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Calendar 1995-1996

Fall Semester 1995

Day and Evening Classes Begin Mon., Aug. 28

*Labor Day Mon. Sept. 4

Veterans Day (classes held, staff holiday) Fri., Nov. 10

**Thanksgiving Break Thurs.-Sat., Nov. 23-25

Classes Resume Mon., Nov. 27

Final Instructional Day Sat., Dec. 9

Final Examination Period Mon.-Sat., Dec. 11-16

Commencement Sat., Dec. 16

Spring Intercession Tues.-Sat., Jan. 2-13, 1996

Spring Semester 1996

*Martin Luther King Day Mon., Jan. 15

Day and Evening Classes Begin Tues., Jan. 16

*Presidents' Day Mon., Feb. 20

Spring Break Mon.-Sat., Mar. 18-23

***May Day Fri., May 3

Final Instructional Day Sat., May 4

Final Examination Period Mon.-Sat., May 6-11

Commencement Sat., May 11

Summer Intercession Mon.-Fri., May 13-June 7

Commencement for Law School Sat., May 18

Summer Session I 1996

First 5- and 8-Week Sessions Begin Mon., June 10

*Independence Day Thurs., July 4

First 5-Week Session Ends Fri., July 12

Summer Session II 1996

Second 5-Week Session Begins Mon., July 15

8-Week Session Ends Fri., Aug. 2

Second 5-Week Session Ends Fri., Aug. 16

Summer Commencement Sat., Aug. 17

Fall Semester 1996

Day and Evening Classes Begin Mon., Aug. 26

The Graduate Bulletin is a supplement to The University of Akron Undergraduate Bulletin. The Undergraduate 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 Undergraduate Bulletin contact the Office of Admissions, The University of Akron, Akron, OH 44325-2001. (216) 972-7000, or toll-free, 888-655-4884.

Inquiries

Address inquiries concerning:

Graduate study to the Graduate School, The University of Akron, OH 44325-2101. (216) 972-7663.

Admissions information, campus tours, and housing, transfer of credits to the Office of Admissions, The University of Akron, OH 44325-2001. (216) 972-7100.


Athletics to the Athletic Director, The University of Akron, OH 44325-6211. (216) 972-7080.

Registration, scheduling, residency requirements, and veteran's affairs to the Office of the Registrar, The University of Akron, OH 44325-6211. (216) 972-7844.

The University switchboard number is (216) 972-7111.

University Closing Policy

The University President, or designee, upon the recommendation of the Associate Vice President for Administrative Support Services-Operations will determine when conditions—such as severe weather or a state of emergency—necessitate closing the entire University or cancelling classes at the main campus and/or Wayne College in Orrville.

The Associate Vice President for Administrative Support Services-Operations will promptly notify other designated University officials and members of the Department of University Communications, who will contact area media. University college/departments/schools are encouraged to establish a method for communicating the closing decision to departmental personnel.

Cancellation of classes and closure announcements will be made as early as possible in the day and will clearly state the affected campuses to avoid confusion. Call 972-SNOW or 972-6238 (TDD/Voice) for updated information.

The University of Akron Graduate Bulletin

Vol. XXXIV

Send address changes to The University of Akron Graduate Bulletin, Graduate School, The University of Akron, Akron, OH 44325-2101.

POSTMASTER

The University of Akron Graduate Bulletin

(U.S. Post Office: Enter Post Office at Massillon, OH 44646)

July 1995

*Classes cancelled

**Classes canceled from Wednesday at 5 p.m. until Sunday at 7 a.m.

***Classes cancelled from noon to 5 p.m.

While every effort is made to provide accurate and up-to-date information, the University reserves the right to change, without notice, statements in the Bulletin series which include, but are not limited to rules, policies, procedures, fees, curriculums, courses, programs, areas, services, schedules, course availability or other matters. For example, programs may be modified due to limited resources or facilities, unavailability of faculty, insufficient enrollment, or such other reasons as the University deems necessary.
Background information
**Background**

**HISTORY**

The 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 urban state-assisted 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 University Board of Regents in 1877 to build its college on a hill overlooking the town that 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 institution’s name was repeatedly altered in its efforts to develop ties with various local entrepreneurs who pioneered and prospered in such industries as ceramics, clay products, matches, and rubber. Buchtel College’s emphasis on local rather than denominational interests became increasingly clear, and in 1913 those strong ties and the school’s financial situation caused its trustees to change its name to The University of Akron.

The growth of the college paralleled the remarkable expansion of the community itself. From 1890 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 200,000, 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—challenged the complex of Akron forever.

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 (1915), Business Administration (1923), 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 a burgeoning rubber industry, it seemed only appropriate that the world’s first courses in rubber chemistry would be offered at Buchtel College, in 1929. From those first classes in Professor Charles W. Knight’s laboratory would evolve the world’s first College of Polymer Science and Polymer Engineering (1938), now the largest academic polymer program in the world. 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. The University’s polymer programs have produced some of the world’s most able scientists and engineers, and today attracts millions of dollars annually in research support, as well as top graduate students from around the world.

But research, innovation, and creativity actively take many forms at the University—in the sciences and in the arts and humanities. Today, UA faculty study ways of matching workers with jobs to maximize performance; they develop new ways to synthesize fuel; they write and produce plays, pen poetry, choreograph dance works; they explore improved methods of tumor detection; they evaluate the quality of water in Northeast Ohio; they provide speech and hearing therapy to hundreds of clients; and they study political campaign financing and reform. 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 innovator in other ways. As early as the 1880s, Buchtel College was liberalizing its curriculum by allowing students to choose free electives within their courses of study. The University later adopted and developed the general education concept, which represents an attempt to prepare students for both their personal and their professional lives by providing a balance between courses that teach them how to make a living and courses that teach them about life as we know it in Western civilization. As early as 1914, nine University engineering students headed out to Akron factories, initiating one of the country’s first engineering cooperative education programs.

World War I era students included the nation’s first female students to coop in a commercial job.

The University has a long tradition of serving the needs of part-time and full-time students through day and evening classes, and it attracts traditional-age students and adult “New Majority” students of all economic, social, and ethnic backgrounds. Committed to a diverse campus population, the University is at the forefront of all Ohio universities in recruiting and retaining minority students.

The University’s first doctoral degree was, appropriately enough, awarded in polymer chemistry in 1953, but master’s degrees were granted as early as 1902. Doctoral work has now expanded to more than 50 graduate levels and in 14 fields of study. In 1963, the reception 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, over 26,000 students from 43 states and 84 foreign countries are enrolled in its 10 degree-granting units. The University of Akron is among the 50 largest in the nation and boasts the third-largest principal campus enrollment in Ohio’s state universities. The University offers a comprehensive academic package featuring select programs unsurpassed nationally and internationally. Alumni of the University number more than 92,000 and include scientists, engineers, artists, lawyers, educators, nurses, writers, business people, and other professionals at work in every state and in 84 foreign countries.

The 170-acre main campus with 76 buildings is within walking distance of downtown Akron and is located in a metropolitan area of 2.8 million people. The University’s presence in Northeast Ohio 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. Located on campus, the Ohio Ballet, Emily Davis Art Gallery, University Orchestra, Opera/Musical Theatre, concerts, recitals, choral programs, Touring Arts Program, University Theatre, Repertory Dance Company, and professional artists performing at E.J. Thomas Performing Arts Hall contribute to the University’s rich cultural environment. The University has achieved a position of prominence in a number of intercollegiate sports. Having joined the Mid-American Conference in 1991, the University participates on the NCAA Division I level in 17 sports.

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 endeavors, 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—be it the University of Akron our eyes are on the future, for our students, our faculty and staff, our community, and our world.

**MISSION STATEMENT**

The University of Akron, a publicly assisted urban university, strives to develop enlightened members of society. It offers comprehensive programs of instruction from associate through doctoral levels; pursues a vigorous agenda of research in the arts, sciences and professions; and provides a service to the community. The University pursues excellence in undergraduate and graduate education, and distinction in selected areas of graduate instruction, inquiry, and creative activity.

**The Campus**

During recent years, the University has undergone many major changes. In 1951 the University’s 13 acres encompassed only 10 buildings. Currently the Akron campus covers 176 acres and includes 76 buildings. Plans have been made 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, features park-like pedestrian areas. Students have easy access to retail outlets, transportation, and churches. Akron is easily reached by automobiles from major national east-west routes (Interstates 80, 90, 76, and the Ohio Turnpike) and north-south routes (Interstates 71 and 77), all of which link Akron to the surrounding states and regions. The University itself is located between East Buchtel Avenue and Carroll Street in the downtown area. For airline passengers, limousine service is available from the Cleveland-Hopkins International Airport and the Akron-Canton Regional Airport, south of Akron.

**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:

**Admission Building.** Located at 381 Buchtel Common, the Office of Admissions assists students with applications, requirements, and procedures for undergraduates, postbaccalaureate, guest, transfer, auditing, or special status.

**Auburn Science and Engineering Center.** Named for Dr. Norman P. Auburn, 9th president of the University; this complex is one of the largest academic buildings in the state. The center houses the College of Engineering, including the dean’s office, the Engineering Coop Office; Mechanical, Electrical, Chemical, and Civil Engineering, as well as the Department of Biology, the $2 million biology research facility, and the science and engineering holdings of University Libraries.

**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 535 East Market Street, houses dance studios, a choreography laboratory, faculty offices, studios, and offices for the School of Dance, the Ohio Ballet, and the Dance Institute.

Bierce Library. Named for General Lucius V. Bierce, an Akron mayor, lawyer, historian, state senator, philhellene, philanthropist, and soldier, the building opened in the spring of 1973. In addition to the book and periodicals collections, the facility houses audio-visual materials, maps, and microforms. University Libraries, including science and technology materials located in the Auburn Science and Engineering Center, have holdings of more than 2.6 million items.

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

Buckingham Center. This building houses a Cultural Diversity Center, which includes the Black Cultural Center, Peer Counseling Program, Diversity Council, and a repository of African-American history.

Business Administration Building. This $10.1 million facility, located at 259 South Broadway, was completed in 1959. The structure consolidates office, classroom, and laboratory facilities for the dean of the College of Business Administration, the George W. Daverio 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, and History.

Central Services Building. This building, at 195 South Forge Street, houses the administrative service departments of central stores, printing services, and mail room.

Computer Center. Purchased and renovated in 1981 for $1.2 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.

Computer Store. Just west of the Gardner Student Center, the Computer Store is operated by Information Services.

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

E.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 theater productions, the hall is a masterpiece in architecture, acoustics, and creative mechanisms. It stands at the corner of University Avenue and Hill Street.

Fir Hill Center. This building, north of East Buchtel Avenue at Fir Hill, houses the offices of the Office of Alumni Relations.

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

Folk Hall. This building at 150 East Exchange Street, provides modern, well-equipped School of Art facilities. Studios are available for graphic arts, photography, drawing, painting, metalsmithing, ceramics, and weaving. The Emily 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, computer lab, and classroom space.

