXCEPTIONAL INDIVIDUALS</td>
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## SCHOOL PSYCHOLOGY 5620:

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<td>ADVANCED BEHAVIOR MANAGEMENT</td>
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<td>CLINICAL PRACTICUM IN SPECIAL EDUCATION</td>
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<td>579</td>
<td>SEMINAR: INVITATIONAL STUDIES IN SPECIAL EDUCATION</td>
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<td>SEMINAR: SPECIAL EDUCATION CURRICULUM PLANNING</td>
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<td>602</td>
<td>SUPERVISION OF INSTRUCTION</td>
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<td>ASSESSMENT AND EDUCATIONAL PROGRAMMING</td>
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<td>EDUCATION AND MANAGEMENT STRATEGIES FOR PARENTS OF EXCEPTIONAL INDIVIDUALS</td>
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<td>605</td>
<td>PROGRAM DEVELOPMENT AND SERVICE DELIVERY SYSTEMS</td>
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<td>RESEARCH DESIGN AND PRACTICE IN SPECIAL EDUCATION</td>
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<td>SEMINAR: ISSUES IN SPECIAL EDUCATION</td>
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<td>STUDENT TEACHING SEMINAR</td>
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<td>622</td>
<td>RESEARCH RESEARCH</td>
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</table>
EDUCATIONAL ADMINISTRATION

5700:

590, 1, 2, 3 WORKSHOP 1.3 credits each
- Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

594 EDUCATIONAL INSTITUTES 1.4 credits
- Special courses designed as service upgrading programs frequently provided with the support of national foundations.

601 PRINCIPLES OF EDUCATIONAL ADMINISTRATION 3 credits
- A perspective of educational administrator and the context in which he operates, with emphasis on his problems, tasks, roles and relationships involved and career opportunities.

602 SCHOOL BUSINESS ADMINISTRATION 2 credits
- An examination of the changing role of today's school business administrator and study of major business functions from the perspectives of principals, business administrators and superintendents.

603 ADMINISTRATION OF EDUCATIONAL PERSONNEL 2 credits
- A perspective on human resources management and a practical orientation to the major dimensions of the personnel function.

604 COMMUNITY RELATIONS 3 credits
- An analysis of the principles, practices, and materials that facilitate the adjustment and integration of schools to their internal and external milieu.

606 EVALUATION IN EDUCATIONAL ORGANIZATIONS 3 credits
- An examination of the general concepts, models, practical applications and considerations involved in the evaluation of educational organizations including program evaluation, performance appraisal, and operational evaluation.

607 SCHOOL LAW 2 credits
- An examination of the legal principles underlying education in United States as affected in specific situations, court decisions, and administrative orders.

608 SCHOOL FINANCE AND ECONOMICS 3 credits
- A study of financial operations of school systems, including taxes, other sources of revenue, expenditures, budgeting and the effects of economic factors.

609 PRINCIPLES OF CURRICULUM DEVELOPMENT 3 credits
- An overview and analysis of various major instructional programs emphasizing the basic purposes, functions, and structures necessary to shape, implement and evaluate them.

615 PRINCIPLES OF EDUCATIONAL SUPERVISION 3 credits
- Study of principles, organizations and techniques of supervision with view to improvement of instruction.

616 SUPERVISION OF STUDENT TEACHING 2 credits
- Primarily for supervising teachers in guidance of student teachers. Topics include readiness for student teaching, directing student, and steam supervision relationships, review of the supervision program, and observation.

612 ADMINISTRATION OF EDUCATIONAL FACILITIES 2 credits
- An up-to-date view of the problems, practices and the new dimensions involved in planning and management of educational facilities.

615 ADMINISTRATION OF PUPIL SERVICES 2 credits
- Overview of pupil services including analysis of the nature and development of each component.

619 COMPUTER APPLICATIONS IN EDUCATIONAL ADMINISTRATION 2 credits
- A practical course providing opportunities on experience with basic software programs, computerized instruction, and word processing for administrators and educational organizations.

620 SECONDARY SCHOOL ADMINISTRATION 3 credits
- An examination of the secondary principal's role and working relationships and an examination of the principles and strategies involved in successfully administering a secondary school.

621 ELEMENTARY SCHOOL ADMINISTRATION 3 credits
- Examination of the elementary school principalship as it relates to the development and management of the school climate most conducive to learning.

628 FIELD EXPERIENCE I: ELEMENTARY ADMINISTRATION 2 credits
- A practicum on the job administration experience in staff personnel, pupil personnel, curriculum, community relations, finance and physical facilities.

628 FIELD EXPERIENCE II: SECONDARY ADMINISTRATION 2 credits
- A practicum on the job administration experience in staff personnel, pupil personnel, curriculum, community relations, finance and physical facilities.

628 FIELD EXPERIENCE III: ADMINISTRATION 3 credits
- A practicum on the job administration experience in staff personnel, pupil personnel, curriculum, community relations, finance and physical facilities.

629 FIELD EXPERIENCE FOR SUPERVISORS 3 credits
- Practical completion of an administrative work program. Designed to help the student apply the knowledge and skills related to direct assistance, curriculum development, resource development, group work, and action research.

639 FIELD EXPERIENCE II: SECONDARY ADMINISTRATION 3 credits
- A practicum on the job administration experience in staff personnel, pupil personnel, curriculum, community relations, finance and physical facilities.

5707 INDEPENDENT STUDY 1.3 credits
- May be repeated for a total of six credits. Prerequisites: permission of advisor, and supervisor of the independent study. Area of study determined by student's needs.

5707 MASTER'S STUDY 1.4 credits
- Prerequisite: permission of advisor. In-depth study of a major research problem in education. Supervisor must be able to help the student apply the knowledge and skills related to direct assistance, supervision, curriculum development, resource development, group work, and action research.

5707 THESIS RESEARCH 4.6 credits
- Prerequisite: permission of advisor. In-depth study of a major research problem in education. Supervisor must be able to help the student apply the knowledge and skills related to direct assistance, supervision, curriculum development, resource development, group work, and action research.

5707 ADVANCED PRINCIPLES OF EDUCATIONAL ADMINISTRATION 2 credits
- A cooperative, field-based experience in a secondary school with emphasis on project performance in the administrative task areas.

5707 INDEPENDENT STUDY 1.3 credits
- May be repeated for a total of six credits. Prerequisites: permission of advisor, and supervisor of the independent study. Area of study determined by student's needs.

5707 MASTER'S STUDY 1.4 credits
- Prerequisite: permission of advisor. In-depth study of a major research problem in education. Supervisor must be able to help the student apply the knowledge and skills related to direct assistance, supervision, curriculum development, resource development, group work, and action research.

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5707 ADVANCED PRINCIPLES OF EDUCATIONAL ADMINISTRATION 2 credits
- A cooperative, field-based experience in a secondary school with emphasis on project performance in the administrative task areas.

EDUCATIONAL ADMINISTRATION

5700:

601 COGNITIVE FUNCTION MODELS FOR PERSPECTIVE EDUCATIONAL PLANNING 3 credits
- Prerequisite: permission of instructor. Consideration of cognitive development theories and their application for educational programming.

602 BEHAVIORAL ASSESSMENT 2 credits
- Prerequisite: permission of instructor. Overview of behavioral theory and its application focusing upon the role of the school psychologist as an agent of behavior change.

603 CONSULTATION STRATEGIES IN SCHOOL PSYCHOLOGY 3 credits
- Prerequisite: permission of instructor. A consideration of consultative roles in the practice of school psychology as related to consultative process and with school and agency personnel, parents and children.

610 EDUCATIONAL DIAGNOSIS FOR SCHOOL PSYCHOLOGISTS 4 credits
- Prerequisite: permission of instructor. Clinical study and application of current assessment approaches applicable in assessment of children's learning problems.

611 PRACTICUM IN SCHOOL PSYCHOLOGY 4 credits
- Prerequisite: permission of instructor. Laboratory experience in psycho-educational study of individual students who have learning problems in school. (Repeat requirements.

6301 INTERNSHIP IN SCHOOL PSYCHOLOGY, FALL/Spring 3 credits each
- Prerequisite: permission of instructor. Full-time paid work assignment under supervision of a qualified school psychologist for an academic year. Structure according to provisions of State Department of Education. Additional requirements.

640 FIELD SEMINAR I: CURRENT PROFESSIONAL ISSUES IN SCHOOL PSYCHOLOGY 3 credits
- Prerequisite: permission of instructor. Consideration of pertinent topics in practice of school psychology with emphasis upon field-based concerns of a practicing school psychologist.

641 FIELD SEMINAR II: LOW INCIDENCE/RELATED INQUIRIES 3 credits
- Prerequisite: permission of instructor. Consultation of pertinent topics in practice of school psychology with emphasis upon field-based concerns of a practicing school psychologist.

594 LANGUAGE Proficient majors, emphasis on the bilingual/multicultural classroom. The bilingual student's native language, culture, stress.

685 MULTICULTURAL EDUCATION 5630:

581 MULTICULTURAL EDUCATION IN THE UNITED STATES 3 credits
- Inquiry into the multicultural dimensions of American education. Comparisons of urban, suburban, and rural educational settings with reference to socioeconomic differences.

5872 CHARACTERS OF DIFFERENTIALLY YOUNG 3 credits
- Study of characteristics of culturally diverse youth with focus on youth in low-income areas. Emphasis on understanding and education of educators and their implications.

689 PREPARATION FOR TEACHING CULTURALLY DIFFERENT YOUTH 3 credits
- Designed to help prepare teachers to teach culturally different youth from low-income backgrounds. Through use of multimedia source materials teachers gain knowledge of the background and climate of culturally diverse learners, and role of teacher, explore techniques of discipline and classroom management, survey motivational and instructional techniques, examine, prepare and adapt variety of instructional materials for individual, small group and large group instruction.

689 PRINCIPLES OF BILINGUAL/MULTICULTURAL EDUCATION 3 credits
- An introduction to the historic, cultural, sociological bases of bilingual/multicultural education. Legislation, court decisions, program implementation included.

658 TEACHING READING AND LANGUAGE ARTS TO BILINGUAL STUDENTS 4 credits
- Prerequisite: permission of instructor. Course applies methodologies for teaching reading, language arts in the bilingual/multicultural classroom. The bilingual student's native language, culture, stress.

685 TEACHING MATHEMATICS, SOCIAL STUDIES AND SCIENCE TO BILINGUAL STUDENTS 3 credits
- Prerequisites: elementary education majors, 5220:333, 336, 332 for secondary education majors, 5320:311, 312, 311. (Science/social studies major only). Course applies methodologies for teaching mathematics, science, social studies in the bilingual/multicultural classroom. The bilingual student's native language, culture, stress.

5794 TECHNIQUES FOR TEACHING ENGLISH AS A SECOND LANGUAGE IN THE BILINGUAL CLASSROOM 4 credits
- Prerequisite: permission of instructor. Course includes teaching language skills to Limited English Proficient students in grades K, 12. Administration of language assessment tests, selection and evaluation of materials.

590 WORKSHOP: BILINGUAL/MULTICULTURAL 3 credits
- Emphasis development of teaching devices, in urban, suburban, and rural educational settings with reference to dimensions of American education. Comparisons of urban, suburban, and rural educational settings with reference to socioeconomic differences.

685 SEMINAR: EDUCATION OF THE CULTURALLY DIFFERENT 2 credits
- Survey of educational considerations for schools populated by low income culturally different youth. Focus emphasis on a variety of available for low-income families required.
705 DECISION MAKING IN EDUCATIONAL ADMINISTRATION 3 credits
Decision making is portrayed as a central function of the educational administrator with a focus on the theoretical, research and practice of decision making.

706 COLLECTIVE BARGAINING AND EMPLOYEE RELATIONS 2 credits
An overview of collective bargaining in education and a comprehensive look at the mechanics and issues involved in the bargaining process and contract administration.

707 THE SUPERINTENDENCY 3 credits
An orientation to the superintendent's role and a review of the strategies for dealing with the major functional and substantive aspects of the superintendency.