Gallucci Hall. This building, at 200 East Exchange Street, formerly a Holiday Inn, is a coed residence hall and home to the Honors Program and honors students. It also provides temporary quarters for the Hospitality Management Department and the Crystal Room dining facility.

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, and in 1955 named the University’s first dean of administration in 1955, and later, in 1958, was honored to vice president. He retired in 1962. This facility, which serves as a unifying force in the life of the institution, houses nearly 80 percent of all nonacademic activities on campus. It provides bowling alleys, meeting rooms, lounges, student activity and publication offices and workrooms, a gym and billiard room, a bookstore, bank facilities, the Gardner Theatre, a cafeteria, and other dining facilities.

Mary E. Gladwin Hall. Housing the College of Nursing and biology laboratories, this building was named in honor of distinguished alurnna 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, a Learning Resources Center that includes patient care simulation areas, an audio-visual center, and a state-of-the-art computer learning center.

Guzzetta Hall. Complementing the E.J. Thomas Performing Arts Hall, this facility was constructed directly across 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 Schools of Theatre Arts and Music. In addition to providing more than 40 student practice rooms, the complex houses radio and television studios, WZIP-FM, a small experimental theater, 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 an interior jogging track, physical education laboratories, classrooms, the director’s office, the sports information office, athletic offices, and a ticket office.

Hower House. Located on Fir Hill, this 19th century manse has been designated 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 at Buchtel College as early as 1909. Opened in 1979, the building houses the Department of Chemistry and features numerous innovative laboratories with the latest, most sophisticated safety equipment, along with classrooms and faculty and administrative offices.

Kolbe Hall. This building, named for the first president of the Municipal University of Akron, Parke R. Kolbe, is soon to be remodeled for the School of Communication, Radio Station WZIP and a proposed long-distance learning facility. It also houses the University Theatre.

Leigh Hall. Named in honor of Warren W. Leigh, first dean of the College of Business Administration, this facility on Buchtel Common currently houses the John S. Knight Auditorium and interim space for School of Communication faculty (during the 1995-96 Kolbe Hall Construction Project).

Paul E. Martin University Center. Located at 105 Fir Hill, the Paul E. Martin University Center has 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 p.m. to 10 p.m. The office of Development is located on the upper floors of the building.

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 law library, classrooms, most courtroom, appellate-review office, seminar rooms, and faculty offices. A $2.6 million addition provides library and support space, and a $1.1 million second expansion has linked McDowell Law Center to Veitch Hall, providing additional administration office space. The law complex stands at the corner of University Avenue and Wohl 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 Physical and Health Education, a men’s gymnasium, a group study area, a combative arts area, a motor learning lab, a human performance and sports medicine lab, an athletic training lab for sports medicine, a weight training and fitness center, an athletics batting cage, the intramural sports office, and classrooms.

North Hall. Located on South Forge Street, this building houses, on a temporary basis, supplemental service space for the campus police department.

Ocakse Natorium. The $6 million natorium, completed in 1988, is a 70,000-square-foot structure that houses an Olympic-size swimming pool with adjacent spectators’ seating area, and locker rooms and showers. The center also houses nine racquetball courts as well as weight room facilities. The natorium is named for former Ohio State Senator Oliver Ocakse.

Olin Hall. Named in honor of Professor Oscar E. Olin and Mr. Charles Olin, this facility was completed in May 1976. The hall houses the Office of the Dean of the Buchtel College of Arts and Sciences and the following departments and institutes: Classics, Economics, English, General Studies, History, Modern Languages, Political Science, Philosophy, Sociology, the Ray C. Bliss Institute of Applied Politics, and the English Language Institute. The complex is at the corner of Buchtel Common and South Union Street.

100 Lincoln Street Building. This building houses the Purchasing Department, all Network Services, and Telecommunications Department offices, as well as the office of the University Architect and Senior Director of Facilities Planning, and the Office of the Director of Space Utilization.

108 Fir Hill. This former Girl Scout regional headquarters building has been renovated to accommodate the University’s Center for Child Development.

143 Union Street Building (Newman Center). This recently purchased building provides administrative office space for the University treasurer, 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, located at 146 Hill Street, houses physical facilities offices, craft shops, the central heating and cooling distribution center, and the Campus Police/Security Department.

The Polsky Building. The largest academic building in Ohio, this renovated downtown department store is home to the Continuity and Technical College dean’s office, and the departments of Business Technology, Public Service Technology, Allied Health Technology, and Associate Studies. Also located here are the Graduate School, University Archives, the Archives of the History of American Psychology, the School of Communicative Disorders and its Speech and Hearing Center, the Department of Public Administration and Urban Studies, the Center for Urban Studies, the School of Social Work, the University of Akron Service Consortium office, and the offices of Research Services and Sponsored Programs. A fast-food service facility and a campus bookstore are in operation on the High Street level (third floor).

Polymer Science Building. Construction of the $17 million Polymer Science building was completed in the spring of 1991. This two-tower 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 Rubber Division of 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 at 248 East Buchtel Avenue has a cafeteria and dining room for students, as well as the campus infirmary, which provides health services for the University.

Rubber Bowl. This off-campus stadium at 800 George Washington Boulevard, four miles from campus, features an artificial turf playing field, seating for 35,000, locker rooms, concessions, and a press box.

Schrank Hall. Named for Harry P. Schrank, longtime member and chairman of UA’s Board of Trustees, this complex, which houses Auburn Science and Engineering Center, is composed of two academic structures and a parking deck. Schrank Hall North contains the office of the president of the Faculty Senate, other offices, and classrooms space. Schrank Hall South provides facilities for the School of Home Economics and Family Ecology, the Community and Technical College’s Engineering and Science Technology Division, and the Army and Air Force ROTC.

Simmons Hall. Named for Hazelton Simmons, University president from 1933 to 1951, this hall houses the University Counseling and Testing Center and the Department of Psychology. The Institute for Life-Span Development and Gerontology occupies a portion of the building. A student interested in employment counseling and assistance will find the Placement Services office in this facility.

Spicer Hall. This major student services building, renovated in 1975, houses the Registrar’s Office, Academic Advisement Center, the Office of Student Financial Aid, University College, the Office of Services for Students with Disabilities, and the Student Assistance Center, as well as the Parking Systems office, and offices for the University Controller, the University Auditor and External Auditor, and Accounts Payable and Receivable.

277 Broadway Street Building. This building provides administrative space for the Office of Human Resources, including benefits, employment services, labor and employee relations, and personnel services, as well as the Department of University Communications.

225 East Mill Street. This building is home to the Akron Polymer Training Center, an instructional classroom and laboratory facility for Polymer Engineering and Engineering and Science Technology Polymer Science classes.

West Hall. This renovated structure on Wolf Ledges Parkway is part of the McDowell Law Center.

Whitby Hall. Named for G. Stafford Whitby, a pioneer in the development of polymer science, this building opened in 1975. Housed in this facility 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, provides a lecture room that seats 245, general classrooms, a handicraft room, a teaching demonstration classroom, a microteaching laboratory, educational media lab, and the Student Teaching Office.

Facilities and Equipment

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

INFORMATION SERVICES

The Department of Information Services is responsible for computing, networking, telecommunications, and multimedia resources on the campus. The department is made up of three sections: Academic User Services provides computing support to academic research and instruction efforts. Networking Services provides support for all of the University’s voice and data communications and networking, and Computer Services provides the mainframe hardware and software support for the University as well as applications development support for the University’s administrative business. The majority of the department is located in the Computer Center at the west end of the central campus with portions of the networking and telecommunications groups located in the Union Building, the Lincoln Building, and Carroll Hall.

The Academic User Services section of Information Services provides support for academic and instructional computing and assists the student and faculty member in making effective use of the Computer Center. This section supports the acquisition and implementation of prepackaged programs for specific departments and provides consultation on problems requiring numerical analysis. The Computer Based Education and Testing (CB&T) group within the Academic User Services section develops and/or acquires specialized instructional programs. Many of these programs are tutorial in nature and are designed to assist the student in learning a particular idea or principle. The CB&T group also supports the Testing Center, which provides the capability for students to take course tests via a computer.

For mainframe computing, Information Services utilizes an IBM 4381-R14 running VM-HPO as the operating system and an IBM 3090-200 dvic processor running MVS-XA. The IBM 4381-R14 is used by faculty and students for interactive computing and allows academic users to submit batch jobs to the IBM 3090-200 over a channel-to-channel adapter. The IBM 3090-200, in addition to being a shared processor for academic and administrative batch computing and administrative interactive computing, has a vector processor that does parallel processing in support of academic supercomputing. In addition to the two IBM machines, there is a DECsystem 5000/240 running Ultrix that is primarily used by Computer Science and Engineering.

The library has two Digital Processors on the Computer Center platform, a DECsystem 5000/240 and a DECsystem 5900. Both processors are running the Inuvik Interfaces Inc. library system and are part of the Ohio Library Information Network (OhioLINK).

All of the mainframe computers as well as many of the campus’s microcomputers, faculty members’ offices, and administrative offices are connected via Zippy’s Internet Protocol network (ZIPPnet). This is a high-speed data network available across campus which has a connection to QARnet, the statewide network. It provides access to Internet, the worldwide network, and the Ohio Supercomputer Center in Columbus.

Primary access to the mainframe computers is by work stations utilizing ZIPPnet or by remote terminals. The peripheral equipment attached to the mainframes includes high-speed laser and impact printers, high-capacity disk drives, magnetic tape drives, a microfiche printer, and a voice-response system used for telephone registration. Plotting is supported using either a CalComp Pen Plotter or a CalComp Drawingmaster. An NCS Opscan 21-75 Optical Mark Sense Reader scans mark sense forms providing fast and reliable data entry for test scoring services, surveys, faculty evaluations, and payroll time cards. Information Services also supports widely used computer languages such as FORTRAN, C, COBOI, FRA, BASIC, PASCAL, SAS, SPSS, and APL, and microcomputer packages such as LaTeX, WordPerfect, dBase, and Harvard Graphics.

UNIVERSITY LIBRARIES

Library facilities are housed in three separate locations: Bierce Library on Buchtel Common, the Science Library is in Auburn Science and Engineering Center, Room 104, and Archival Services is in the Polsky Building, lower level.

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 from other libraries through the OhioLINK network or other resource sharing arrangements. 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 Library's collections contain more than 2.8 million items: books, periodicals, government documents, curricular materials, microforms, maps, audio-visual materials, and archival documents. The library receives nearly 5,000 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 Ohio Library and Information Network, the Northeast Ohio Major 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 Bierce Library and in the Science Library. Group study rooms and typing facilities are also in Bierce Library.

Audio Visual Services, located in Bierce Library, Room 63B, maintains an extensive centralized collection of media hardware and audio-visual resources 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 Affairs

#### COUNSELING AND TESTING CENTER

In addition to participating with the Placement Office 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, (216) 972-7062.

#### Counseling Service

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

- Career counseling involves discovering one's interests, needs, values, aptitudes, abilities, and goals; relating these to the world of work; exploring appropriate major subjects and career fields. Occupational information is available through reference books and two computerized career guidance and information systems, SIGI and OCIS.
- Personal-emotional counseling deals with a short-term framework, 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 also 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. Additionally, the Center provides appropriate referral sources 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, foreign language, reading and writing, and national testing programs. National testing includes pre-college tests (ACT, SAT, and OTSAI, pre-grade school tests (Miller's Analogy Test, LSAT, GRE) and Education certification tests (PPTST 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.

### STUDENT HEALTH SERVICES

Health service facilities are located in Robertson Dining Hall, immediately adjacent to the residence halls. This facility is capable of handling most acute illnesses and injuries. Sick call hours are 9:00 to 11:30 a.m. and 1:00 to 2:30 p.m., and 6:00 to 7:00 p.m. most evenings (call first for evening service).

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 University Police or 911 immediately. The University assumes no legal responsibility or obligation for the expenses of such transportation or for medical services at the hospital.

Student Health and Accident Insurance, designed specifically for students, 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 and Immunization Record form are 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 forms and other health-related records are treated as confidential and are kept in the Student Health Services office.

### SERVICES FOR STUDENTS WITH DISABILITIES

According to provisions outlined in Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, students with disabilities are ensured equal access and reasonable academic adjustments and accommodations by institutions of higher learning.

The Office of Services for Students with Disabilities is part of the Student Assistance Center in the Division of Student Affairs. It is the responsibility of this office to provide students with disabilities the necessary services that will ensure the opportunity for full participation in University academic programs, activities, and services.

If a student has a specific disability, he or she should contact the Office of Services for Students with Disabilities, Spencer Hall 124, (216) 972-7928 (voice) or (216) 972-5764 (TDD).

### CENTER FOR CHILD DEVELOPMENT

The University of Akron Center for Child Development 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 rhythms, 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 Center for Child Development is open during the Fall and Spring semesters of the academic year between 7:30 a.m. and 6:00 p.m. Monday through Friday. The program offers hourly half-day programs for children three to five years old and toilet trained. Full-day sessions are available year round for children two-and-a-half to five years old and toilet trained.

A summer pre-school flextime program is offered Summer Session I. A summer program is also offered for school-aged children. 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 Center for Child Development, (216) 374-8761.

### GARDNER STUDENT CENTER

The Gardner Student Center, located in the center of campus, serves the students, faculty, and staff, and is one of the University's major assets in meeting the University-wide goal of public service. This busy facility houses four food service facilities, meeting rooms, lounges, Gardner Theatre, student organization offices, recreation facilities, the Communication Center, a bank, Ticketmaster/Film Center, and a bookstore.

- Food Areas in the Gardner Student Center offer a variety of food items. On the first level, the Chucky's features the services of a fast-food operation, a pizza and Mexican shop, and an ice cream and yogurt shop. For more of a cafeteria-style offering, the Highland, on the second level, provides full meals, a salad bar, soup, and daily specials.
• Gardner Theatre operates Tuesday through Sunday with two showings of first-run movies each day.

• The Game Room, located on the lower level of the Gardner Student Center, is open seven days a week for the convenience of the University family to enhance free time activity. The Game Room offers eight bowling lanes, 16 billiard tables, foosball, and a variety of video games. For the competitive individual, tournaments in many of these recreational activities are programmed each semester by the Game Room staff.

• The Communication Center, located in the lobby of Gardner Student Center offers the following services: informational and referral services; copying, including color, oversized and reduced copies; binding of materials; mailing facilities for campus and U.S. mail; literature distribution; and class support files.

• The Ticketmaster/Film Center, located in the lobby of Gardner Student Center (216) 972-6684, sells tickets to most events in northern Ohio, including Blossom Music Center, the Coliseum, The IX Center, Playhouse Square, Public Hall, and the Stadium. Over-the-counter sales include tickets to campus functions, including sporting events, and to local shows. Film and film processing services are also available.

• The Bookstore at The University of Akron is operated as a service of Barnes & Noble Bookstores, Inc. of New York City. Barnes & Noble operates 300 other college stores. The primary purpose of the Bookstore is to make available books and supplies required for course work. In addition, the store also carries a wide range of classroom supplies, paperbacks, engineering and art supplies, greeting cards, University memorabilia, clothing and other sundry items.
Graduate School

Charles M. Dye, Ph.D., Interim Dean
Latharus Goggins, Ph.D., Associate Dean
Karen L. Caldwell, Secretary to the Dean and Coordinator of Graduate Financial Aid
Virginia K. Donnelly, B.A., Program Completion Coordinator
Brenda J. Henry, Admissions Coordinator
Dollie Q. Markovich, B.A., Coordinator of the Graduate School

OBJECTIVES

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

- Advanced courses in various fields beyond the baccalaureate level.
- Opportunities to develop and apply research techniques and to use the resources appropriate to various graduate programs.
- Advancement of students’ 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 1969, 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 1953. The first earned doctoral degrees were conferred in 1959. Professor Charles Bulger was appointed first dean of graduate work in 1933, and he continued in that capacity until 1950. Professor Ernest H. Herrington, Jr. served as director of graduate studies from 1950 to 1959 and as dean of the Graduate Division from its establishment in 1960 to 1967. Dr. Arthur K. Ehrnstrat was appointed dean of Graduate Studies and Research in 1967, being succeeded in 1969 by Dr. Edwin L. Lively. Dr. Claubourne 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 1979 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. Dr. Charles M. Dye was named interim Dean in 1993.

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 graduate 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, psychology, political science, 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 psychology 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 in majors in the following areas: accounting, biology, business administration (accounting, finance, international business and taxation), chemical engineering, chemistry, civil engineering, communication, communicative disorders, earth science, economics, education (educational foundations, elementary, secondary, multicultural education, physical education, elementary or secondary school principal, school superintendent, counseling, special education, visiting teacher, reading specialist and school psychologist), electrical engineering, engineering, English, geography, history, home economics and family ecology, management, mathematics, mechanical engineering, music, nursing, nutrition/dietetics, philosophy, physics, political science, polymer engineering, polymer science, psychology, public administration, social work, 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. To supervise theses and dissertations and to be qualified to serve as members of 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 the Faculty Senate, Graduate Council and Board of Trustees meetings, GSG also sponsors numerous social events, such as faculty-student mixers and an annual dinner dance.

Anyone wishing more information or anyone who wants to air a complaint, problem or suggestion concerning graduate students may contact the Graduate School 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.
2
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 established in the Schedule of Classes. Some programs, such as nursing, school psychology, 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 is $40.

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 ensuring 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. Students are admitted for the purpose of study with an appropriate GPA and is subject to the approval of the instructor, department head, and Graduate School. Students who hold an earned doctorate whose offer of admission has lapsed must submit a new application to be reconsidered.

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 18 semester credits of postbaccalaureate work at a 3.00 level before being considered for admission to the Graduate School. The accreditation status of the school at the time of the student's graduation shall apply. A student should consult with the department head in the major field to develop a postbaccalaureate program.

Transfer Students

A graduate student matriculated in the Graduate School of another college or university who wishes to transfer to The University of Akron must meet all graduate education and academic requirements. Approval is granted to a person who has not met all the requirements for full admittance or audit any graduate credit course.

Entrance Qualifying Examinations

The use of examinations to determine admission to a graduate program of eligibility continues in one or more of the departments offering graduate programs. The department has the right to select the examination and minimum acceptable level of performance. Information and procedure may be obtained from the head of the appropriate department.

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 any applicant who desires to pursue a graduate degree and has a baccalaureate degree from an accredited college or university with an overall grade-point average of 2.75 or better or a 3.00 for the last two years (64 semester credits or equivalent); or holds an advanced degree from an accredited college or university, if otherwise qualified, and is appropriate to the intended graduate major; holds a baccalaureate or master's degree from a foreign college or university with first-class standing or its equivalent, plus satisfactory evidence of competence in English. Full admission may also be granted to applicants to the College of Business Administration who meet the college's admission requirements.

- Provisional Admission (may be granted to a person who has not met all of the requirements for full admission or 2.75-2.75 overall GPA or 2.75 over the last two years). 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 a graduate degree at a later date if the applicant is given full admission to the Graduate School.

- Transfer status may be given to a person who is a regularly enrolled graduate student in good standing in a degree program at another accredited university and has written permission to enroll at The University of Akron. Such permission is valid only for the courses and semester specified, with a maximum of 10 semester credits allowable, and is subject to the approval of the instructor, department head, and Graduate School. A transfer 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 advisor.

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 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 with the provided space and use of facilities within limits of practical need of the undergraduate and graduate programs. Tuition and fees shall be collected if allowed under sponsoring contract for any courses the fellow may choose to take;

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

- a Guest is a person holding an earned doctorate who desires to attend courses and seminars relevant to individual work or interest 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.
Course Load
A full load of coursework at the graduate level is normally 915 semester credits including audit. Full-time status is defined as a minimum of 9 semester credits, or as defined by the Internal Revenue Service for those students with graduate assistantships.

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

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 $5,600 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.

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

3300:507 Middle English Literature

In the above example, the first four digits of the number (3300) indicate the college and department; in the case, 3300 represents the Buchtel College of Arts and Sciences; 300 refers to the Department of English. The second set of digits (507) 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:

- 500-699: Master's-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.

Grades
A student admitted to graduate study under any status at the University is expected to maintain a minimum 3.0 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>Failure</td>
</tr>
<tr>
<td>D</td>
<td>0.0</td>
<td>Credit</td>
</tr>
<tr>
<td>D-</td>
<td>0.0</td>
<td>No credit</td>
</tr>
<tr>
<td>F</td>
<td>0.0</td>
<td>Audit</td>
</tr>
<tr>
<td>CR</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>NG</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>AUD</td>
<td>0.0</td>
<td></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 at the end of the term. Failure to make up the omitted work satisfactorily by the end of the following term, not including summer sessions, converts the "I" to an "F." When the work is satisfactorily completed within the allowed time the "I" is converted to whatever grade the student has earned.

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

- PI - Permanent Incomplete: Indicates that the student's instructor and the instructor's dean have for special reason authorized the change of an incomplete ("I") to an In progress ("IP") to a permanent incomplete ("PI")

- W - Withdraw: Indicates that the student registered for the course but withdrew officially sometime after the second week of the term.

- NG - 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.

*If instructors wish to extend the "I" grade beyond the following term for which the student is registered, prior to the end of the term they must notify the Office of the Registrar in writing of the extension and indicate the date of its termination. It is the responsibility of the student to make arrangements to make up the incomplete work. The faculty member should submit the new grade to the Office of the Registrar in writing.

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" received was received must be repeated.

Thesis and Dissertation Credits
Course number 899 will only be used for courses which indicate credit is being given for a master's thesis. 899 will only be used for courses which indicate credit for a doctoral dissertation. No credit for 899 or 899 will be given unless the thesis or dissertation is completed.

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.