720 TOPICAL SEMINAR: EDUCATIONAL ADMINISTRATION 1-3 credits
(May be repeated) Prerequisite: permission of instructor. Topical studies in selected areas of concern to students, practicing administrators in public, private, educational institutions, organizations.

730 RESIDENCY SEMINAR 3 credits
Prerequisite: 601. Focus on recent research in administration and educational administration theory.

731 RESIDENCY SEMINAR 3 credits
Current administrative problems in educational institutions as perceived by student and practicing school administrators. Emphasis on problem management, amelioration or solution. Field visits or resource persons invited to class.

732 ORGANIZATIONAL COMMUNICATIONS AND THE SCHOOL ADMINISTRATOR 3 credits
Fundamentals in interpersonal communications. Application of these principles to roles of educational administrators. Skill development in written and spoken communications, with attention to nonverbal communications, simulation and role playing.

733 THE EDUCATIONAL ADMINISTRATOR AND PLANNED CHANGE 2 credits
Prerequisites: 605 and 704. An introduction to the theoretical and practical aspects of planning and decision making. Emphasis on the role of the educational administrator in the change process. The use of decision making models and techniques for planning and decision making.

740 THEORIES OF EDUCATIONAL SUPERVISION 3 credits
Prerequisites: 610, 5900.732 or 5300.701. Extends 5700.614, including supervisory models, staff development and the organizational environment's impact on the climate for effective supervision.

745 PRACTICUM IN EDUCATIONAL ADMINISTRATION: URBAN SETTING 2 credits
Prerequisite: completion of three-fourths of professional program courses. Analysis of uniqueness of urban setting, e.g., multicultural and pluralistic urban populations. Stress on administrator's human relations skills.

746 POLITICS, POWER AND THE SCHOOL ADMINISTRATOR 3 credits
Impacts of formal and informal community power structures and influential persons on educational planning and decision making. Administrator as an influence on the power structure of educational settings.

747 PRACTICUM: COMPETING AND COMPLEMENTARY SOCIAL SYSTEMS 3 credits
Designed to bring educational administrators into direct contact with individuals responsible for community service delivery systems, e.g., city government. Methods of integrating cooperation to provide client services.

759.5 INTERNSHIP IN EDUCATIONAL ADMINISTRATION 2 credits (each)
May be repeated for a total of six credits. Work under a practicing administrator involving experiences in optimal number of administrative tasks. Includes seminars and written work.

895 FIELD EXPERIENCE: THE SUPERINTENDENCY 2 credits
Prerequisite: permission of instructor. Directed work involving in-depth study of problems, procedures and principles of administration in institutions of higher education. Emphasis is placed on the administrative process and major administrative tasks areas.

896 FIELD EXPERIENCE IN SCHOOL PLANT PLANNING 2 credits
Prerequisites: permission of instructor. Directed field experiences. Emphasis on analysis of school plant and financial aspects of plant planning.

897 INDEPENDENT STUDY 1-3 credits
(May be repeated for a total of 12 credits). Prerequisite: permission of instructor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in secondary education.

898 RESEARCH PROJECT IN SPECIAL AREAS 1-2 credits
Prerequisite: permission of adviser. Critical and in-depth study of specific problem in educational administration.

899 DISSERTATION 1-20 credits
Prerequisite: permission of adviser. Specific research problem that requires student to apply research skills and techniques to the problem being studied.

HIGHER EDUCATION ADMINISTRATION

5900:

700 INTRODUCTORY ADMINISTRATIVE COLLOQUIUM IN HIGHER EDUCATION 1 credit
Introductory examination of issues, trends, topics and activities in institutions of higher education.

715 SEMINAR IN HIGHER EDUCATION ADMINISTRATION 3 credits
Prerequisite: 601. An in-depth study of problems, procedures and principles of administration in institutions of higher education. Emphasis is placed on the administrative process and major administrative tasks areas.

721 LAW AND HIGHER EDUCATION 3 credits
Prerequisite: permission of the instructor. Legal aspects of higher education, sources of law and authority presented; impact on, interaction with, and implications for the administration of higher education discussed.

725 SEMINAR IN HIGHER EDUCATION: STUDENT SERVICES 3 credits
Prerequisite: permission. Topics of concern to student services personnel in higher education. Topics may differ each semester depending upon specific student needs and interests.

710 HIGHER EDUCATION CURRICULUM AND PROGRAM PLANNING 3 credits
Study of strategies for implementing and monitoring the curricular change process. Broad aspects of higher education program planning shall be examined.

715 INSTRUCTIONAL STRATEGIES AND TECHNIQUES FOR THE COLLEGE INSTRUCTOR 3 credits
Selected topics in instructional theory, techniques and strategies which are appropriate in instructional planning and development of college-level courses. Orientation to reference formats is emphasized, including student achievement testing and evaluation.

745 INDEPENDENT STUDY IN HIGHER EDUCATION 1-3 credits
(May be repeated for a total of six credits). Prerequisite: permission. Selected area of independent investigation in an area of higher education as determined by adviser and student in relation to students' academic needs and career goals.

800 ADVANCED ADMINISTRATIVE COLLOQUIUM IN HIGHER EDUCATION 1 credit
May be repeated for a total of three credits. Examination of selected perspectives and topics which pose concerns to participating students.

801 INTERNSHIP IN HIGHER EDUCATION 1-3 credits
(May be repeated for a total of six credits). Prerequisites: permission, corequisite: 801. Directed work experience in the work of an institution of higher education, related to student's own program of studies and professional goals.

802 INTERNSHIP IN HIGHER EDUCATION SEMINAR 1 credit
(May be repeated for a total of three credits). Prerequisite: permission, corequisite: 801. To be taken in conjunction with internship by students of problems encountered in internship experience and to provide the opportunity to share ideas and experiences from various areas of higher education internship placements.

SPECIAL EDUCATIONAL PROGRAMS

5800:

590 WORKSHOP IN ECONOMIC EDUCATION OR IN SOCIAL STUDIES 1-3 credits
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

591 WORKSHOP IN ARITHMETIC OR IN PHYSICAL SCIENCE 1-3 credits
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

592 WORKSHOP IN READING 1-3 credits
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

593 WORKSHOP ON EXCEPTIONAL CHILDREN 1-3 credits
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

594 INTERNATIONAL STUDY 3.6 credits
On-site study of education in foreign countries, usually by concentrating on the study of institutions in one restricted geographical area.
## ACCOUNTANCY

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<td>530</td>
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<td>Business Systems with Processing Applications</td>
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### Finance

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### Notes
- Some courses may have prerequisites that are not listed here.
- Course credits are subject to change and should be confirmed with the current academic year's catalog.
653 MANAGEMENT OF DEPOSITORY FINANCIAL INSTITUTIONS 3 credits
Prerequisites: 602 and 6500:602. Policy determination, administrative decision making in banks, savings and loans using computer simulation games.

645 INVESTMENT ANALYSIS 3 credits
Prerequisite: 602 and 6500:602. Study of the economic and market forces that affect security prices. Techniques of analysis used in evaluating limited income and equity securities.

647 OPTIONS, FUTURES AND SPECULATIVE MARKETS 3 credits
Prerequisites: 645, 6500:601. A study of the applications and practice in options, futures and other speculative markets.

650 PORTFOLIO MANAGEMENT 3 credits
Prerequisite: 645 or permission of instructor. Advanced techniques used by sophisticated individuals, professionals and large portfolios.

650 ADMINISTERING COSTS AND PRICES 3 credits
Prerequisite: 3250:660 and 6500:601. Provides an understanding of managerial economics. Short- and long-run decisions of firm analyzed. Analysis includes impact of costs and prices on business profitablility.

655 GOVERNMENT AND BUSINESS 3 credits
Prerequisite: 3250:660 and 6500:600. Public policy with regard to business institutions and individuals is examined from the legal, ethical, political framework.

674 FINANCIAL MANAGEMENT AND POLICY 3 credits
Prerequisites: 602 and 6520:622. Working capital management, controlling inventory, investments, administering costs and funds, managing investment in plant and equipment, administering business income and forecasting for financial management.

676 MANAGEMENT OF FINANCIAL STRUCTURE 3 credits
Prerequisite: 674. Emphasis on determination of volume and composition of sources of funds. Primary attention directs at cost to capital for specific sources of financing.

678 CAPITAL BUDGETING 3 credits
Prerequisite: 674. Attempt to integrate various theories of capital budgeting into comprehensive conceptual scheme. Theoretical concepts and practical applications blended for better understanding of capital problems.

681 INTERNATIONAL BUSINESS FINANCE 3 credits
Prerequisite: 602 or equivalent. Financial policies and practices of companies involved in multinational operations. Considers management of working capital and permanent assets, return on investment and capital budgeting for the global firm.

690 SELECTED TOPICS IN FINANCE 3 credits
(May be repeated for a total of six credits) Prerequisite: 674. Provides study of contemporary issues and areas not covered in current finance courses.

691 INTERNATIONAL MARKETS AND INVESTMENTS 3 credits
Prerequisites: 481681 and 6500:601. A study of international financial markets with an emphasis on international investments and rise in a rapidly changing global economy.

692 COLLOQUIUM IN BUSINESS 3 credits
Prerequisite: permission of graduate director. Study of business administration through a seminar of several lecturers in business research and practice. A broad range of topics in business research and administration are discussed by guest lecturers.

697 INDEPENDENT STUDY IN FINANCE 1-3 credits
May be repeated for a total of three credits. Focus on special topics of study and research in finance on an independent basis.

698 INDEPENDENT STUDY: BUSINESS LAW 1-3 credits
Focus on special topics of study and research in the legal aspects of business administration.

699 SEMINAR IN FINANCE 3 credits
(Must be repeated for a total of six credits) Prerequisites: 674 and a total of 15 Phase II graduate credits. Program of independent research in finance area of student's choice, requiring submission of a finished research report.

508 ENTREPRENEURSHIP 3 credits
Prerequisites: upper-class or graduate standing and 301 or 600 or equivalent. Examine the behavior and environment for entrepreneurship. Focuses on classic and contemporary entrepreneurs and the importance of personal values and strategies. Case studies. Field projects.

510 SELECTED TOPICS IN ENTREPRENEURSHIP 1-3 credits
Prerequisites: upper-class or graduate standing and 301 or 600 or equivalent. Facilitates comparative international study of entrepreneurship. Introduction of entrepreneurship to large organizations, or application of student's entrepreneurial skills. Six hour limit.

512 DEVELOPMENT OF MANAGEMENT THOUGHT 3 credits
Prerequisites: upper-class or graduate standing and 301 or 600 or equivalent. Review of development of managerial theories from 5000 B.C. to present with consideration of their application to present organizational settings.

555 MANAGEMENT OF ARBITRATION: COMMERCIAL, INDUSTRIAL, AND HUMAN RESOURCES 3 credits
Prerequisites: upper-class or graduate standing and 301 or 600 or equivalent. Arbitration procedures. Graduate requirement: research paper.

571 MANAGEMENT PROBLEMS 3 credits
(Student who has earned credit in 471 is ineligible to register for or earn credit in 472, 473.) Prerequisites: 332 or 342, 442 and 443. Analyzes modern management principles, practices, theory to an actual problem in industry.

580 INTRODUCTION TO HEALTH-CARE MANAGEMENT 3 credits
Prerequisites: upper-class or graduate standing. Students who are required to take 301 or 600 have completed 301 or 600 or equivalent are ineligible to take this course for credit. Introductory course for health professionals providing in-depth study of management and principles and concepts as related to particular health-care organizations and health-care delivery systems. Topics covered include: (a) physical resource management, (b) human resource management including communication, supervision, communication practice, group dynamics with emphasis on managing health-care professionals and resources of health-care organization, and (c) principles and techniques of decision making, planning, organizing and controlling in health-care setting. For those registered for graduate credit, a major research paper is required.