Probation and Dismissal
Any student whose grade-point average falls below 3.00 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.
### Fees

All fees reflect changes in 1994-95 and are subject to change without notice.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Fee</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 credits per semester</td>
<td>$5.50 per credit</td>
<td>$70.70 per semester</td>
</tr>
<tr>
<td>1/2 or fewer credits per semester</td>
<td>$34.40</td>
<td>$20.50</td>
</tr>
<tr>
<td>One summer session</td>
<td>$2 per day up to $16</td>
<td>$30</td>
</tr>
</tbody>
</table>

| Graduation Fee | $30 |
| Late Graduation Fee | $10 |
| Late Registration Fee | $25 |

### Other Fees

- **Thesis and binding**
  - Binding per volume: $9.90
  - Library binding (at time of application for degree): $5.00
- **Copyright Fee**
  - (payable at time of application for degree): $3.00
- **Course Materials and Computing Fees**:

### Course List

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
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<td>UNIX System Programming</td>
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<td>Advanced Research and Statistical Methods</td>
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<td>Program Evaluation</td>
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### The University of Akron

The University of Akron shall apply a fee of $8.00 per semester for each additional course taken beyond the maximum of 12 credits per semester for the fall semester.
College of Education

5100:512 Design and Production of Instructional Materials 3 $25
5100:530 Introduction to Computer-Based Education 3 $25
5100:530 Seminar in Computer-Based Education 3 $25
5000:525 Advanced Micro Application in Secondary Schools 3 $20
5000:645 Texts and Apparatus in Counseling 4 $15
5000:545 Career Development Counseling Across the Lifespan 5 $25
5000:675 Practicum in Counseling I 5 $15
5000:676 Practicum in Counseling II 2.5 $15
5000:702 Advanced Counseling Practicum 3 $25
5000:712 Principles and Practices of Individual Intellingence Testing 4 $15
5000:714 Objective Personality Evaluation 3 $25
5100:616 Technology and Materials Application in Special Education 3 $25
5100:655 Neuromotor Aspects of Physical Disabilities 3 $10
5100:657 Clinical Psychometry in Special Education 3 $15
5200:610 Educational Diagnosis for School Psychologists 4 $15
5200:615 Practicum in School Psychology 4 $15
5200:615 Computer Applications in Educational Administration 2 $25

College of Business Administration

All graduate-level courses in the College of Business Administration are assessed a $5 fee with the exception of the following courses:
6200:588 CPA Problems: Auditing 2 $25
6200:589 CPA Problems: Theory 2 $25
6200:638 Basic Tax Research 1 $2
6200:640 Tax Accounting 2 $25
6200:644 Income Taxation of Individuals, Estates and Trusts 2 $35
6200:646 Consolidated Tax Returns 2 $35
6200:648 Tax Practice and Procedure 2 $35
6200:649 State and Local Taxation 2 $35
6200:650 Estate Planning 2 $35
6200:651 United States Taxation and Transnational Operations 2 $35
6200:652 Tax Exempt Organizations 2 $35
6200:653 Business Planning 2 $35
6200:656 Non-Qualifying Executive Compensation 2 $35
6700:590 Professional Responsibility 2 $2
6700:692 International Business 2 $2
6700:694 Applied Business Documentation and Contact 2 $2
6700:696 Special Topics in Professional Development 2 $2

College of Fine and Applied Arts

(All graduate-level courses in 5720. Applied Music are assessed fees in varying amounts.)
7100:591 Architectural Presentation I 3 $15
7100:592 Architectural Presentation II 3 $15
7400:703 Advanced Food Preparation 3 $15
7400:718 History of Art and American Interiors I 3 $7
7400:719 History of Furniture and Interiors II 3 $7
7400:530 Experimental Foods 3 $35
7400:523 Professional Image Analysis 3 $30
7400:524 Advanced Textiles 3 $12
7400:532 Interiors, Textiles, and Product Analysis 3 $5
7400:530 Residential Design 3 $30
7400:543 Commercial Design 3 $15
7400:545 Principles and Practices of Interior Design 3 $10
7400:550 Textile Conservation 3 $5
7400:557 History of Western Costume to 1800 3 $5
7400:558 History of Fashion Since 1780 3 $5
7400:681 Community Nutrition Clinical 1-6 $145
7400:552 Community Nutrition II 3 $40
7400:586 Practicum in Diets 1-3 $25
7400:630 Family Relationships in Middle and Later Years 3 $25
7500:553 Music Software Survey and Use 3 $25
7500:613 Instructional Programming in Music for the Microcomputer 3 $25
7500:640 Advanced Accompanying 3 $37.50
7500:641 Advanced Accompanying I 3 $37.50
7500:642 Advanced Accompanying II 3 $37.50
7500:653 Advanced Accompanying IV 3 $25
7500:654 Corporate Video Design 3 $10
7500:656 Corporate Video Management 3 $10
7600:596 Audio and Video Editing 3 $15
7600:597 Directing Video Producers 3 $15
7700:590 Corporate Video Practicum 2-6 $15
7700:641 Amplification 1-10 $10
7700:650 Advanced Clinical Practicum: Differential Diagnosis 1 $10
7700:651 Advanced Clinical Practicum: Voces 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
7800:600 Intensive Graduate Studies 3 $5
7800:608 Principles of Modern Scenography 3 $5
7900:590 Dance Workshop 1-3 $5
7900:590 Workshop in Dance 1-3 $5

College of Nursing

8200:639 Theoretical Basis for Nursing 3 $25
8200:640 Computer Applications in Nursing 2 $25
8200:642 Policy Issues in Nursing 3 $25
8200:638 Pathophysiological Concepts of Nursing Care 3 $25
8200:613 Nursing Inquiry I 3 $25
8200:612 Nursing Inquiry II 3 $25
8200:621 Gerontological Nursing I 3 $45
8200:622 Gerontological Nursing II 3 $45
8200:623 Gerontological Nursing III 3 $45
8200:629 Practicum: Gerontological Nursing 2 $25
8200:630 Resource Management in Nursing Settings 3 $25
8200:631 Fiscal Management in Nursing Administration 5 $25
8200:635 Organizational Behavior in Nursing Settings 3 $25
8200:636 Practicum: Nursing Administration I 5 $25
8200:637 Practicum: Nursing Administration II 5 $25
8200:640 Scientific Components of Nurse Anesthesis 1 $25
8200:641 Pharmacology for Nurse Anesthesis I 3 $25
8200:643 Pharmacology for Nurse Anesthesis II 3 $25
8200:644 Pharmacology for Nurse Anesthesis III 3 $25
8200:645 Principles of Anesthesis I 3 $25
8200:646 Principles of Anesthesis II 4 $25
8200:647 Principles of Anesthesis III 4 $25
8200:648 Practicum: Nurse Anesthesiology 1 $25
8200:649 Nurse Anesthesiology Research 0 $45
8200:651 Adult Health Nursing I 3 $45
8200:652 Child and Adolescent Health Nursing I 3 $45
8200:653 Child and Adolescent Health Nursing II 3 $45
8200:654 Pharmacology for Child and Adolescent Health Nursing 3 $25
8200:655 Child and Adolescent Health Nursing III 3 $45
8200:661 Language-Community Mental Health Nursing I 3 $45
8200:662 Language-Community Mental Health Nursing II 4 $45
8200:663 Language-Community Mental Health Nursing III 4 $45
8200:664 Practicum: Language-Community Mental Health Nursing 3 $45
8200:671 Adult Health Nursing II 3 $45
8200:675 Adult Health Nursing III 4 $45
8200:679 Practicum: Adult Health Nursing 3 $45
8200:682 Nursing Curriculum Development 3 $25
8200:683 Evaluation in Nursing Education 3 $25
8200:684 Practicum: The Academic Role of the Nursing Educator 6 $25
8200:690 Thesis Research 1-6 $25

Note: Independent Studies, Workshops and Special Topics courses offered on a rotation basis may include fees not listed here. Consult appropriate department for course materials and computing fees for these courses.

Regulations Regarding Refunds

All fees, e.g., instructional, general, parking, etc., are subject to change without notice. Students shall be charged fees and/or tuition and other fees in accordance with schedules adopted by the Board of Trustees. Registration does not automatically convey 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 charges in business or personal affairs.

Fees Subject to Refund

Certain fees are subject to refund.
- Instructional fee (tuition) and nonresident surcharge.
- General fee.
- Course materials and computing fee.
- Student parking fee (only if permit is returned).
- Student teaching fee.
- Laboratory breakage and late service deposit.

Amount of Refund

Amount of refund is to be determined in accordance with the following regulations and subject to course instructor/assistant signature requirements contained in the University's official withdrawal policy.

- In full
  - if the University cancels the course;
  - if the University does not permit the student to enroll or continue in the course;
  - if the student dies before or during the term; is drafted into military service by the United States; is called to active duty; or if the student enlists in the National Guard or Reserve prior to the beginning of the term. Notice of induction or orders to active duty is effective only if the student is called to active duty.
  - if the student enrolls voluntarily for active duty (student should see "in part" below).

- In part
  - less $5 per enrolled credit to a maximum of $50 if the student requests official withdrawal from all credit courses on or before the Sunday (Midnight) which begins the second week of the enrolled term. (Note: If a semester begins other than on a Monday, the maximum refund period will extend to seven (7) days from the beginning of the semester. Example: Semester begins on Tuesday, the maximum refund period will end at midnight on the following Sunday.)
  - if the student requests official withdrawal after the Sunday (Midnight) which begins the second week of the fall or spring semesters, the following refund percentages apply:
    - During the second week of the semester 70%
    - During the third week of the semester 50%
    - During the fourth week of the semester 30%
    - During the fifth week of the semester 20%
    - Thereafter 0%

General Information
International Students

The University of Akron welcomes international students and seeks to make their educational experience pleasant and meaningful. Each year, approximately 800 international students and scholars from 89 countries pursue studies and research at The University of Akron.

Admission

International students can apply to begin their graduate study for the Fall or Spring semester or for either of the University’s two summer sessions. Students should submit their applications at least 5 months in advance of the date they wish to begin their studies. Graduate students applying for assistantships should submit applications 9 months before the term begins for best consideration. The following procedures should be followed:

- Obtain an international student application from the International Admissions Office, Office of International Programs, The University of Akron, Akron, OH 44325-3106, telephone (216) 972-6249, fax (216) 972-8604. Return the completed application with the one-time nonrefundable application fee of $50 with the following documentation:
  - An official transcript and degree from all secondary institutions and universities attended previously.
  - Original records in languages other than English must be accompanied by exact English translation certified by the school, in U.S., consulate, or other legal certifying authority.
  - Proof of English language proficiency. The University requires each student for whom English is not the native language to take the Test of English as a Foreign Language (TOEFL). This test is administered in major cities throughout the world. Applications may be obtained from institutional agencies, United States Information Service, U.S. Information Agency, or from the Educational Testing Service, Princeton, NJ, 08540. Graduate applicants must achieve 550 or greater. Examinations include the departments of English and History (580), Public Administration and Urban Studies (574), and Biomedical Engineering (590).

While a Provisional Admission may be offered to students who are academically acceptable but who have not yet reached the level of English proficiency required for Full Admission, such students must attend intensive English instruction until they have attained the required level of English proficiency for full-time academic study.

- Proof of adequate financial support. An international student should submit the Declaration and Certification of Finances (DCF) and an original statement from the bank showing availability of sufficient funds to cover the cost of the first year of study, and that these funds will be available to the student in this country.

Costs, Financial Aid, and Medical Insurance

To cover tuition and living expenses for the 1996-97 academic year, international graduate students holding F-1 visas need approximately $11,696. Additional costs for J-1 visa holders and students’ dependents are indicated in the DCF.

Graduate students may request financial aid through fellowships and graduate assistantships. A graduate student interested in applying for this aid should request the necessary forms when requesting the admission application.

The University of Akron requires that all international students carry medical insurance that meets minimum established requirements. Such health insurance coverage must be in effect during their stay in the United States. International students will not be permitted to register without proof of such coverage.

International Student Orientation

International students are required to attend an International Student Orientation that takes place one week before classes begin and for which they are charged $45. The orientation dates will be mailed to students with their orientation letter and immigration documents.

Teaching Assistants

Applicants whose native language is not English and who expect to become teaching assistants, are also required to achieve a minimum score of 220 on the Test of Spoken English (TSE). This exam must be taken prior to functioning as teaching assistants. Those for whom English is the native language and who expect to become a teaching assistant must demonstrate proficiency in English through departmental certification. Neither the TSE nor departmental certification is required for research or administrative assistants.

Note

International students are encouraged to contact the Office of International Programs directly with questions about housing, climate, insurance, or immigration regulations. Questions concerning degree programs should be directed to the appropriate academic department.
Academic Requirements

MASTER'S DEGREE REQUIREMENTS

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

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

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 advisers 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 adviser and department head.

Credits
A minimum of 30 semester credits of graduate work is required in all master's degree programs. This includes thesis credit. Some departments require more (see departmental requirements). A minimum of two-thirds of the total graduate credits required in any master's program must be completed at the University. A maximum of six workshop credits may be applied to a master's degree. It is recommended that the requirements listed by department elsewhere in this section refer to the minimum necessary for a degree. It is entirely within the prerogative of the department to assign additional credits of coursework or other requirements in the interest of graduating a fully qualified student.

No graduate credit may be received for courses taken by examination or for courses numbered courses previously taken at the University of Akron student who seeks to enroll in courses elsewhere for transfer credit must be at the same level as an undergraduate without advance approval from the dean of the Graduate School.

Transfer Credits
Up to one-third of the total credits required for a master's degree may be transferred from an accredited college or university. Departments and colleges may set more restrictive limits. All transfer credit must be at the "A" or "B" level in graduate courses. The credits must be relevant to the student's program as determined by the student's academic department, and must fall within the six-year time limit to complete degree requirements.

Credits transferred may come from a prior degree. Up to one third of credits from a prior or concurrent graduate degree at The University of Akron may be used to satisfy the requirements of a concurrent or subsequent master's degree. A University of Akron student who seeks to enroll in courses elsewhere for transfer credit must receive prior approval.

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 formally admitted to candidacy 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 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 adviser, 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 assistants for whom full-time study is defined 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 or five week sessions. 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 adviser and the student shall prepare a statement indicating the manner in which the residence requirement will be met. Any special conditions must be detailed and will require the approval of the student's committee, the department faculty member 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 or college basis. In the descriptions of University doctoral degree requirements on the following pages, mention of department or departmental faculty should be interpreted as citations of college or collegiate faculty with specific reference to the doctoral program in engineering.

* 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, mention 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 Requirement

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 their requirements.

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, 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 400-numbered courses previously taken at the 400-numbered 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 limitation to complete degree requirements if 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 research technique (e.g., statistics and/or computer) may be substituted for one of the two foreign languages. Under the last option, each department should define competence in a foreign language.

- 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 a foreign language requirement.

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 must be signed by the advisor, department head and college dean prior to submission to 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.
4 Graduate studies
Buchtel College of Arts and Sciences

Randall C. Moore, Ph.D., Dean
Roger B. Creel, Ph.D., Associate Dean
William A. Francis, Ph.D., Associate Dean
Nancy K. Grant, 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 advisor or advisory committee. This consists of the 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 the areas of therapy, research, and practice of Counseling Psychology. Academic preparation includes theories of individual and group psychotherapy, psychodiagnostic, vocational development, 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 Department entry may be made only with the approval of the counseling psychology program faculty.

Requirements

The curriculum reflects the interdisciplinary 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>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Psychology core courses (610, 620, 630, 640)</td>
<td>14</td>
</tr>
<tr>
<td>- Counseling psychology core courses</td>
<td></td>
</tr>
<tr>
<td>- 653, 707, 710, 711, 712, 713, 714, 715</td>
<td>30</td>
</tr>
<tr>
<td>- Practicum sequence (671, 672, 673, 795 [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.
- 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 another 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 to 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 1607 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.
• A reading knowledge of two languages will be required. With the approval of the student's doctoral committee and the Graduate Committee, the student may substitute a cognate field for one of the two required languages when it seems appropriate for the student's general program.

• Complete all general requirements for the Doctor of Philosophy degree.

Doctor of Philosophy in Psychology

The Department of Psychology offers a doctoral degree in psychology with specialization in either industrial/organizational psychology, applied 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 30 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 courses;
  - completion of additional required and elective courses to be planned in conjunction with the student's faculty advisor and subject to approval by the department's graduate student handbook.

• 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 handbook).

• Dissertation research:
  - completion of 3750:899 Doctoral Dissertation; minimum 12 credits;
  - satisfactory performance on final oral examination and defense of dissertation research.

• Other requirements:
  - Refer to the department's graduate student handbook 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

Akron-Kent Joint Ph.D. Program

The University of Akron and Kent State University departments of sociology offer a joint program leading to the Ph.D. degree. Faculty and student 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 coursework or equivalent (18 credits) in the sociology master of arts program at The University of Akron. The coursework must include the master of arts core sequence. Scores from 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
  - 3862:747 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 in coursework.

• 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.

• Full 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 coursework.

• 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) coursework 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 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 reports, 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.

Entering students will also have successfully completed the following Master's level social science prerequisites (or equivalently before formal admission):

- 3980:600 Basic Analytical Research 3
- 3980:601 Advanced Research and Statistical Methods 3
- 3980:611 Introduction to the Profession of Public Administration 3
- 3350:630 Introduction to Planning Theory 3
- 3980:640 Fiscal Analysis 3
- 3940:643 Introduction to Public Policy 3

The Doctoral Committee may also require an applicant to take an admission examination, either written or oral, or both. A student may be admitted to the doctoral program subject to completing graduate-level bridge-up coursework designed to make up deficiencies in previous coursework. Bridge-up coursework will not count toward the doctoral degree course requirements.

**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 specializations: 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 major area of specialization. A minimum of 63 credits beyond the master's degree is required, 48 hours of coursework, 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 sciences), history, mathematical sciences, modern languages (Spanish, French, German, Russian), political science, psychology, sociology, and urban studies. Before undertaking such a program, the student must show that the general requirements for admission to the Graduate School have been met, and the standard requirements for an undergraduate major in the area of the proposed graduate specialty have been met or that the student has performed work which the department approves as equivalent to an undergraduate major.

**Biology**

**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 (Q, V, and Subject tests).
- Submit a letter of proposed area of specialization within biology.
- Non-native speakers of English must submit an IELTS score of 220 or above.

**Master of Science**

**Thesis Option**

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

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

**Nonthesis Option**

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.

**Chemistry**

**Master of Science**

**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 coursework (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.

**Economics**

**Master of Arts**

**Thesis Option**

A minimum of 30 credits of coursework 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 at least two courses.

**Nonthesis Option**

A minimum of 30 credits of coursework 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:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3250:602</td>
<td>Microeconomic Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>3250:611</td>
<td>Microeconomic Theory I</td>
<td>3</td>
</tr>
<tr>
<td>3250:620</td>
<td>Applications of Mathematical Models to Economics*</td>
<td>3</td>
</tr>
<tr>
<td>3250:625</td>
<td>Statistics for Economics*</td>
<td>3</td>
</tr>
</tbody>
</table>

**Areas of Specialization:**

- Economic Development and Planning
- Economic Theory and Policy
- Industrial Organization and Public Policy
- International Economics
- Labor and Industrial Relations
- Quantitative Methods

Exceptional departures from these requirements may be approved with the permission of the graduate faculty and department head. Courses taken outside the department must be approved in writing by the student's adviser prior to enrollment.

*These courses may be waived for the student who can demonstrate, in a qualifying exam, an adequate preparation in mathematics and statistics.

**English**

**Master of Arts**

**Thesis Option**

A minimum of 33 credits is required (27 credits of coursework and 6 credits of thesis). Of the 27 credits of coursework, 18 must be at the 600 level and 12 must be in literature or literary theory (exclusive of individual reading).

**Nonthesis Option**

A minimum of 26 credits is required, of which 24 must be at the 600 level and 2 must be in literature or literary theory (exclusive of individual reading).
Required Courses for Both Options

3300:506 Chaucer
3300:570 History of the English Language
3300:670 Modern Linguistics
3300:615 Shakespearean Drama
3300:691 Bibliography and Literary Research

Alternate Track in Composition

Alternate Track in Composition is intended for students interested in the teaching of English in secondary schools and in the teaching of writing and literature at two- and four-year colleges. The degree is also appropriate for those planning to enter a doctoral program in composition and rhetoric. The program does not lead to state certification for teaching; students should consult the Department of Secondary Education for requirements for state certification to teach in the public schools.

Thesis Option

A minimum of 33 credits is required (27 credits of coursework and 6 hours of thesis). Of the 27 credits of coursework, 18 must be in composition studies (including courses in composition, linguistics, and rhetoric) and 9 credits in literature or literary theory (exclusive of individual reading). Of the 27 credits of coursework, 15 must be at the 600 level.

Nonthesis Option

A minimum of 36 credits is required, only 6 of which may be individual reading. At least 24 credits required in composition studies (including courses in composition, linguistics, and rhetoric) and 9 credits in literature or literary theory (exclusive of individual reading). Of the 36 credits of coursework, 21 must be at the 600 level.

Required Courses for Both Options

3300:576 Theory and Teaching of Basic Composition 3
3300:670 Modern Linguistics 3
3300:673 Theories of Composition 3
3300:674 Research Methodologies in Composition 3

Other Available Courses for Both Options

Composition and Rhetoric:
3300:575 Theory of Rhetoric 2
3300:679 Scholarly Writing 3
3300:689 Seminar: Reading Theory 3

Linguistics:
3300:570 History of the English Language 3
3300:571 U.S. Dialects: Black and White 3
3300:589 Grammatical Structures of Modern English 3
3300:589 Sociolinguistics 3
3300:669 Contextual Linguistics 3

Literature and Literary Theory:
Any approved department offering at the 500 or 600 level.