582 HEALTH SERVICES OPERATIONS MANAGEMENT 3 credits
Prerequisites: upper-class standing and 301 and 480 and 322 and 323 or equivalents or graduate standing and 360 or 600 or equivalent and 603 or 600 or equivalents or permission of instructor. Students who have completed 508 or 601 or 600 or equivalents or permission of instructor are ineligible to take this course for credit. Application of production and operations management concepts and techniques in health services organizations.

583 TOPICS IN HEALTH SERVICES ADMINISTRATION 1-3 credits
Prerequisite: permission of instructor. Special topics in health services administration (e.g., management) focusing on historical and/or contemporary managerial organizational and/or administrative topics. Health-care organizations and health-care systems. Specific topics may be repeated for a maximum of six credits. For those registered for graduate credit, a major research paper is required.

600 RESEARCH AND PREPARATION METHODS AND CONCEPTS 3 credits
Quantitative, qualitative, systems approach to introduction process management, emphasizing production function. Designed for student who has not previously had courses in business.

601 QUANTITATIVE DECISION MAKING 3 credits
Prerequisites: 600 and equivalent. An introduction to quantitative techniques to business decision making. Topics covered include probability estimation and hypothesis testing, simple and multiple regression and correlation analysis, analysis of variance and nonparametric statistics.

602 SPECIFIC TECHNIQUES FOR MANAGEMENT 3 credits
Introduction to the use of integrated spreadsheet software, database management software and the analysis and design of management information systems.

640 MANAGEMENT INFORMATION SYSTEMS 3 credits
Prerequisite: 602 or equivalent. An introduction to systems design, management information systems, data base management, their relationships to problem solving and the organization. Knowledge taken in lieu of 600:655.

641 APPLIED DATA MANAGEMENT 3 credits
Prerequisite: 602. An in-depth examination of the treatment of data, from collection through organization and storage to data extraction and manipulation, including uses of online databases.

642 SYSTEMS SIMULATION 3 credits
Prerequisites: 601, 602. Manufacturing or service sector systems are analyzed and modeled on a variety of experimental designs, statistical significance of results, model verification and validation will be discussed.

643 EXPERT-SYSTEMS IN BUSINESS 3 credits
Prerequisite: 641. Introduction to artificial intelligence in general and expert systems. Course provides hands-on experience in designing systems for business applications using engineering tools software.

644 MANAGERIAL DECISION SUPPORT SYSTEMS 3 credits
Prerequisites: 6500:641. Examines decision support systems as an analytical tool in the business environment. Business problems are analyzed and a DSS is designed and implemented.

645 ADVANCED MANAGEMENT INFORMATION SYSTEMS 3 credits
A case-oriented course which examines the problems of managing the Corporate Information Systems activity as required by users, general management and IS management. Cannot be used for credit in lieu of 6200:650.

651 PRODUCTIVITY AND QUALITY OF WORKLIFE ISSUES 3 credits
Prerequisite: 662 or permission of instructor. A comprehensive study of innovations in organizations designed to increase human satisfaction and productivity through changes in human management.

652 ORGANIZATIONAL BEHAVIOR 3 credits
Prerequisite: 600 or equivalent. Study of factors which influence human behavior in business organizations. Emphasis on theories of individual and group behavior, motivation, leadership and communication in organizations.

653 ORGANIZATIONAL THEORY 3 credits
Prerequisite: 652. Leadership styles in organized institutional setting, influence of these styles on individual, group behavior, organizational goal attainment. Analysis of leader's role in administrative process.

654 INDUSTRIAL RELATIONS 3 credits
Prerequisite: 652. Study of rights and duties of management in dealing with labor and economic consequences of union and management policies and practices.

655 COMPENSATION ADMINISTRATION AND EMPLOYEE BENEFITS 3 credits
Prerequisite: 600. A comprehensive approach toward the identification and resolution of pay equity problems facing business organizations in their internal and external labor markets.

656 MANAGEMENT OF INTERNATIONAL OPERATIONS 3 credits
Prerequisite: 652 or equivalent. Deals with international environment of international business; particular emphasis on international business systems which hold the system together and which individual business people cannot materially alter.

657 THE LEADERSHIP ROLE IN ORGANIZATIONS 3 credits
Prerequisite: 652. Analysis and development of leadership theory and thought. Identification of leaders in both formal and informal organizations. Training and development methods for leaders evaluated. Individual and small group field study assignments.

658 STRATEGIC HUMAN RESOURCES MANAGEMENT 3 credits
Prerequisite: 600 or 652 or 654. The formulation, design and implementation of strategic resource and development of human resource strategies for business organizations. Emphasis is on competitive cost advantages and productivity gains.

659 OPERATIONS AND STRATEGIC PLANNING 3 credits
Prerequisites: 6500:660, 601, 602 or equivalents. Long-range and short-term planning in organizations and linkage between the two. Planning models are presented of business and nonprofit operations.

660 EMPLOYMENT DISCRIMINATION 3 credits
Prerequisite: 652 or equivalent. An overview of discrimination procedures and prohibitions, affirmative action requirements, employee and employer disclosure and their application in human resources management.

662 QUANTITATIVE METHODS — OPERATIONS MANAGEMENT 3 credits
Prerequisite: 601 or equivalent. An overview of discrimination procedures and prohibitions, affirmative action requirements, employee and employer disclosure and their application in human resources management.

663 APPLIED STATISTICAL METHODS (I) 3 credits
Prerequisite: 6500:601 or equivalent. Designs for survey sampling and estimation. Simple linear regression analysis, including inference, and the model and point confidence procedure.

664 APPLIED STATISTICAL METHODS (II) 3 credits
Prerequisite: 663. Applications of multiple regression including determining "best" set of independent variables, correlation models, analysis of variance models including multivariate models. Experimental designs including randomized block and Latin square designs.
67 ADVANCED OPERATIONS RESEARCH 3 credits
Prerequisite: 662. Designed to present in more depth and breadth certain topics surveyed in 662, with emphasis on application of these techniques to student's own business situations.

68 MANUFACTURING AND OPERATIONS ANALYSIS 3 credits
Prerequisite: 601 or permission of instructor. Introduction to techniques for improving productivity and quality, including statistical process control (SPC), material requirements planning (MRP), just-in-time (JIT) inventory control, and management of the program.

69 ADVANCED QUALITY AND PRODUCTIVITY TECHNIQUES 3 credits
Prerequisite: 673. Examines advanced techniques in statistical process control, experimental design, determination of customer quality needs/customer service, product reliability/ liability and performance systems.

70 MATERIALS MANAGEMENT 3 credits
Prerequisite: 600. Surveys functions and explores opportunities for profit improvement and cost reduction in those functions integrated under the organizational concept of materials management.

71 MANAGEMENT OF PRODUCTION AND OPERATIONS 3 credits
Prerequisites: 600, 602, 662. Surveys the management of resources required to transform inputs into products or services. Addresses issues related to services, materials, people and equipment utilized for production.

72 PROJECT MANAGEMENT 3 credits
Provides working knowledge of tools and methods available to project managers including computerized analysis of network models to aid in the planning and control functions.

73 HEALTH SERVICES SYSTEMS MANAGEMENT 3 credits
Prerequisite: 580 or 600 or equivalent or permission of instructor. Study of health services organizations, comparative delivery systems, the roles of third party payers and government policy in health care. Seminar format: major research paper required.

74 HEALTH SERVICES RESEARCH PROJECT 3 credits
Prerequisites: 590 or 600 or equivalent  and 582 and co-requisite 683 or permission of instructor. An in-depth study of contemporary issues in health services policy and administration, including examination of macro-societal and micro-organizational issues. Major paper required.

75 INDEPENDENT STUDY IN HEALTH SERVICES ADMINISTRATION 1-3 credits
(May be repeated for a total of three credits) Prerequisites: 580 or 600 or equivalent and 683 or permission of instructor. Independent study and research of a special topic of interest in health services administration (e.g., management), chosen by the student in consultation with and under the supervision of the instructor.

76 SELECTED TOPICS IN MANAGEMENT 3 credits
(May be repeated for a total of six credits) Prerequisite: 652. Selected topics in historical, contemporary and/or operational and functional areas of management.

77 BUSINESS STRATEGY AND POLICY: DOMESTIC AND INTERNATIONAL 3 credits
Prerequisite: to be final course in M.B.A. program. A case-oriented course which focuses on integration of theoretical and practical knowledge acquired in core business courses. Students analyze, evaluate, formulate organization objectives and strategies within domestic and international environmental contexts.

78 INDEPENDENT STUDY IN MANAGEMENT 1-3 credits
(May be repeated for a total of three credits) Focus on special topics of study and research in management on an independent basis.

79 SEMINAR IN MANAGEMENT 3 credits
(May be repeated for a total of six credits) Prerequisite: a total of 15 Phase II graduate credits. Capstone course permits M.B.A. candidate to undertake a carefully delineated program of independent study and reading which leads to a finished major paper.

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INTERNATIONAL BUSINESS 6800:

605 INTERNATIONAL BUSINESS ENVIRONMENTS 3 credits
An introductory course designed to develop a broad understanding of global business environments.

610 INTERNATIONAL MARKETING POLICIES 3 credits
Prerequisites: 660 and 690. An advanced course designed to develop an in-depth understanding of global businesses, their functions, structures, and strategic operations.

695 MULTINATIONAL CORPORATIONS 3 credits
Prerequisite: 650. An advanced course designed to develop an in-depth understanding of multinational organizations and international markets. A planning framework is emphasized.

690 SEMINAR IN INTERNATIONAL BUSINESS 3 credits
Prerequisites: 605 and a total of 15 Phase II graduate credits. An advanced course covering several major issues in international business.

697 INDEPENDENT STUDY IN INTERNATIONAL BUSINESS 1-3 credits
(May be repeated for a total of three credits) Prerequisites: Graduate standing and permission of instructor. Focus on special topics of study and research in international business on an independent basis.
ART 7100:

500 ART IN THE UNITED STATES BEFORE WORLD WAR II 3 credits
Prequisite: 101 or permission of instructor. Comprehensive development of art in the United States from early evidences to approximate World War II.

505 HISTORY OF ART SYMPOSIUM 1-3 credits
(May be repeated for credit when a different subject is indicated). Prerequisite: one art history course beyond 101 or permission of instructor. Lecture, individual research and evaluation, group discussion related to a specific time period or to an artistic problem.

590 WORKSHOP IN ART 1-4 credits
(May be repeated for credit when a different subject or level of investigation is indicated) to maximum of eight credits. 590 to maximum of 12 credits.) Prerequisite: advanced standing in art or permission of instructor. Group investigation of a particular phase of art not offered in other courses in curriculum.

591 ARCHITECTURAL PRESENTATIONS I 3 credits
Prerequisites: Junior level or permission. Studio practice in architectural design and presentation methods in residential and commercial interiors.

592 ARCHITECTURAL PRESENTATIONS II 3 credits
Prerequisites: 491/591. Continuation of concepts covered in Architectural Presentations I with additional work in color rendering techniques. Emphasis on a variety of rendering mediums.

597 INDEPENDENT STUDIES 1-3 credits
(May be repeated) Prerequisites for art majors: advanced standing in area chosen and permission of instructor. Prerequisite for non-art majors: permission of instructor. Investigation in depth of aesthetic and technical problems within a studio selected area of specialization. Student must present in writing a proposed study plan and time schedule for instructor approval.

598 SPECIAL PROBLEMS IN HISTORY OF ART 1-3 credits
(May be repeated for credit when a different subject or level of investigation is indicated) Prerequisite: 201 credits. Prerequisite: 201 credits in art history and permission of instructor and School Director. Individual research in art history centered around limited topic, such as specific time period, history of specific of art, single artist or movement in art history. No more than 10 credits will be counted toward major.

HOME ECONOMICS AND FAMILY ECOLOGY 7400:

501 FAMILY-LIFE PATTERNS IN THE ECONOMICALLY DEPRIVED HOME 2 credits
Study of family life orientation and life-style patterns among economically deprived with emphasis on impact or socioeconomic and psychological deprivation on family members throughout family life span.

503 ADVANCED FOOD PREPARATION 3 credits
Prerequisite: 141 or 245 or permission of instructor. Study of advanced techniques of food preparation. Introduction to and interpretation of classic and foreign cuisines. Emphasis on individualized experience, skill development and evaluation of procedures and results.

504 ADOLESCENCE IN THE FAMILY CONTEXT 2 credits
Prerequisite: 201 or 265 or permission of instructor. The influences of adolescent behavior on the family and the influence of the family environment on adolescent development.

506 FAMILY FINANCIAL MANAGEMENT 3 credits
Analysis of the family as a financial unit including financial problems and their resolution, decision-making patterns and financial practices behavior. Cases, exercises, problems and computer analysis.

518 HISTORY OF FURNISHINGS & INTERIORS I 3 credits
Study of furnishings and interiors from antiquity through the eighteenth century, with emphasis on the social-cultural influences shaping their development.

519 HISTORY OF FURNISHINGS & INTERIORS II 2 credits
Study of nineteenth and twentieth century furnishings and interiors, with emphasis on the social-cultural influences shaping their development.

520 EXPERIMENTAL FOODS 3 credits

522 PROFESSIONAL IMAGE ANALYSIS 3 credits
Prerequisites: Senior status. Comparison of theories associated with projecting and maximizing an appropriate professional image consistent with career goals and objectives.

523 NUTRITION IN THE LIFE CYCLE 3 credits
Prerequisite: 316 or permission of instructor. Study of the physiological basis for nutritional requirements; relating factors which affect growth, development, maturation and nutritional status from conception through the elderly years.

523 INTEGRAL TEXTILES AND PRODUCT ANALYSIS 3 credits
Prerequisite: 158. Examination, evaluation, and analysis of products for interiors with emphasis on trade classifications, selection criteria, economic factors, and legislative concerns.

524 RESIDENTIAL DESIGN 3 credits
Prerequisite: 310, 7100-282. A study of interior design as applied to residential aspects with emphasis on conceptual, analytical, and graphic skills.

534 COMMERCIAL DESIGN 3 credits
Prerequisite: 310, 7100-282. A study of interior design as applied to commercial aspects with emphasis on conceptual, analytical, and graphic skills.

535 PRINCIPLES AND PRACTICES OF INTERIOR DESIGN 3 credits
Prerequisite: 158 and 433. Study of the business aspect of interior design; business procedures, manufacturing of home furnishings and principles and psychology of marketing home furnishings.

536 TEXTILE CONSERVATION 3 credits
Prerequisites: 121, 123, 317. Principles and practices of textile conservation with emphasis on procedures appropriate for collectors and small historical agencies.

538 HISTORICAL SEWING 3 credits
Prerequisites: 121, 123, 124, 417. Historical sewing techniques and business aspects of historical sewing. Emphasis on historical techniques and business aspects of historical sewing.

540 FAMILY CLOTHING AND HOMES 3 credits
Study of family stress and how it affects apparel and home furnishings. Emphasis on degree of disorganization, coping and recovery. Includes theory, research and application dimensions.

541 FAMILY DRESS AND ENVIRONMENT 3 credits
Prerequisite: 211 or permission of instructor. Introduction to problems and values. Emphasis is on the role of values in intimate relationships and the realistic textures and style of the family as a social institution.

542 PUBLIC POLICY AND AMERICAN FAMILIES 3 credits
How legislation in such areas as housing, clothing, consumer affairs, family formation and dissolution, resource conservation, child development and health care affects and, in some cases, determines the nature, structure and quality of the family as a social institution.

545 CULTURE, ETHNICITY AND THE FAMILY 3 credits
Study of the role of culture and ethnicity in adaptation of the family system to environment. Program applications considered.

546 CHILDREN OF WAR 3 credits
Prerequisites: 481 or CUP students only. Major social institution; introduces procedures and policies for working with disturbance of the family and the child resulting from war. Includes therapy, management, physical and biological effects of processing and storing, on-site tours of processing plants.

548 COMMUNITY NUTRITION I — LECTURE 3 credits
Corequisite: 481 for CUP students only. Major food and nutrition related problems in the community. Emphasis on community assessment, program implementation and evaluation, and rationales for nutrition services.

550 COMMUNITY NUTRITION I — CLINICAL 1 credit
Prerequisites: 481 or CUP students only. 300, 426 corequisite: 480/550. Field placement in area agencies offering nutrition services. Study of the agency’s goals, organization, and philosophy of nutritional care.

552 COMMUNITY NUTRITION II — LECTURE 3 credits
Prerequisite: 550. Activities engaged in by community nutritionist. Emphasis on controversies, cultural differences, educational approaches, grantmanship, marketing, and working with the media.

553 COMMUNITY NUTRITION II — CLINICAL 1 credit
Prerequisite: 550. Corequisite: 481 or CUP students only. 480/550. Field placement in area agencies offering nutrition services. Study of the agency’s goals, organization, and philosophy of nutritional care.

554 ORIENTATION TO THE HOSPITAL SETTING 2 credits
Prerequisite: 255. Competent course or permission of instructor. Focuses on the major social institution, introduces procedures and functions of the hospital: roles played by various hospital personnel plus curative knowledge of medical terminology, common childhood diseases, illnesses and injuries.

555 NUTRITION IN ANCOLOMY 3 credits
Prerequisite: 550. Corequisite: 481 or CUP students only. 480/550. Field placement in area agencies offering nutrition services. Study of the agency’s goals, organization, and philosophy of nutritional care.

556 NUTRITION IN ANCOLOMY 3 credits
Prerequisite: 550. Corequisite: 481 or CUP students only. 480/550. Field placement in area agencies offering nutrition services. Study of the agency’s goals, organization, and philosophy of nutritional care.

558 PRACTICUM IN DIETITICS 1-3 credits
Prerequisite: approval of advisor/instructor. Practical experience in application of the principles of nutrition.

560 WORKSHOP IN HOME ECONOMICS AND FAMILY ECOLOGY 1-3 credits
Prerequisite: at least junior standing. Investigation in current issue or topic in selected areas of home economics and family ecology. May be on-off-campus study tour or an on-campus full-time group meeting.
102 7400: Home Economics and Family Ecology

596 PARENTING SKILLS
Prerequisite: 265, comparable course or permission of instructor. Reviews and analyzes various child-rearing techniques with major emphasis on practical application.

601 FAMILY IN TRANSITION
Overview of family in historical perspective. Effects of social change upon family and emerging familial patterns. Review of theory, research and educational strategies.

602 FAMILY IN LIFE-SPAN PERSPECTIVE
Study of individual and family development across life span. Emphasis on management of available resources, adjustment patterns and interpersonal competence. Implications for education, theory, research and social policy.

603 FAMILY MIDDLE AND LATER YEARS
Study of family problems and issues between middle and later years of life with emphasis on psychological and sociological changes and economic and social adequacy. Research and trends in gerontology.

604 ORIENTATION TO GRADUATE STUDIES IN HOME ECONOMICS
Introduction to the concepts and processes necessary for graduate study in the interdisciplinary field of Home Economics and Family Ecology.

605 DEVELOPMENTAL PARENT-CHILD INTERACTIONS
Prerequisite: 265 or equivalent. Study of reciprocal interactions between and among parent and child from birth to adulthood. Co-research cross-cultural studies, historical and sociocultural influences and varying family characteristics and structures.

607 FAMILY DYNAMICS
Development of techniques in home economics programs utilizing role play, exchange and systems theory, as understood through the study of the family across the life cycle.

610 CHILD DEVELOPMENT THEORIES
A comparative study of developmental theories of the child within the family context. Application of the theories to child care assessment.

615 INFANT AND CHILD NUTRITION
Prerequisite: 102 or equivalent. Emphasis on current trends in physiology of infant and young child in relation to nutritional and feeding practices.

624 ADVANCED HUMAN NUTRITION
Prerequisite: 316 or equivalent. An in-depth study of human nutrition emphasizing metabolism, physiological functions and interrelationships of carbohydrates, protein and lipids and the determination of energy requirements.

625 ADVANCED HUMAN NUTRITION II
Prerequisite: 615 or equivalent. In-depth study of human nutrition with an emphasis on the utilization, physiological functions and interrelationships of vitamins and minerals.

631 PROBLEMS IN DESIGN
May be repeated, but no more than 6 credits will apply to M.A. Prerequisite: written approval by faculty advisor. Individual study of a specific design problem within the students area of clothing, textiles and interior specialization.

632 AMERICAN COSTUME AND TEXTILE HERITAGE
Prerequisite: 317. Analyzes American costumes and textiles with emphasis on the cultural events that shaped their unique development.

640 NUTRITION IN DIMINISHED HEALTH
Prerequisite: 265 or permission of instructor. Examination of concepts related to nutritional interactions associated with selected pathological and/or living conditions throughout the life cycle. Emphasis on current literature.

651 FAMILY AND CONSUMER LAW
Study of laws which control and protect individuals within family. Emphasis on current trends, legal rulings. Course taught by attorney.

652 PROFESSIONAL PRESENTATION IN HOME ECONOMICS
Develops effective home economics professional presentations. Emphasis on visual displays, demonstrations, public relations materials, user manuals, conference management, portfolio development, and learning styles.

656 DEVELOPMENT IN INFANCY AND EARLY CHILDHOOD
Prerequisite: permission of instructor. Study in depth of the four bowed string instruments, their teaching and class relationship. Despite obvious difference in physical application of cellos and violins, violins, methods of bowing, sound production and caring are closely related. Application of the principles to solo, chamber and orchestral playing.

657 GUITAR PEDAGOGY
Prerequisite: permission of instructor. A systematic analysis of preexisting guitar nomenclature. Sound production methodology, method books and special problems in teaching situations.

658 GUITAR ARRANGING
Prerequisite: permission of instructor. After comprehensive analysis of selected examples, students make original guitar arrangements of various written for other solo instruments and ensembles.

659 HISTORY AND LITERATURE OF THE GUITAR AND LUTE
Prerequisite: permission of instructor. Study of techniques of the four bowed string instruments, their teaching and class relationship. Despite obvious difference in physical application of cellos and violins, violins, methods of bowing, sound production and caring are closely related. Application of the principles to solo, chamber and orchestral playing.

660 WORKSHOP IN MUSIC
1-3 credits
Prerequisite: permission of instructor. Investigation of topics not offered in regular curriculum. Graduate student must fulfill additional requirements.

681 CHORAL LITERATURE
Prerequisite: permission of instructor. Study in depth of style, structure, technical demands, many of setting texts, and special performance problems found in masterworks by great composers of various periods.

684 DEVELOPMENT OF OPERA
Prerequisite: permission of instructor. Growth and development of opera from 1600 to present. Includes detailed examination of stylistic and structural changes as well as performance practices.

688 SEMINAR IN MUSIC OF THE WESTERN HEMISPHERE
2 credits
Prerequisite: permission of instructor. Designed to develop understanding of peoples and cultures of Western Hemisphere through study of music of each major area. Research and writing in areas of special interest.

690 PEDAGOGY OF JAZZ IMPROVISATION
3 credits
A detailed study of the methods and materials as they relate to the teaching of jazz improvisation.

691 FOUNDATIONS AND PRINCIPLES OF MUSIC EDUCATION
Prerequisite: permission of instructor. Study of basic philosophical, historical, sociological and psychology concepts around which public school music programs function.

692 PRACTICES AND TRENDS IN MUSIC EDUCATION
Prerequisite: permission of instructor. In-depth exploration of innovations practices and trends in music education. Findings of research and practice related to prevailing situations in public/private school programs.

693 INSTRUCTIONAL PROGRAMMING IN MUSIC FOR THE MICROCOMPUTER
Prerequisite: 453/553 Introduction to programming languages for the microcomputer including BASIC, Pascal and Assembler. Programming will be directed towards music educational concepts.