Graduate Foreign Language Requirement for All Master’s Degrees in English:
The language requirement for the M.A. in English and the M.A. in English: Alternate Track in Composition is as follows:
Demonstration of reading proficiency in a foreign language appropriate to English Studies. Completion of one junior- or senior-level course in a foreign language (with a grade of “B” or better) will exempt the student from examination provided the course was taken no more than five years before the student began his or her graduate work.

Note: 3300:600 Teaching College Composition Practicum (100:111 for 2 credits and 100:112 for 2 credits) are required for Teaching Assistants. They do not count toward the degree requirements.

Geography and Planning

Master of Arts in Geography

Nonthesis Option

A minimum of 39 graduate credit hours, to include no more than 6 credits of 3350:698. At least 12 credit hours must be taken at the 600 level, excluding 3350:698 and 699.

Core Requirements – 12 credit hours (4 courses)
3350:581 Geographic Research Methods
3350:583 Spatial Analysis
3350:586 Field Research Methods
3350:687 History of Geographical Thought

• Seminars: Completion of research papers in at least 2 courses from the following (6 hours):
  3350:600 SEM: (tag)
  3350:601 SEM: (tag)
  3350:602 SEM: (tag)

• Electives – 21 credit hours

Any course taken outside the department must be approved in advance by the student’s Graduate Advisor or the Department Head.

Thesis Option

A minimum of 36 graduate credit hours, to include no more than 6 credits of 3350:698. At least 12 credit hours must be taken at the 600 level, excluding 3350:698 and 699.

Core Requirements (12 credit hours)
3350:581 Geographic Research Methods
3350:583 Spatial Analysis
3350:596 Field Research Methods
3350:687 History of Geographic Research

• Thesis – 9 credit hours

• Electives – 15 credit hours, at least 3 credits of which must be from the following:
  3350:600 SEM: (tag)
  3350:601 SEM: (tag)
  3350:602 SEM: (tag)

Any course taken outside the Department must be approved in advance by the student’s Graduate Advisor or the Department Head.

Master of Science in Geography

• Minimum of 39 graduate credit hours, to include no more than 6 credits of 3350:698. At least 12 credit hours must be taken at the 600 level, excluding 3350:698 and 699.

• Core Required Courses – 15 credit hours
  3350:581 Geographic Research Methods
  3350:583 Spatial Analysis
  3350:596 Field Research Methods
  3350:687 History of Geographic Thought
  3350:690 Advanced Spatial Analysis

• Methods/Techniques Requirement
  At least 4 courses (12 credit hours) from:

  3350:505 Geographic Information Systems
  3350:548 Automated Computer Mapping
  3350:542 Thematic Cartography
  3350:547 Introduction to Remote Sensing
  3350:589 ST. Computer Applications
  3350:600 SEM: Spatial Analysis
  3350:637 Methods of Planning Analysis I

• Electives – 12 credit hours

Any course taken outside the Department must be approved in advance by the student’s Graduate Advisor or the Department Head.

Master of Arts (Geography/Urban Planning)

• A total of 45 credits of coursework plus internship (3350:685) as follows:

  • Core Requirements

    3350:533 Introduction to Planning
    3350:561 Geographic Research Methods
    3350:583 Spatial Analysis
    3350:586 Urban Land Use Analysis
    3350:630 Introduction to Planning Theory
    3350:631 Facilities Planning
    3350:632 Land Use Planning Law
    3350:637 Methods of Planning Analysis I
    3350:638 Methods of Planning Analysis II
    3350:629 Development of American Planning

  • Electives – 5 courses, with a concentration from one of the following groups.

Land Use and Transportation (any three)
3350:522 Transportation Systems Planning
3350:528 Industrial and Commercial Site Location
3350:585 Soil and Water Field Studies
3350:680 Advanced Spatial Analysis

Cartography/Remote Sensing (any three)
3350:542 Thematic Cartography
3350:544 Map Compilation and Reproduction
3350:548 Automated Computer Mapping
3350:547 Introduction to Remote Sensing
3350:549 Advanced Remote Sensing
Comparative Planning (any three)
3350:538 World Metropolitan Areas
3350:650 Development Planning
3350:571 Medical Geography and Health Planning
3350:633 Comparative Planning
3350:680 Advanced Spatial Analysis

G.I.S. (any three)
3350:565 Geographic Information Systems
3350:547 Introduction to Remote Sensing
3350:542 Thematic Cartography
3350:548 Automated Computer Mapping
3350:680 Advanced Spatial Analysis

Geology

Master of Science

• Complete a minimum of 30 credits of which at least 10 credits shall be at the 600 level and no more than two in research problems and six in thesis research.
• Proficiency examination at the beginning of program to determine any 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 thesis work until he/she has successfully passed the proficiency examination and has corrected deficiencies from same. Formal thesis work includes thesis proposal and 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:
  3370:680 Seminar in Geology 2
  3370:699 Master's Thesis 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 be required to take appropriate undergraduate courses. The student must pass written examinations in two of the three fields. The second field will be determined by the student and the Department of Geology faculty. A committee of engineering geology faculty will determine appropriate coursework on an individual basis.

Environmental Geology

Equivalents of the current science and mathematics requirements for the University B.S. in geology are required. As many as eight credits may be selected from engineering, biology and/or geography with the approval of a geology adviser.

History

Master of Arts

• 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 work 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 Written Language (TOEFL), at least 240 on the Test of English as a Spoken Language (TSE), 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 America to 1877
    - Medieval United States Since 1877
    - European Renaissance to 1750 Latin America
    - European, 1750 to the Present East Asia
    - England and the Empire History of Science
  - 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.
• 3400:688 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 three courses:
    - 3450:510 Advanced Linear Algebra
    - 3450:512 Abstract Algebra II
    - 3450:611 Topics in Algebra
  - And all of the following courses:
    - 3450:621 Real Analysis
    - 3450:622 Measure Theory
    - 3450:625 Analytic Function Theory
    - 3450:692 Seminar in Mathematics 1-3
**Thesis Option (30-39 credits)**

In addition to the placement review and core 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 Master's Thesis 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 pre-requisites:**
  - 3470:561 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:**
  - 3470:651 Probability and Statistics 4
  - 3470:652 Advanced Mathematical Statistics 3
  - 3470:655 Linear Models 3
  - 3470:603 Experimental Design 3
  - 3470:605 Regression and Correlation 3
  - 3470:692 Seminar in Statistics 1-3
- **Thesis Option (30 credits of graduate work)**
  - In addition to the core curriculum, 9-10 credits in 500/600-level mathematical sciences courses and 2-4 credits in 3470:699 Master's Thesis 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 nonthesis option.
  - With the consent of the department, up to 6 credits of approved graduate-level electives outside the department may be substituted in the thesis or nonthesis 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 (3450,512,12) 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 Advanced Numerical Analysis I, II 3
  - 3450:633 Methods of Applied Mathematics I, II 6
  - 3450:692 Seminar in Mathematics 1-3

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

In addition to the placement review and core requirements, 3-5 credits of approved 500/600-level courses in mathematics (3450), statistics (3460), or computer science (3460), and 2-4 credits in 3450:699 Master's Thesis 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, 10 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 classes in 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 (3450,521,2) and Mathematical Models (3450:539).

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.

- 3450:510 Advanced Linear Algebra 3
- 3450:621 Real Analysis 3
- 3450:627 Advanced Numerical Analysis I 3
- 3450:635 Optimization 3
- 3450:636 Advanced Combinatorics and Graph Theory 3
- 3470:655 Advanced Probability and Stochastic Process 3
- 3470:651 Probability and Statistics 4
- 3450:692 Seminar in Mathematics 1-3

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

In addition to the placement review and core requirements, 2-4 credits of approved 500/600-level courses in mathematics (3450), statistics (3460) or computer science (3460), and 2-4 credits in 3450:699 Master's Thesis 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, 9 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.

**Master of Science – Computer Science**

**Admission Requirements**

All applicants for admission to the graduate program in computer science must meet the university requirements for graduate admission as published in Section 3 of the Graduate Bulletin. In addition to these requirements, the applicant must also:

- submit 3 letters of recommendation from individuals capable of evaluating the applicant's potential for success in the program;
- have earned a baccalaureate degree in computer science or a related discipline from an accredited college or university with a GPA of 3.00 or higher in computer science and related courses;
- demonstrate proficiency in the areas of differential and integral calculus, probability and statistics, discrete mathematics, and knowledge of at least one high-level, general purpose programming language, and;
- demonstrate proficiency in the areas of data structures, assembly language, computer organization, operating systems, and the theory of programming languages. A student deficient in one or more of these areas may be granted conditional admission.

The Graduate Record Examination (GRE) is recommended.

**Degree Requirements**

The curriculum has been designed to follow the guidelines and recommendations of the Association for Computing Machinery for Master's Programs in Computer Science. Most full-time degree candidates admitted into the program will complete the degree requirements in two years. The thesis option requires 30 semester hours of graduate work while the nonthesis option requires 33.

- **Core Courses (required of all students):**
  - Seven courses must be chosen from the following categories: two from each of categories A and B, and one from each of categories C, D, and E. 
  - A. Programming Languages
  - B. Operating Systems and Computer Architecture
  - C. Theoretical Computer Science
  - D. Data and File Structures
  - E. Applications
  - Complete at least one 2-course sequence from each of the following groups:
    - Group 1: (526, 626), (540, 640), (565, 695)
    - Group 2: (555, 655), (560, 660), (570, 670), (575, 675)
    - 3450:692 Seminar in Computer Science. This seminar is an introduction to research in computer science. For thesis option students, it is the beginning of the thesis research.
  - At least 20 credits must be taken at the 600 level.
**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 Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3650:511:2</td>
<td>Advanced Laboratory I, II</td>
<td>4</td>
</tr>
<tr>
<td>3650:615</td>
<td>Electromagnetic Theory</td>
<td>3</td>
</tr>
<tr>
<td>3650:625</td>
<td>Quantum Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>3650:641</td>
<td>Lasing Laser Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>3650:661</td>
<td>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 Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Advanced Laboratory I, II</td>
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</tr>
<tr>
<td>3650:615</td>
<td>Electromagnetic Theory</td>
<td>3</td>
</tr>
<tr>
<td>3650:625</td>
<td>Quantum Mechanics I</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 Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3650:500</td>
<td>History of Physics</td>
<td>3</td>
</tr>
<tr>
<td>3650:504</td>
<td>Energy and Environment</td>
<td>3</td>
</tr>
<tr>
<td>3650:508</td>
<td>Digital Data Acquisition</td>
<td>2</td>
</tr>
<tr>
<td>3650:590</td>
<td>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 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 3650:698 Master's Thesis 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.

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**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:
  - 3700:601 Scope and Theory of Political Science 3
  - 3706:601 Research Methods in Political Science 3
- Three additional departmental seminars – 9 credits (Neither Independent Research, Thesis, nor 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. The 699 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.