694 MEASUREMENT AND EVALUATION IN MUSIC
Prerequisite: permission of instructor. Detailed study of compositional techniques and stylistic trends observed in Western music from period of Gregorian chant through music of Palestrina, Gesualdo and others of the Renaissance

695 MUSICAL STYLES AND ANALYSIS I
Prerequisite: permission of instructor. Detailed study of compositional techniques and stylistic trends observed in Western music from period of late Beethoven through Marier and Strauss.
618 MUSICAL STYLES AND ANALYSIS IV  2 credits
Prerequisite: permission of instrucer. Detailed study of compositional techniques and stylistic traits observed in Western music in 20th Century.

619 THEORY AND PEDAGOGY  2 credits
Prerequisite: permission of instructor. Methodology of theory teaching in 20th Century. Focus on different philosophies of approach to theory instruction as noted from texts on subject. Recent innovations and techniques of teaching, such as programmed material, computer assisted instruction studied.

620 COMPUTER ANALYSIS IN MUSIC  2 credits
Prerequisite: A minimum of one course in the 615-618 series. A systematic study of analytic techniques in music which make use of the computer. Hands-on experiences with music encoding, card manipulation, interactive, systems and program writing as related to music analysis

621 MUSIC HISTORY SURVEY: MIDDLE AGES AND RENAISSANCE  2 credits
Prerequisite: permission of instructor. Historical and stylistic analysis of all aspects of music of Middle Ages and Renaissance. Research and writing in areas of special interest.

622 MUSIC HISTORY SURVEY: BAROQUE  2 credits
Prerequisite: permission of instructor. Historical and stylistic analysis of Baroque music; study in depth of specific examples, from recordings, scores and live performances; continuation and synthesis of approaches normal to study of music history; selected readings related to each student's particular fields of interest; project papers.

623 MUSIC HISTORY SURVEY: CLASSIC AND ROMANTIC  2 credits
Prerequisite: permission of instructor. Historical and stylistic analysis of classic and romantic music; study in depth of specific examples, through recordings, scores and live performances, continuation and synthesis of approaches normal to study of music history; selected readings related to each student's particular fields of interest; project papers.

624 MUSIC HISTORY SURVEY: 20TH CENTURY  2 credits
Prerequisite: permission of instructor. Historical and stylistic analysis of 20th Century music, study in depth of specific examples from scores, recordings and live performances; continuation and synthesis of approaches normal to study of music history; selected readings and project papers.

625 GRADUATE BIBLIOGRAPHY AND RESEARCH IN MUSIC  2 credits
Prerequisite: undergraduate music degree or equivalent. Examination of all types of published musical materials: research methods for thesis preparation and professional publishing; field trips to music libraries, computerized music research.

630 TEACHING AND LITERATURE: BRASS INSTRUMENTS  2 credits
Prerequisite: permission of instructor. Research in current trends and issues in brass teaching techniques and appropriate literature

631 TEACHING AND LITERATURE: WOODWIND INSTRUMENTS  2 credits
Prerequisite: permission of instructor. To delineate and clarify contemporary techniques of woodwind pedagogy and to develop a comprehensive understanding of woodwind literature

633 TEACHING AND LITERATURE: PIANO AND HARPSCORCH  2 credits
Prerequisite: permission of instructor. The examination of piano and harpsichord literature in historically chronological order with special attention to its pedagogical value and stylistic differences.

634 TEACHING AND LITERATURE: STRING INSTRUMENTS  2 credits
Prerequisite: permission of instructor. Research in current trends and issues in string teaching techniques and appropriate literature.

640, 641, 642 ADVANCED ACCOMPANYING I, II, III, IV  1 credit each
Prerequisite: Graduate standing in keyboard performance and/or accompanying the permission of the instructor. An in-depth study of principles of accompanying, sightreading, standard repertoire, and transposition.

647 MASTER'S CHAMBER RECITAL  1 credit
Prerequisite: permission of instructor. Composition student will present a recital of chamber music compositions (at least one-half hour in length) written while in residence at the University. Student will actively organize and coordinate the recital and will also participate either as performer or conductor.

657 STUDENT RECITAL  0 credits
Required of all music majors. Forum for student and faculty providing lectures, recitals, and opportunity to practice skills for successful music performance.

665 VOCAL PEDAGOGY  3 credits
Prerequisite: permission. In-depth study of subjects dealing with teaching of voice: physiology of vocal instrument, principles governing vocal production and application of vocal pedagogy.

666 ADVANCED SONG LITERATURE  3 credits
Prerequisite: permission of instructor. Systematic study of song literature presented chronologically according to national schools of composition. Stylistic compositional characteristics and representative works of all major composers of solo song literature.

667 ADVANCED PROBLEMS IN MUSIC  1-3 credits
(May be repeated for a total of eight credits) Prerequisite: permission of graduate advisor. Studies or research projects related to problems in music.

668 GRADUATE RECITAL  2 credits
Prerequisite: permission of graduate advisor. Recital prepared and presented as a requirement for any appropriate degree option. If recital document is to be written in conjunction with the recital, add 669 for the additional credit.

669 THERESCH RESEARCH/RECITAL DOCUMENT  4-6 credits
Prerequisite: permission of graduate advisor. Research related to the completion of the master's thesis or recital document written in conjunction with the graduate recital, depending on the student's degree option.

670 MUSICAL ORGANIZATIONS  7510:

521 GUITAR CHAMBER MUSIC  1 credit
Prerequisite: Open to all upper class instrumentalists and vocalists. Guitarists must have taken Guitar Ensemble, 7510.116. Study, coaching, and performance of major works for guitar with other instruments or voice. Major conducted ensemble for guitar majors.

522 AYRON SYMPHONY CHORUS  1 credit
Open to University and community members by audition. Prospective members should contact School of Music two weeks before semester. Study, coaching, and performance of major works for chorus. Performs with Akron Symphony Orchestra. Membership limited to 60.

523 UNIVERSITY SYMPHONY ORCHESTRA  1 credit
Membership by audition. Organization devoted to study of orchestral literature. Full-length concerts as well as special University appearances. Major conducted ensemble.

604 UNIVERSITY BAND  1 credit
Includes Symphony Band/Wind Ensemble and Concert Band as major conducted ensembles. Marching Band (fall semester only) and Variety Band. Membership in all bands open to University student by audition with director of bands.

605 VOCAL CHAMBER ENSEMBLE  1 credit
Membership open to those enrolled in applied voice study. Coaching and rehearsal of solo and ensemble literature for voices from operatic, oratorio and leader repertoires.

606 BRASS ENSEMBLE  1 credit
Membership by audition. Study and performance of brass ensemble from all periods of music history. Frequent public concerts. For advanced brass players.

607 STRING ENSEMBLE  1 credit
Membership by audition. In-depth study and performance of chamber music literature with special emphasis on string quartet and piano trio.

608 OPERA WORKSHOP  1 credit
Membership by audition. Musical and dramatic group study of excerpts from operatic repertoire. Includes annual production of standard opera and/or contemporary chamber work with staging, costumes and scenery.

609 PERCUSSION ENSEMBLE  1 credit
Membership by audition. Study and performance of literature for various percussion groups; develops skill in ensemble performance.

610 WOODWIND ENSEMBLE  1 credit
Membership by audition. Study and performance of woodwind literature from all periods for various combinations of woodwinds. Develops performance skills and knowledge of woodwind literature.

611 CHAMBER ORCHESTRA  1 credit
Membership by audition. Organization designed to study for performance the substantial repertoire for small orchestra. Open to a student of advanced ability.

614 KEYBOARD ENSEMBLE  1 credit
Includes three hours a week of accompanying. Keyboard major required to enroll for at least three years. Music education major may substitute another musical organization for one year.

615 JAZZ ENSEMBLE  1 credit
Membership by audition. Provides experience in jazz ensemble performance. A student is assumed to have knowledge of rudiments of music and some experience in jazz performance.

617 COLLEGIUM MUSICUM  1 credit
Prerequisite: permission of instructor. A musical ensemble that performs music written before 1750 on copies of authentic instruments.

618 SMALL ENSEMBLE — MIXED  1 credit
Chamber Ensemble, Baroque Ensemble and Contemporary Music Ensemble. Each is a group of woodwind, brass, or percussion instruments which rehearses and performs a selected body of music.

619 UNIVERSITY CHORAL UNION  1 credit
Membership by audition. Ensemble devoted to study and performance of choral masterworks. Registration for credit open to all students who are not vocal music majors.

620 CONCERT CHOIR  1 credit
Membership by audition. Highly selected mixed choir performs classical literature from all periods. Campus, regional, and tour performances. "Major conducted ensemble" for vocal majors.

624 OPERA CHORUS  1 credit
Membership by audition. Ensemble devoted to performance of vocal chamber music of the Renaissance. Presents madrigal festivals and concerts on and off campus. Fall semester.

APPLIED MUSIC  7520:

521-569 APPLIED MUSIC FOR MUSIC MAJORS  2 or 4 credits each
The following courses are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing ("100 for freshman, 200 for sophomores, etc.) A student may progress up one level by successfully completing an applied music course, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs, no such limit exists for the 400 level.

521 PERCUSSION  522 CLASSICAL GUITAR  2
523 HARP  524 VOICE  525 PIANO  526 ORGAN  527 VIOLIN  528 VIOLA  529 CELLO  530 STRING BASS  531 TRUMPET OR CORNET  532 FRENCH HORN  533 TROMBONE
COMMUNICATION

564 THEORY OF GROUP PROCESSES 3 credits
Group communication theory and conference leadership as applied to individual projects and seminar reports.

557 PUBLIC SPEAKING IN AMERICA 3 credits
Survey and critical analysis of major speakers, speeches and speech movements in American history. Examines how style and content of American speaking influenced events and reflected their times.

563 CORPORATE VIDEO DESIGN 3 credits
Prerequisites: 201, 280. Client contact; analysis of production problems; design and writing of scripts for promotion, training, and news in corporate and health service settings.

564 CORPORATE VIDEO MANAGEMENT 3 credits
Prerequisite: 463. Budgeting for individual and production facilities; scheduling, shoot breakdown, management of corporate and health service media facilities.

566 AUDIO AND VIDEO EDITING 3 credits
Prerequisite: 280. Theory and practice of editing audio and video for broadcast and corporate applications.

567 DIRECTING VIDEO PRODUCTIONS 3 credits
Prerequisite: 280. Technical and aesthetic problems in directing video productions.

571 THEORIES OF RHETORIC 3 credits
Study of key figures in the study of rhetoric: stress, interpretation among theories of rhetoric, intellectual climates and social climates.

587 THE AMERICAN FILM INDUSTRY 3 credits
Historical, critical, and theoretical study of documentary and nonfiction forms in film and television with an emphasis on the roots of documentary and film TV.

588 ADVANCED FILM PRODUCTION 3 credits
Prerequisite: 288. Advanced study of film. Includes study of 35 mm, 16 mm, and Super-8 mm color and black and white sound on film. Emphasis on individual production.

589 DOCUMENTARY FORM IN FILM AND TELEVISION 3 credits
Historical and critical study of documentary and nonfiction forms in film and television with an emphasis on the roots of documentary and film TV.

590 COMMUNICATION WORKSHOP 3 credits
(May be repeated for a total of six credits) Group study or group projects investigating a particular phase of media not covered by other courses in curriculum.

592 CORPORATE VIDEO PRACTICUM 2-6 credits
Prerequisite: 280. Production and editing skills for problems in business, education, and health services. Lab fee.

600 INTRODUCTION TO GRADUATE STUDY IN COMMUNICATION 6 credits
Introduction to the field and scholarship that constitute the various research interests in the department.

603 EMPirical STUDIES IN COMMUNICATION 3 credits
An introduction to empirical concepts of communication and their application in the study of mass media research topics.

604 INTRODUCTION TO QUANTITATIVE RESEARCH IN COMMUNICATION 3 credits
Prerequisite: 603 or equivalent. An introduction to the method of empirical research in communication, research design, and statistical analysis.

606 COMMUNICATION PROBLEMS IN THE BASIC SPEECH COURSE 3 credits
Designed to train a graduate student in methods and materials of introductory speech course. Required of all teaching graduate assistants.

608 COMMUNICATION PEDAGOGY 3 credits
Familiarizes students with aspects of teaching communication and media courses at the college level.

623 AMERICAN MASS MEDIA SYSTEMS 3 credits
Analysis of role, performance, and impact of media in America.

624 SURVEY OF COMMUNICATION THEORY 3 credits
Study of dimensions of field of communication: information analysis, social interaction and semantic analysis.

625 THEORIES OF MASS COMMUNICATION 3 credits
A review of theories of mass media and studies exploring the effect of media.

626 CONTEMPORARY ISSUES IN BROADCASTING 3 credits
Study of issues important to the management of radio and television broadcast stations. Subscription to professional journal required.

628 CONTEMPORARY PUBLIC RELATIONS THEORY 3 credits
Study and practical application of communication concepts, theories and skills relevant to public relations programs in business and nonprofit organizations.

631 SEMINAR: ADVANCED PRODUCTION DESIGN I 3 credits
Prerequisites: 631 or equivalent. Demonstrated competence in photography, film, or video production and permission of instructor. Analysis of production problems and the design of solutions, mediated by film, video and photography. Emphasis on production research and writing in various media formats. Design and production of a major project.

632 SEMINAR: ADVANCED PRODUCTION DESIGN II 3 credits
Prerequisite: 631. Completion of projects in 631 and an opportunity for students to work in additional media.

635 ISSUES IN LEGAL REGULATION OF THE MEDIA 3 credits
Structure of the regulatory system; current regulatory issues in print, film, radio and television broadcasting, pay and cable TV.

645 INTERCULTURAL COMMUNICATION THEORY 3 credits
Analysis of the impact on communication process of cultural differences between communicators; examination of existing literature on intercultural communication.

655 THEORIES OF ARGUMENT AND PERSUASION 2 credits
Introduces the basic elements, approaches and types of critical discourse as it relates to communication and mass media studies.

670 COMMUNICATION CRITICISM 4 credits
Introduction to the concept of critical thinking in mass media studies.

675 SEMINAR ON RHETORICAL CRITICISM 3 credits
(May be repeated for a total of six credits) Organized around special problems and methods involved in analyses of different genres, forms and topics of discourse.

676 SEMINAR IN RHETORICAL THEORY 3 credits
Concentrated study and research of ancient, modern or contemporary writers or on some specific topic in rhetorical theory.
SOCIAL WORK PRACTICE II 3 credits
Prerequisite: 441 or permission of instructor. Concepts and methods of social work practice, particularly relating to understanding and working with groups in various settings in our society.

SOCIAL WORK PRACTICE III 3 credits
Prerequisite: 401 or permission of instructor. Development of understanding and practice methodologies for the facilitation of community organization and socialization as social process in assessing problems and developing programs to meet needs.

SOCIAL WORK PRACTICE IV 3 credits
Prerequisite: 401 or permission of instructor. Professional social work practice with families in social services, the dynamics of family systems, assessment of family function and dysfunction, professional helping processes.

MINORITY ISSUES IN SOCIAL WORK PRACTICE 3 credits
Prerequisite: 427 or permission of instructor. Must be taken prior to concurrently with 437, and one of the other practice courses (401, 402, 404). Racial and ethnic issues in social work relating to various practice and theoretical perspectives, to various types of client groups, family, and the dynamics of the social work setting.

WOMEN'S ISSUES IN SOCIAL WORK PRACTICE 3 credits
Prerequisite: 427 or permission of instructor. Social work practice, knowledge and skill. Social work institutions and social policy in relation to women's issues and concerns in the United States.

SOCIAL WORK ETHICS 3 credits
Prerequisite: 427 or permission of instructor. Social Worker's code of ethics as applied to practices, problems and issues in social work.

HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT I 3 credits
Prerequisite: 427 or permission of instructor. For 527 permission of instructor. Social work perspective on the human development across the life cycle. Human diversity approach consistent with the needs of social work students preparing for practice.

HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT II 3 credits
Prerequisites for 430: 276, 427 or permission of instructor; for 530: permission of instructor. Emphasis on social work with clients of all ages and at various life stages. Professional, family, and community contexts integrated with the methodological processes of the social work practitioners.

SOCIAL WORK RESEARCH I 3 credits
Prerequisites for 441: 276 or permission of instructor; for 541: permission of instructor. Evaluation of social work intervention with individual, group and community. Process and interpreting agency information. Research methods and administrative decision-making.

SOCIAL POLICY ANALYSIS FOR SOCIAL WORKERS 3 credits
Prerequisites for 445: 276 or permission of instructor; for 545: undergraduate social work degree or permission. Description, analysis and construction of social policy in social services to understand forces and processes that establish or change social policies, professional consequences of social policies, and to establish goals for social policy development integrated into effective social work methodology.

SOCIAL NEEDS AND SERVICES FOR LATER ADULTHOOD AND AGING 3 credits
Prerequisite: 276 or permission of instructor. Application of knowledge and principles of professional social work practice to the understanding, development, and provision of social services to meet needs of aging and later maturity individuals, families and communities in institutions serving them and their relatives.

SOCIAL WORK IN CHILD WELFARE 3 credits
Prerequisite: 276 or permission of instructor. In-depth exploration of structure and functioning of social services designed to help children, and practice of social work in child welfare settings. Overview and analysis of various child welfare services, supplementary, and substitute services.

SOCIAL WORK IN MENTAL HEALTH 3 credits
Prerequisite: 276 or permission of instructor. Issues, organization, development, and methodologies of current professional social work practice in mental health settings.

SOCIAL WORK IN JUVENILE JUSTICE 3 credits
Prerequisite: 150 or permission of instructor (undergraduate). The theory and practice of social work in the juvenile justice systems of the United States. Traditional procedures and recent developments, prevention, diversion and community outreach, legal concerns, case management, institutional functioning.

THE BLACK FAMILY 3 credits
Prerequisite: 276 or permission of instructor. Contemporary problems facing black families, male-female relationships, single parent households, black males and elderly, public policy, theoretical models, explaining development of the black family.

SOCIAL WORK IN HEALTH SERVICES 3 credits
Prerequisite: 276 or permission of instructor. Policies, programs and practice in health-care settings: short-term, intermediate and long-term hospital, outpatient services, emergency services, crisis, visiting nurse services, nursing homes, pediatric services, self-help organizations.

ADVANCED PRACTICE WITH INDIVIDUALS 3 credits
Prerequisite: 401 or permission of instructor (undergraduate). Advanced professional development of basic social work strategies and techniques of intervention to aid individuals in improving psychological functioning.

ADULT DAY CARE 3 credits
Prerequisite: 427 or permission of instructor; for 555 permission of instructor. Planning, development, operation, evaluation, and delivery of adult day care services.

SOCIAL WORK WITH THE MENTALLY RETARDED 3 credits
Prerequisite: 276 or permission of instructor. Application of social work principles in the provision of social services to meet needs of the mentally retarded and developmentally disabled and their families.

ADMINISTRATION AND SUPERVISION IN SOCIAL WORK 3 credits
Prerequisite: 401 or permission of instructor. Preparation for work supervision, staff development and training, and management in social work agency. Examination of the social work profession in its community as it affects its organizational goal-setting and program implementation problems.

LAW FOR SOCIAL WORKERS 3 credits
Prerequisite: 276 or permission of instructor. Basic terminology, theories, principles, organization, and procedures of law as we will be explored along with the relationship between social work and law and Comparisons of the theoretical bases of the two professions.

575 SUBSTANCE ABUSE AND SOCIAL WORK PRACTICE 3 credits
Prerequisites: 276 or permission of instructor. Provides students with the essential knowledge and skill for successful social work practice with people involved in substance abuse.

580 SPECIAL TOPICS IN SOCIAL WORK AND SOCIAL WELFARE 1-3 credits
Prerequisite: permission of instructor. Analysis of current social work and social welfare theory and policy, settings, innovation and trends in delivery systems in relation to selected areas of concern. Topics and credits variable.

SOCIAL WORK WORKSHOP 1-4 credits
(May be repeated for a total of six credits) Prerequisite: permission of instructor. Group in social work and its particular phase of social work or social welfare not offered by other courses in curriculum.

597 INVESTIGATIONS IN SOCIAL WORK 1-3 credits
Prerequisites: permission and prearrangement with instructor. Individual readings, research, or projects in areas of interest in social welfare theory or institutional operations or in social work education. Arranged under guidance of social work faculty member. Preparation of report papertexts appropriate to nature of topic. For social work majors.

597 CONTEMPORARY SOCIAL WORK APPLICATIONS 3 credits
Contemporary social work concepts and methods compared and applied in various social situations, law, private and public institutions, and health settings. Particularly useful for professionals related to these fields and for advanced practitioners.

THEATRE

7800:

550 PERFORMANCE PROJECTS 3 credits
(May be repeated for a total of six credits) Prerequisite: permission of instructor. Preparation and presentation of programs and projects for community and campus organizations plus other projects as announced.

562 PLAYWRITING 2 credits
Prerequisite: permission. Principles of dramatic construction learned through analysis of plays and writing of individual dramatic compositions.

567 CONTEMPORARY THEATRE STYLES 3 credits
A detailed examination of representative plays of the contemporary theatre.

568 CHILDREN'S THEATRE 3 credits
Study of theatre for child audience: play selection, set design and construction, acting, direction, and techniques. A full-length play for children produced by the class may culminate the course.

575 ACTING FOR THE MUSICAL THEATRE 3 credits
Prerequisite: permission. A scene study course in analyzing and performing roles in American musicals. Accompanied provided.

580 WORKSHOP IN THEATRE ARTS 1-3 credits
(1 May be repeated for a total of six credits) (Or degree) Prerequisite: advanced standing or permission. Group study or group projects investigating particular phase of theatre arts not covered by other courses in curriculum.

600 INTRODUCTION TO GRADUATE STUDIES 2 credits
Exploration of the basic research tools and methods appropriate to the discipline, including utilization of the computer. Guidelines for writing theses.

603 SPECIAL TOPICS IN THEATRE ARTS 1-4 credits
(1 May be repeated as different subject areas are covered. but no more than 12 credits may be applied toward M.A. degree) Traditional and experimental courses in theatre, supplementing those offered in the General Bulletin.

605 COLLOQUIUM ON THE ARTS 2 credits
A brief exploration of the major visual and performing arts forms and organizations examined in relationship to the business management of arts. Team-taught.

606 PRINCIPLES OF MODERN SCENOGRAPHY 3 credits
Prerequisite or permission of instructor. Theory and practice of stage scenic design and technique as a collaborative art form.

608 STAGE DESIGN FROM CONCEPT TO EXECUTION 3 credits
Lecture, research, and studio projects. Study of types and stages of stage design, analysis of modern stage design as it applies to stage productions.

633 SUMMER THEATRE 3 credits
Prerequisite: permission of instructor. Practical laboratory experience in one or more disciplines during the summer drug production and for management work at advanced level. (May be repeated to 12 credits.)

638 LIGHTING DESIGN 3 credits
Problems of light pointed towards the fundamental understanding and implementation of design for Dance, Drama, and Musical Theatre Design projects will be assigned.

641 PROBLEMS IN DIRECTING 3 credits
Advanced directing course, with special emphasis on staging of complex plays from the course for advanced practitioners.

642 IN DRAMATIC LITERATURE 3 credits
Representative Western stage plays (non-American) are examined in the theatrical, historical, and aesthetic contexts.

645 SEMINAR IN DRAMATIC LITERATURE 2 credits
Basic terminology, theories, principles, organization, and procedures of law as we will be explored along with the relationship between social work and law and Comparisons of the theoretical bases of the two professions.

646 SEMINAR IN DRAMATIC LITERATURE 2 credits
Basic terminology, theories, principles, organization, and procedures of law as we will be explored along with the relationship between social work and law and Comparisons of the theoretical bases of the two professions.