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**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):
  - thesis option: Master of A.A. core courses with a minimum of 3.25 GPA in 3750:610, 620, 630, 640, or successful performance on core mastery examination;
  - nonthesis option: written and oral comprehensive examinations in the specialty area.
- 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.
Public Administration and Urban Studies

Master of Arts in Urban Studies

Courses may be taken outside the Department of Public Administration and 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 in consultation with a faculty adviser, plan a complete course of study which includes 15-18 hours of core and 15-18 hours of approved electives.

- Core:
  3980:600 Basic Quantitative Research 3
  3980:601 Advanced Research and Statistical Methods 3
  3980:602 History of Urban Development 3
  3980:641 Urban Economic Growth and Development 3
  3980:643 Introduction to Public Policy 3
  3980:699 Master's Thesis (optional) 4

Basic Program

Complete 33 credits of coursework as follows:

- Core – 15-18 credits.
- Approved electives – 15-18 credits.
- 3 credits of approved electives may be substituted for thesis with approval of academic adviser.

Master of Public Administration (MPA)

The Program in Public Administration is specifically designed to prepare the student for a public service career in public management and 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 records meet 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: 46 credits
  - Core requirements (36-38 credits):
    - 3980:600 Basic Quantitative Research 3
    - 3980:601 Advanced Research and Statistical Methods 3
    - 3980:602 History of Urban Development 3
    - 3980:611 Introduction to the Profession of Public Administration 3
    - 3980:614 Ethics and Public Service 3
    - 3980:613 Public Administration Theory 3
    - 3980:615 Personnel Management in the Public Sector 3
    - 3980:640 Fiscal Analysis 3
    - 3980:641 Public Budgeting 3
    - 3980:642 Introduction to Public Policy 3
    - 3980:643 Internship (may be repeated for a total of 6 credits) 3
    - 3980:699 Master's Thesis (optional) 3

- and select 1 from the following 3 courses:
  - 3980:602 History of Urban Development 3
  - 3980:617 Leadership and Decision Making 3
  - 3980:671 Program Evaluation 3

- Areas of Concentration:
  - Urban and Non-Profit Management
  - Urban Theory and Administration
  - Public Sector Economics and Financial Management
  - Public Policy Analysis and Program Evaluation

- See advisor for suggested courses. Students are encouraged to construct a coherent set of courses that will contribute to more in-depth or multi-disciplinary knowledge of a given area of concentration.

Advanced Elective Courses (6-9 credits):

- 3250:639 Public Employee Collective Bargaining 3
- 3250:666 Seminar in Regional Economic Analysis and Development 3
- 3700:630 Seminar in National Politics 3
- 3700:641 Seminar in Intergovernmental Relations 3
- 3700:670 Seminar in the Administrative Process 3
- 3980:690 Workshop 3
- 3980:691 National Urban Policy 3
- 3980:692 Intergovernmental Management 3
- 3980:693 Citizen Participation 3
- 3980:694 Social Service Planning 3
- 3980:695 Urban Society and Service Systems 3
- 3980:696 Public Finance and Public Policy 3
- 3980:697 Public Works Administration 3
- 3980:699 Parks and Recreation 3
- 3980:698 Urban Economic Growth and Development 3
- 3980:699 Comparative Urban Systems 3
- 3980:700 Research for Futures Planning 3
- 3980:711 Program Evaluation 3
- 3980:712 Alternatives to Urban Futures 3
- 3980:713 Computer Applications for Public Organizations 3
- 3980:714 Analytical Techniques for Public Administration 3
- 3980:800 Selected Topics in Urban Studies 3
- 3980:801 Selected Topics in Urban Studies 3
- 3980:897 Individual Studies 1-3

J.D./Master of Public Administration

The University offers a joint J.D. and Public Administration program. The title is J.D./MPA.

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

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.)

This program reduces the total existing credit hours of the School of Law and Public Administration by nine credit hours (from 85 to 76), while public administration requirements are reduced by 12 credit hours (from 42 to 30).

Sociology

Master of Arts

Thesis Option

Satisfactory completion of 32 semester credits of which at least 21 must be at the 600 level or higher in sociology or anthropology (excluding 3850:699; 3850:697 and 3850:698). In meeting these requirements the student must:

- Complete five required core courses with at least a 3.00 grade-point average:
  - 3850:603 Sociological Research Methods 3
  - 3850:604 Social Research Design 3
  - 3850:617 Sociological Theory 3
  - 3850:631 Social Psychology 3
  - 3850:645 Social Organization 3
  - 3850:706 Multivariate Techniques in Sociology 3

- Complete at least six hours of thesis work (3850:699). No more than six credits may be transferred.
- 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 3
  - 3850:604 Social Research Design 3
- and select 1 from the following 3 courses:
  - 3850:617 Sociological Theory 3
  - 3850:631 Social Psychology 3
  - 3850:645 Social Organization 3

- Complete at least six hours of thesis work (3850:699). No more than six credits may be transferred.
- Completion of master's thesis and successful oral defense of thesis.

*Students may take 3250:606 Public Finance and 3250:506 State and Local Public Finance to fulfill the requirements of 3850:640 Fiscal Analysis and 3850:642 Public Budgeting. Students must have a minimum grade-point average of 3.00 in the course.

**Student working full-time may satisfy internship without a field placement. See advisor for alternative requirement.

Any required course except 3980:699, Master's Thesis, 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.
• Completion of at least 15 credits in a contracted specialty area. This area must be defined in consultation with the student's adviser and approved by the Graduate Studies Committee. Courses from other departments may be taken to meet the specialty requirement.

• Pass an oral examination on the specialty area.

**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.
College of Engineering

Irving F. Miller, Ph.D., Dean
Max S. Willits, Jr., Ph.D., Associate Dean, Research and Graduate Studies
Paul C. Lam, Ph.D., Associate Dean, Undergraduate Studies and Minority Affairs
Done McCubrey, Ph.D., Director of Women in Engineering Program

DOCTOR OF PHILOSOPHY IN ENGINEERING DEGREE

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

Admission Requirements

Applicants 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 the College of Engineering.

Applicants with a master of science degree must provide satisfactory evidence of an equivalent engineering baccalaureate background to the Dean of the College of Engineering.

Applicants 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 experience that provide a rationale for the proposed graduate study may also be submitted.

Applicants with a bachelor's degree must have a cumulative grade-point average of at least 3.0/4.0.

Applicants with a master's degree must have a cumulative grade point average of at least 3.5/4.0.

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.

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

Applicants with a bachelor's degree or a master's degree in a discipline other than engineering shall have completed undergraduate coursework in calculus, differential equations, have one year of classical physics, and must select and complete at least 24 credits of undergraduate coursework of which 18 credits must be from one of the four undergraduate engineering disciplines listed below. The remaining 6 credits may be from among the four disciplines listed below. These undergraduate engineering courses may be taken prior to graduate admission, or concurrently, if the student has Full Admission or Provisional Admission, and is enrolled for at least 9 graduate credits.

Chemical Engineering
4200:325 Equilibrium Thermodynamics 4
4200:321 Transport Phenomena I 3
4200:322 Transport Phenomena II 3
4200:330 Chemical Reaction Engineering 3
4200:361 Fluid and Thermal Operations 3
4200:363 Mass Transfer Operations 3
4200:435 Process Analysis and Control 3
4200:441 Process Economics and Design 4
Total 26

Civil Engineering
4200:300 Theory of Structures 3
4300:313 Soil Mechanics 3
4600:210 Fluid Mechanics 3
4300:223 Water Supply and Wastewater Disposal 4
4300:341 Hydraulic Engineering 3
4300:361 Transportation Engineering 3
4300:401 Steel Design 3
4300:403 Reinforced Concrete Design 3
Total 25

Electrical Engineering
4400:360 Physical Electronics 3
4400:361 Electronic Design 4
4400:363 Switching and Logic 4
4400:234 Energy Conversion I 3
4400:355 Energy Conversion Lab 2

4400:445 Analog Communications 3
4400:533 Antenna Theory 3
4400:573 Control Systems II 4
Total 26

Mechanical Engineering
4600:300 Thermodynamics I 4
4600:301 Thermodynamics II 3
4600:310 Fluid Mechanics 3
4600:315 Heat Transfer 3
4600:336 Analysis of Mechanical Components 3
4600:340 Systems Dynamics and Response 3
4600:330 Mechanical Metallurgy 2
4600:531 Fundamentals of Mechanical Vibrations 3
4600:541 Control System Design 2
Total 27

Degree Requirements

The University's Academic Requirements (See Academic Requirements in this Graduate Bulletin) for the Doctoral Degree and the following College of Engineering's academic requirements for the Doctoral Degree must be satisfied.

- Pass a department Qualifying Examination. The purpose of the qualifying examination is to determine admissibility to the doctoral program and any technical weaknesses.
- Identify an interdisciplinary field of study, a dissertation director, and an interdisciplinary doctoral committee before completion of 18 credits of coursework.
- 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 coursework, of which 42 credits must be at the 600 and 700 level and of which 6 credits may be special topics or 400/500 level courses. 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 successfully (to "pass" votes) defend the dissertation to the interdisciplinary doctoral committee.

A copy of the Ph.D. in Engineering Program Procedures may be obtained from the office of the Dean of the College of Engineering.

Interdisciplinary Fields of Study

The proposal to establish a doctoral program in the College of Engineering, which was approved by the Board of Trustees of The University of Akron and the Ohio Board of Regents in 1967-68, defines the four undergraduate departments, Chemical, Civil, Electrical, and Mechanical, as the basic disciplines for the interdisciplinary programs in Environmental Engineering, Materials Science, Mechanics, Systems Engineering, and Process Processes. The proposal's intent is to limit the administrative mechanism to the College and the departments while the interdisciplinary programs could be expanded to adapt to the changing research and funding trends. Since the approval of the proposal, Biomedical Engineering and Polymer Engineering have been added to the list of interdisciplinary programs. These interdisciplinary programs are broadly defined as follows.

- Environmental Engineering includes the study of water and air pollution, environmental health, chemical disposal, waste management, noise control, resource engineering, and appropriate fields of urban planning.
- Mechanics includes the theoretical and experimental study of the stresses, strains, and endurance of structures, machines, and marine and mechanical materials, mechanisms, fluids, solids, and composite materials.
- Systems Engineering include the scientific prediction, control, and evaluation of the performance of integrated operational systems, and interaction effects among the components of engineering systems. It includes system analysis and design, operations research, linear and dynamic programming.
- Materials Science studies the materials from the physical, chemical, and engineering standpoint. Its purpose is to develop a better understanding of the composition, properties, and performance of various materials, and to develop new materials, manufacturing methods, and applications.
- Transport Processes include the theoretical and experimental study of the transfer of mass, energy, and power, as related to engineering systems and processes.

Biomedical Engineering studies the theoretical and experimental application of engineering principles to biomedical problems. Some typical areas of interest are signal and image processing, biomechanics, and biostatistics.
Polymer Engineering combines fundamental engineering principles with the structure and rheological properties of polymers to design and analyze polymer processes and equipment. The interdisciplinary doctoral program permits doctoral student access to the academic resources of the entire College and provides a sound economic base for a program that must deal with doctoral student populations that are much smaller than those for undergraduate or master degrees.