647 SEMINAR IN DRAMATIC LITERATURE 2 credits
Basic terminology, theories, principles, organization, and procedures of law as we will be explored along with the relationship between social work and law and Comparisons of the theoretical bases of the two professions.

651 ADVANCED PROBLEMS IN DIRECTING 3 credits
Prerequisite: 461 or permission of instructor. A continuation of 461. Further in depth investigation of styles and techniques, interpretative concepts, and coaching of actors who will continue to take place.

653 SEMINAR IN COMMEDIA DELL' ARTE 3 credits
The origins and history, scene-setting, actor and staging techniques of the Commedia
655 DRAMATIC THEORY AND CRITICISM 2 credits
An exploration of the major dramatic theorists and critics from Classical Greek to the present, with an emphasis on the 20th Century.

658 HISTORY OF TECHNICAL PRODUCTION 3 credits
Theatre history from the Greeks to the present with emphasis on physical theatre, conventions, and theatre architecture of each period.

659 HISTORY AND THEORY OF STAGE LIGHTING 3 credits
Historical survey of evolution of stage lighting culminating in understanding of modern lighting design skills and their practical application. Term paper or major project required.

660 ADVANCED TECHNICAL THEATRE 2 credits
Processes including multiple set productions, rewrites, and lighting techniques in simple hydraulics, pneumatics, and load capacities, and properties and techniques in multimedia.

661 SEMINAR IN STAGE COSTUME DESIGN 3 credits
Prerequisite: undergraduate costume design course or permission of instructor. Study of special problems in costume design for musical or opera theatre, research of specific period costumes, portfolio projects, and research of noted designers.

662 SEMINAR IN SCENE DESIGN 3 credits
Prerequisite: 106 or undergraduate scene design course or permission of instructor. Study of problems in scene design: portfolio projects, research of noted designers, studies of theatre spaces, and new scenographic materials.

663 SEMINAR: AMERICAN THEATRE 3 credits
An exploration of representative plays, playwrights and cultural contexts from colonial times to present. Term paper or project required.

665 AUDIENCE DEVELOPMENT 3 credits
Developing audiences for the Arts through marketing techniques, including telemarketing, single ticket campaigns, promotional strategies, media/public relations, market research, and direct mail marketing.

666 PRINCIPLES OF ARTS ADMINISTRATION 3 credits
Principles and practices in non-profit arts management, including organizational structure, function of boards, personnel and volunteer management, and public policy for the arts.

682 FUND RAISING AND GRANTSMAHSHIP IN THE ARTS 3 credits
Techniques and execution of a development campaign for individuals, corporations, foundations, federal and state grants, and endowment, including research and proposal writing.

690 GRADUATE RESEARCH/READINGS 1-3 credits
Prerequisite: permission of project adviser. Recognition of work undertaken by the student when performing a role in a theatre production. Credit assigned and work supervised by faculty project supervisor.

699 RESEARCH OR CREATIVE THESIS 1-6 credits
Prerequisite: permission of coordinator of graduate theatre program. Research related to the completion of the master's thesis. Must enroll for one credit each full term until thesis is approved. Repeatable as necessary.

THEATRE ORGANIZATIONS

7810:

7900:

590 WORKSHOP IN DANCE 1-3 credits
Prerequisite: advanced standing or permission.

DANCE PERFORMANCE

7920:

590 WORKSHOP IN DANCE 1-3 credits
Prerequisite: advanced standing or permission. (May be repeated for a total of eight credits.)
603 THEORETICAL BASIS FOR NURSING 3 credits
Prerequisite: Admission to Graduate Program. Overview of adult nursing science, evaluation, and critique of nursing concepts and models. Analysis of the relationships of theory, research, and practice.

605 COMPUTER APPLICATIONS IN NURSING 2 credits
Prerequisite: Admission to Graduate Program. Computer systems influencing nursing practice, research, education, and national knowledge exam. The complex issues surrounding the use of technology are explored.

607 POLICY ISSUES IN NURSING 2 credits
Prerequisite: Admission to Graduate Program. Analysis of policy issues that impact on nursing and health care delivery to diverse populations. Examine methods to shape policy, distribution, and allocation of resources.

613 NURSING INQUIRY I 3 credits
Prerequisite: Admission to Graduate Program. Concepts and ethical issues relating to scientific inquiry in nursing and the phases of the research process. Students participate in critical analysis of nursing research.

616 ADVANCED CLINICAL PRACTICE SEMINAR 2 credits
Prerequisite/Corequisite: 627 or 567 or 647. Discusses issues, concepts, and theories relevant to the development of advanced clinical practice roles.

619 NURSING INQUIRY II 4 credits
Prerequisite/Corequisite: 613. Emphasis on the role of the student as a leader and decision maker. Emphasis on development of competencies in scientific inquiry. Research practice will involve a) a pilot study, or b) participation in faculty research.

621 GERONTOLOGICAL NURSING 3 credits
Prerequisite/Corequisite: 603, 3100, 670. Physiological, psychological, and sociological theories of aging are analyzed in relation to nursing practice and nursing research. Nursing interventions are explored. Focus is on promoting and maintaining function.

625 GERONTOLOGICAL NURSING II 4 credits
Prerequisite: 621. Prerequisite/corequisite: 613. Major nursing care problems and psychological disabilities are analyzed. Clinical focus on development and maintenance of function.

627 GERONTOLOGICAL NURSING III 4 credits
Prerequisite: 625. Examine long-term care and rehabilitation in institutions, and home and community settings. Clinical experiences focus on nursing responsibilities and interventions to promote optimum care.

629 PRACTICUM: GERONTOLOGICAL NURSING 3 credits
Prerequisite: 627. Prerequisite/corequisite: 615. Integration of nursing knowledge and skills with an older population in acute and long-term care clinical situations.

630 RESOURCE MANAGEMENT IN NURSING SETTINGS 3 credits
Prerequisites: 603, 613, 3100, 670, 6200, 661. Examines management of fiscal and human resources in nursing service settings. Analyzes the impact of economics and labor relations on health and nursing care.

635 ORGANIZATIONAL BEHAVIOR IN NURSING SETTINGS 3 credits
Prerequisites: 603, 613, 3100, 670, 6200, 661. Examines organizational behavior theories/principles related to systems analysis and assessment of organizational structure in nursing settings.

639 PRACTICUM: NURSING ADMINISTRATION 10 credits
Prerequisite: 6200, 661. Prerequisite/corequisite: 630, 635. Leadership and management issues are utilized to guide study and practice in the role of Nurse Administrator.

640 SCIENTIFIC COMPONENTS OF NURSE ANESTHESIA 3 credits
Prerequisite: Acceptance Nurse Anesthesia. Corequisite: 603. The course presents content dealing with the chemical and physical components of anesthesia agents.

641 PHARMACOLOGY FOR NURSE ANESTHESIA I 3 credits
Prerequisites: 603, 617, 640. The study of parenteral and inhalation anesthetic agents and their effects. Emphasis on the role of the nurse in the area of anesthetic administration.

644 PHARMACOLOGY FOR NURSE ANESTHESIA II 3 credits
Prerequisite: 641. Focuses on mechanisms of drug transport within the human body and on the body's response to anesthetics. May be used for elective credit.

645 PRINCIPLES OF ANESTHESIA II 4 credits
Prerequisite: 643. Emphasis on preoperative care, anesthesia techniques, and management of the patient's responses to anesthesia. May be used for elective credit only.

649 PROFESSIONAL ROLE SEMINAR 2 credits
Prerequisites: 647, 648. Discusses concepts, cases, and theories related to the professional role of the nurse, emphasizing leadership and management content as well as professional ethical issues.

651 CHILD AND ADOLESCENT HEALTH NURSING I 3 credits
Prerequisite: 603, 3100, 670. Emphasis on nursing therapeutic interventions to decrease vulnerability and enhance positive health behavior outcomes for children/adolescents of both sexes with minor health/developmental problems in family/community context.

652 CHILD AND ADOLESCENT HEALTH NURSING II 4 credits
Prerequisite: Corequisite: 612, 613. Emphasis on nursing therapeutic interventions to decrease vulnerability and enhance positive health behavior outcomes for children/adolescents of both sexes with acute and chronic health problems in family/community context.

658 PHARMACOLOGY FOR CHILD AND ADOLESCENT HEALTH NURSING 3 credits
Prerequisite: Admission to Graduate Program. Emphasis on the major categories of pharmacological agents, drug classes, and mechanisms of action. May be used for elective credit.

657 CHILD AND ADOLESCENT HEALTH NURSING III 4 credits
Prerequisite: 657, Corequisite: 615. Integration of knowledge and skills with a specified population of children/adolescents and their families. Emphasis on implementation of programmatic interventions and evaluation.

661 LAISON MENTAL HEALTH NURSING I 3 credits
Prerequisites/Corequisites: 603, 3100, 670. Focuses on mental health of individuals experiencing stress related to actual or potential health problems. Theoretical knowledge, interviewing, and direct interventions are emphasized.

664 LAISON MENTAL HEALTH NURSING II 4 credits
Prerequisites: 661, 3100, 670. Prerequisite/corequisite: 613. Focuses on liaison mental health nursing roles with families experiencing the stress of actual or potential health problems. Theoretical knowledge, interviewing, and direct interventions are emphasized.

667 LAISON MENTAL HEALTH NURSING III 4 credits
Prerequisite: 664. Emphasizes advanced practice role in collaboration with health care providers. Theoretical frameworks for direct intervention are examined.

669 LAISON MENTAL HEALTH NURSING IV 4 credits
Prerequisite: 667. Emphasizes on the mental health of individuals experiencing stress related to actual or potential health problems. Theoretical knowledge, interviewing, and direct interventions are emphasized.

671 ADULT HEALTH NURSING I 3 credits

672 INDEPENDENT STUDY 1-4 credits
Opportunity for the advanced graduate nursing practice in a selected area of specialization.

673 ADULT HEALTH NURSING II 4 credits
Prerequisite: 671. Emphasizes on the role of the nurse in acute illness in adults in acutepredate care settings. Multidisciplinary care planning and coordination are emphasized, including liaison to community-based care.

677 ADULT HEALTH NURSING III 4 credits
Prerequisite: 673. Emphasizes on family-centered care in selected care settings. Emphasis on family group intervention and collaborative care.

678 ADULT HEALTH NURSING IV 3 credits
Prerequisite/Corequisite: 615. Integration of knowledge and skills with a specified population of adults and their families. Emphasis on implementation of programmatic interventions.

682 NURSING CURRICULUM DEVELOPMENT 3 credits
Prerequisites: 603, 3100, 670. Prerequisite/corequisite: 625 or 665 or 667. Examines curriculum development with a focus on teaching-learning strategies. Emphasis is on the process of developing a curriculum.

683 EVALUATION IN NURSING EDUCATION 3 credits
Prerequisites: 682. Prerequisites/corequisites: 603 or 665 or 667. Examines evaluation processes in the development and assessment of nursing curricula and learning outcomes. Emphasizes evaluation as a quality assurance process, including evaluation of teacher, learner, and program.

684 PRACTICUM: THE ACAD EMIC ROLE OF THE NURSE EDUCATOR 6 credits
Prerequisite/Corequisite: 683. Participation in a nursing program with the purpose of understanding the academic role and responsibilities of the nurse educator.

686 LEADERSHIP PRACTICUM: EDUCATION 3 credits
Prerequisite/Corequisite: 686. Participation in a nursing program with the purpose of understanding the professional role and responsibilities of the nurse educator.

701 COLLOQUIUM 1 credit
Seminars and study of the nurse's role as a change agent in health care. Seminar topics are determined by the needs of the faculty and students.

702 THESIS RESEARCH 1-6 credits
Prerequisite: 613. Supervised research in a specific area of advanced nursing.
### POLYMER SCIENCE 9871:

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<tr>
<td>511</td>
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<td>MOLECULAR STRUCTURE AND PHYSICAL PROPERTIES OF POLYMERS III</td>
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<td>590</td>
<td>WORKSHOP IN POLYMERIC SCIENCE</td>
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<td>501</td>
<td>POLYMERIC CONCEPTS</td>
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<td>604</td>
<td>SPECIAL PROJECTS IN POLYMER SCIENCE</td>
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<td>605</td>
<td>POLYMER CHEMISTRY LABORATORY</td>
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<td>607, 67</td>
<td>POLYMER SCIENCE SEMINAR I AND II</td>
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### POLYMER ENGINEERING 9841:

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<td>611</td>
<td>STRUCTURAL CHARACTERIZATION OF POLYMERS WITH ELECTROMAGNETIC RADIATION</td>
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<td>621</td>
<td>RHEOLOGY AND POLYMER PROCESSING</td>
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<tr>
<td>622</td>
<td>ANALYSIS AND DESIGN OF POLYMER PROCESSING OPERATIONS I</td>
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<td>623</td>
<td>ANALYSIS AND DESIGN OF POLYMER PROCESSING OPERATIONS II</td>
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<td>631</td>
<td>ENGINEERING PROPERTIES OF SOLID POLYMERS</td>
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<td>635</td>
<td>MECHANICAL STRENGTH OF POLYMER SOLIDS</td>
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<td>POLYMER MATERIALS ENGINEERING SCIENCES</td>
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<td>ENGINEERING ASPECTS OF POLYMER COLOIDS</td>
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<td>650</td>
<td>INTRODUCTION TO POLYMER ENGINEERING</td>
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<td>699</td>
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<td>711</td>
<td>ADVANCED ELECTROMAGNETIC AND OPTICAL PROPERTIES AND INVESTIGATIONS OF POLYMERS</td>
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<td>712</td>
<td>RHEOPTICS OF POLYMERS</td>
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<td>716</td>
<td>NON-NEWTONIAN FLOW</td>
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<td>721</td>
<td>RHEOLOGY AND PROCESSING TWO-PHASE POLYMER SYSTEMS</td>
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<td>722</td>
<td>ADVANCED MODELING OF POLYMER PROCESSING</td>
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<td>723</td>
<td>RHEOLOGY AND MODELING OF ELASTOMERS</td>
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<td>724</td>
<td>ADVANCED EXTRUSION AND COMPOUNDING</td>
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<td>727</td>
<td>ADVANCED POLYMER RHEOLOGY</td>
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<td>741</td>
<td>PHASE TRANSFORMATIONS IN POLYMER MATERIALS</td>
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<td>743</td>
<td>POLYMER BLENDS AND ALLOYS</td>
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<td>771</td>
<td>BLOW MOLDING AND THERMOFORMING</td>
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<td>797</td>
<td>ADVANCED TOPICS IN POLYMER ENGINEERING</td>
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### POLYMER CONCEPTS 9872:

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**College of Polymer Science and Polymer Engineering**
613 POLYMER SCIENCE LABORATORY 3 credits
Prerequisites or corequisites: at least one of the courses 3150:313, 3150:314, or 701, or permission of instructor. Laboratory experiments in synthesis, characterization, physical properties and processing and testing of polymers.

615 LABORATORY COMPUTER APPLICATIONS IN POLYMER SCIENCE 3 credits
Prerequisites: Basic knowledge of computer programming and permission of instructor. Laboratory use of computers in polymer science research for data acquisition, data analysis, graphing, and preparation of reports and theses.

631 PHYSICAL PROPERTIES OF POLYMERS I 2 credits
Prerequisite: permission of instructor. Thermodynamics; and molecular basis of rubber elastic behavior; time-dependent mechanical properties of polymeric materials; melt-flow and entanglements; the morphology of crystalline polymeric materials; fracture of polymers.

632 PHYSICAL PROPERTIES OF POLYMERS II 2 credits
Prerequisite: 313 or permission of instructor. Normal-coordinate theories of molecular motion and applications to time-dependent mechanical, electrical, and scattering properties of polymeric systems; time-temperature superposition; free volume, WLF relation; fracture; glass transition.

649 SYNTHESIS AND TECHNOLOGY OF ELASTOMERS 2 credits
Prerequisites: 3150:264 or equivalent; permission of instructor. The preparation of both natural and synthetic elastomers. Emphasis on polymerization methods, polymer structure and methods of vulcanization. The modification of vulcanizates and their effects on physical and mechanical characteristics of the elastomers described.

674 POLYMER THERMODYNAMICS 2 credits
Prerequisite: 674 or permission of instructor. Presentation of the theories and experiments concerning polymer solutions, polymer phase equilibria, and polymer phase transitions and dilute solution steady-state transition.

676 POLYMER CHARACTERIZATION LABORATORY 2 credits
Prerequisite: 676 or permission of instructor. Laboratory analysis of polymers by fractionation, osmetry, swelling, x-ray diffraction, microscopy, thermal analysis, spectroscopy and chromatography.

680 POLYMER PROCESSING 2 credits
Prerequisite: permission. Study of process engineering in polymer conversion industry, emphasizing analytical treatment of heat transfer mass flow, mixing, shaping and molding of polymeric materials.

681 DESIGN OF RUBBER COMPONENTS 2 credits
Prerequisite: 4600:337 or equivalent. Principles of design of elastomers products, emphasizing analytical treatments of elastic behavior and mechanisms of failure of resilient mountings, springs, seals, bearings and tires.

699 MASTER'S RESEARCH 1-6 credits
Prerequisite: permission. For properly qualified candidate for master's degree. Supervised original research in polymer science under direction of faculty member, followed by submission of thesis.

701 POLYMER TECHNOLOGY I 2 credits
Principles of compounding and testing, processing principles and types of operation, design principles.

702 POLYMER TECHNOLOGY II 2 credits
Prerequisite: 701 or permission of instructor. Rubber industry, rubber compounding and processing, vulcanization methods, physical testing, plastics preparation and compounding, manufacturing processes. Lecture laboratory.

703 POLYMER TECHNOLOGY III 2 credits
Prerequisite: 702 or permission of instructor. Flow properties, extrusion, calendaring and milling, molding, mixing, bond operations, engineering properties, rubber springs, viscoelastic analysis design consideration. Lecture and laboratory.

704 CONDENSATION POLYMERIZATION 2 credits
Prerequisite: 3150:63/563 or permission of instructor. Activity of the theory and practice of condensation polymerization. Numerous commercial examples are presented with special emphasis being placed on the properties and applications of polymers prepared by these techniques. Structure-property relationships are highlighted for each major polymer class.

705 FREE RADICAL REACTIONS IN POLYMER SCIENCE 2 credits
Prerequisite: 3150:63/563 or permission of instructor. Covers the kinetics and mechanisms of free radical initiated reactions encountered in polymer science, including polymerization methods, detailed considerations of the initiation, propagation and termination steps in vinyl polymerizations and copolymerization, precipitation of block and graft copolymer by free radical initiated reactions and the mechanisms of free radical induced polymer degradation reactions.

706 IONIC AND MONOMER INSERTION REACTIONS 2 credits
Prerequisite: 3150:63/563 or permission of instructor. Covers the scope, kinetics and mechanisms of polymerizations initiated by anions, cationic ions and cationic ions as well as polymerizations induced by coordination catalysts. Living polymerizations, molecular weights, molecular weight distributions, stereo-chemistry, solvent effects, counter-ion effects, temperature effects, Ziegler-Natta catalysts, cation polymerization, and the stabilization of polymers, graft and block copolymer synthesis.

707 KINETICS OF POLYMERIC PROCESSES 2 credits
Prerequisites: 3150:675 or permission of instructor. Principles of kinetic theory and statistical mechanics are applied to polymer diffusion, polymerization kinetics, polymer adsorption, membrane transport, polymer-phase transformations, gelation, and colloidal destabilization.

708 MACROMOLECULAR CHAIN STRUCTURE 3 credits
Prerequisites: either 3150:314, 3150:315, or 4500:305 or permission. Chain-like structure of large molecules, fundamental theories of chemical conformation and statistical mechanics developed to degree that their applications to polymeric problems can be discussed.

709 MACROMOLECULAR CHAIN STRUCTURE 3 credits
Prerequisite: 708 or permission. Continuation of topics in 708 including experimental techniques used in elucidation of chain structure.

711 SPECIAL TOPICS: POLYMER SCIENCE 2 credits
Prerequisites: 632 and 675 or permission of instructor. Study of topics of current interest in polymer science, encompassing chemistry, physics or engineering aspects of macromolecular substances and including laboratory work where applicable.

712 SPECIAL TOPICS: POLYMER SCIENCE 2 credits
Prerequisite: permission. Topics of current interest in polymer science, encompassing chemistry, physics or engineering aspects of macromolecular substances.

713 CHAIN STRUCTURE LABORATORY 2 credits
Prerequisite: permission of instructor. Designed to apply principles discussed in 708 to laboratory determination of polymer structure.

899 DOCTORAL RESEARCH IN POLYMER SCIENCE 1-16 credits
Prerequisite: Properly qualified graduate proficiency and permission of the candidate for Doctor of Philosophy in Polymer Science depending on the availability of staff and facilities.
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MARIAN A. RUEBEL, 1992, B.A., M.A., Ph.D. (acting)

*b Deceased

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ROBERT A. OETJEN, 1970-1977, Ph.D.
CLAIBORNE E. GRIFFIN, 1977, Ph.D.

Buchtel College of Arts and Sciences

CLAIRE E. GRAY, 1977-1980, B.S., M.A., Ph.D.

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*Deceased
THOMAS ALAN K.

MARY CONSTANCE B. BOUCHARD,

CARL A. BERSANI,

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DENISE MARKS.

JAMES 114


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Technical

University;

sity of Akron; LL.B. The University of Michigan Law School, 1948.

Young

University of Rhode

W. BRANDEL,

Y. BARHYTE,

R. BALDWIN,

Ph.D.,

University; M.A., National Taiwan University; M.S.C.E., East China Normal University; Ph.D., National Taiwan University, 1984.


James M. Campbell, Associate Professor of Nursing (1988) B.S.N., M.S.N., Ph.D., The Ohio State University, 1978.


Richard E. Caplan, Assistant Professor of Communication (1980) B.A., Michigan State University, M.A., Ph.D., Wayne State University, 1975.

Fred M. Carr, Assistant Professor of Education; Director of the Center for Economic Education; (October 1987) B.A., Antioch College, M.Ed., Ed.S., Ph.D., University of Florida, 1977.

Patricia L. Carrell, Dean of the Graduate School; Professor of English (1989) B.A., Knox College, M.A., Ph.D., University of Texas at Austin, 1996.


George G. Chase, Assistant Professor of Chemical Engineering (1933) B.S., Ph.D., The University of Akron, 1939.

Chou S. Chen, Professor of Electrical Engineering; Department Head of Electrical Engineering (1966) B.S.C.E., National Taiwan University, M.S., Ph.D. University of California at Berkeley, 1966.

Chun-Fu Chen, Professor of Electrical Engineering (February 1966) B.S., National Taiwan University, M.S., University of Tennessee at Knoxville, Ph.D., Vanderbilt University, 1968, PE., Ohio.

Hetty Ch'en, Associate Professor of Sociology (1984) B.A., Chung-Hsing University, M.A., National Taiwan University, Ph.D., University of Illinois at Urbana-Champaign, 1989.

Tomas M. Chandlee, Professor of Home Economics (1971) B.A. New Mexico Highlands University, M.S., Ph.D., Texas Women's University, 1977.

Tse-Yung F. Chang, Professor of Civil Engineering; Department Head of Civil Engineering (1970) B.S., National Taiwan University, M.S., Ph.D. University of California at Berkeley, 1966.

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Harry M. Cheung, Associate Professor of Chemical Engineering (1948) B.S., M.S., Ph.D. Case Western Reserve University, 1985.

Fred Kaf-Chung Choy, Associate Professor of Mechanical Engineering (1963) B.S.C.E., National Taiwan University, Ph.D., University of Illinois at Urbana-Champaign, 1977.


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