COORDINATED AND JOINT PROGRAMS

Coordinated Engineering Applied Mathematics program for the Doctor of Philosophy in Engineering degree between the College of Engineering and the Department of Mathematical Sciences

The faculty in the College of Engineering and the Department of Mathematical Sciences have agreed to provide a coordinated program, subject to the following conditions, for those graduate students who elect the interdisciplinary field of Engineering Applied Mathematics.

Admission Requirements

Applicants for the Engineering Applied Mathematics Program must have their graduate application and credentials evaluated by one of the departments in the College of Engineering and the Department of Mathematical Sciences. The Admission Requirements for the Doctor of Philosophy in Engineering, as given in the Graduate Bulletin, shall apply to all applicants for the Engineering Applied Mathematics Program.

Degree Requirements

The applicable Degree Requirements for the Engineering Applied Mathematics Program are those given in the Graduate Bulletin under the section Doctor of Philosophy in Engineering. Those degree requirements include passing a Qualifying Examination, identifying a Dissertation Director, establishing an Interdisciplinary Doctoral Committee, completing a formal Plan of Study, satisfying the University's language and residency requirement, passing a Candidacy Examination, presenting an acceptable Dissertation Proposal, writing a dissertation, and publicly and successfully (no "fail" votes) defending the dissertation before the Interdisciplinary Doctoral Committee.

Students in the Engineering Applied Mathematics Program must pass a departmental Qualifying Examination composed and administered by the participating faculty from the Department of Mathematical Sciences and the participating faculty from one of the four undergraduate departments in the College of Engineering. The Interdisciplinary Doctoral Committee shall consist of at least six members. It shall have an equal number of faculty with primary appointments in the College of Engineering and participating program faculty from the Department of Mathematical Sciences. The participating faculty from the Department of Mathematical Sciences must hold joint appointments in the College of Engineering.

Students lacking a bachelor's degree or master of science degree in engineering shall take a minimum of 24 credits of bridging courses of which 6 credits may be at the 500 level. (For a list of these bridging courses, see the Admission Requirements for the Doctor of Philosophy in Engineering degree.) Students with a bachelor's degree in engineering shall take:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3450:312</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>3450:327</td>
<td>Introduction to Numerical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>3450:438</td>
<td>Advanced Engineering Mathematics I</td>
<td>3</td>
</tr>
<tr>
<td>3450:439</td>
<td>Advanced Engineering Mathematics II</td>
<td>3</td>
</tr>
<tr>
<td>3450:421</td>
<td>Advanced Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>3450:422</td>
<td>Advanced Calculus II</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

The student may substitute 3450:601, Introduction to Analysis, for Advanced Calculus I and Advanced Calculus II. These bridging courses may be taken concurrently with graduate courses in the Engineering Applied Mathematics Program and they must be completed in the first two academic years of study.

Graduate students who elect the Engineering Applied Mathematics Program may proceed directly from their baccalaureate degree to the doctoral degree.

Students participating in the Engineering Applied Mathematics Program must have 42 credit hours of 600/700 level courses, of which none are special topics courses, and 6 credits of special topics or 400/500 level courses. At least 24 credit hours of coursework must be from the College of Engineering and at least 24 credits of coursework must be from the Department of Mathematical Sciences.

Coordinated program for the Doctor of Philosophy in Engineering degree between The University of Akron and Youngstown State University.

The University of Akron and Youngstown State University are engaged in a coordinated program with the objective of facilitating graduate study by engineering students residing in proximity to Youngstown State University. This provides the opportunity and convenience of completing some of the requirements for the Doctor of Philosophy in Engineering at The University of Akron through joint coursework and enrollment at Youngstown State University.

Admission Requirements

When an engineering graduate student at Youngstown State University declares an interest in the joint doctoral program, the student shall prepare a letter of intent, with academic credentials, to the dean of engineering at Youngstown State University. The dean of engineering at Youngstown State University shall forward the letter of intent and academic credentials, together with a recommendation, to the dean of engineering at The University of Akron. The dean of engineering at The University of Akron shall have the graduate faculty in the applicant's discipline evaluate the academic credentials and make a recommendation on the academic acceptability of the applicant. If the recommendation is favorable, the student shall be advised to apply to the Graduate School at The University of Akron for formal admission to the Doctoral Program in the College of Engineering at The University of Akron. The dean of Graduate Studies and Research at Youngstown State University shall be kept informed of the progress of the admission procedure. The applicant from Youngstown State University must satisfy the Admission Requirements for the Doctor of Philosophy in Engineering at The University of Akron.

Degree Requirements

The engineering student from Youngstown State University must satisfy the Degree Requirements for the Doctor of Philosophy in Engineering at The University of Akron subject to the following modifications.

One of the members of the Interdisciplinary Doctoral Committee for the joint doctoral program candidate shall be an engineering faculty member from Youngstown State University and normally would be the student's dissertation director, although this is not necessary. The faculty member from Youngstown State University shall have adjunct status at The University of Akron and qualify for Category II graduate faculty membership.

One-half (24 credits) of the coursework and one-half (24 credits) of the research credits may be taken at Youngstown State University. The parity of courses is decided by the faculty on the Interdisciplinary Doctoral Committee when the student submits a proposed Plan of Study. At the Advancement to Candidacy, the Committee recommends official transfer of credits from Youngstown State University to The University of Akron.

Joint program for the M.D. and Doctor of Philosophy in Engineering degree between the College of Engineering at The University of Akron and the Northeastern Ohio Universities College of Medicine.

The College of Engineering and NEOUCOM provide a coordinated program for those desiring both the M.D. and Doctor of Philosophy in Engineering degrees. This program integrates the knowledge and skills acquired by the student in each of the 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.

Admission Requirements

Applicants with a bachelor's or master's degree in a discipline other than engineering or in engineering will be required to meet the Admission Requirements for the Doctor of Philosophy Degree in Engineering. Applicants will be required to have completed the following courses and to have taken the MCAT prior to admission into the coordinated M.D. and Doctor of Philosophy in Engineering program.

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.D. Principles of Chemistry I and II</td>
<td></td>
</tr>
<tr>
<td>M.D. Organic Chemistry I and II</td>
<td></td>
</tr>
<tr>
<td>M.D. Principles of Biology I and II</td>
<td></td>
</tr>
<tr>
<td>M.D. Ph. D. Classical Physics I and II</td>
<td></td>
</tr>
<tr>
<td>Ph.D. Statics</td>
<td></td>
</tr>
<tr>
<td>Ph.D. Dynamics</td>
<td></td>
</tr>
<tr>
<td>Ph.D. Strength of Materials (or Material Science)</td>
<td></td>
</tr>
<tr>
<td>Ph.D. Base Electrical Engineering (or Circuits I &amp; II)</td>
<td></td>
</tr>
<tr>
<td>Ph.D. Calculus I, II, III, and Differential Equations</td>
<td></td>
</tr>
</tbody>
</table>
Degree Requirements

To obtain an M.D. degree from NEUCOM and a Doctor of Philosophy Degree in Engineering, the student must satisfy NEUCOM's degree requirements and the College of Engineering's Doctor of Philosophy in Engineering Degree Requirements. This coordinated program does not change in any way the degree requirements for either program.

MASTER OF SCIENCE DEGREES

The degrees of 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.

Admission Requirements

Applicants for any of these master of science programs 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 evidence of an equivalent academic background to the Dean of the College of Engineering and the appropriate department head.

Applicants must submit an official undergraduate transcript, undergraduate grade point average, at least two letters of recommendation, and official results of the verbal, quantitative, and analytical portions of the GRE.

Applicants with a bachelor's degree must have an overall grade-point average of 2.75 or better or 3.00 for the last two years (64 semester credits or equivalent).

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).

Applicants who do not satisfy the requirements for Full Admission may be granted Provisional Admission or Deferred Admission.

Applicants with a bachelor's degree in a discipline other than engineering must have completed coursework of which 18 credits must be from one of the four undergraduate disciplines listed below. These undergraduate engineering courses may be taken prior to graduate admission, or concurrently if the student has Full Admission or Provisional Admission, and is enrolled for at least 9 graduate credits.

Chemical Engineering
4200:325 Equilibrium Thermodynamics 4
4200:321 Transport Phenomena I 3
4200:322 Transport Phenomena II 3
4200:330 Chemical Reaction Engineering 3
4200:351 Fluid and Thermal Operations 3
4200:353 Mass Transfer Operations 3
4200:425 Process Analysis and Control 3
4200:441 Process Economics and Design 4
Total 26

Civil Engineering
4300:308 Theory of Structures 3
4300:313 Soil Mechanics 3
4600:310 Fluid Mechanics 3
4300:323 Water Supply and Wastewater Disposal 3
4300:341 Hydraulics 3
4300:361 Transportation Engineering 3
4300:401 Steel Design 3
4300:403 Reinforced Concrete Design 3
Total 25

Electrical Engineering
4400:360 Physical Electronics 3
4400:361 Electronic Design 4
4400:362 Switching and Logic 4
4400:384 Energy Conversion I 3
4400:385 Energy Conversion Lab 2
4400:445 Analog Communications 3
4600:453 Antenna Theory 3
4600:472 Control Systems II 3
Total 26

Mechanical Engineering
4600:300 Thermodynamics I 4
4600:301 Thermodynamics II 3
4600:310 Fluid Mechanics 3
4600:315 Heat Transfer 3
4600:320 Analysis of Mechanical Components 3
4600:346 Systems Dynamics and Response 3
4600:380 Mechanical Metallurgy 2
4600:444 Fundamentals of Mechanical Vibrations 3
4600:441 Control System Design 3
Total 27

Degree Requirements

The University's Academic Requirements (See Academic Requirements in this Graduate Bulletin), the following College of Engineering's and department's academic requirements must be satisfied for the master of science degrees in the College of Engineering:

- Identify a three-member Advisory Committee including a major adviser before completion of 9 credit hours of coursework.
- Complete a formal Plan of Study that is acceptable to the Advisory Committee with a minimum of 24 credit hours of coursework of which no more than 6 credits are special topics courses. The formal Plan of Study may be revised upon approval of the Advisory Committee.
- Successfully (no "fail" votes) defend the thesis before the Advisory Committee, or have the Engineering Report approved by the Advisory Committee, or successfully complete the appropriate department's nonthesis option requirements.

Master of Science in Chemical Engineering

Thesis Option
4200:600 Transport Phenomena 3
4200:605 Chemical Reaction Engineering 3
4200:610 Classical Thermodynamics 3
Chemical Engineering Electives 6
Approved Electives 6
Approved Mathematics 3
Master's Thesis 6
Total 30

Nonthesis Option
4200:600 Transport Phenomena 3
4200:605 Chemical Reaction Engineering 3
4200:610 Classical Thermodynamics 3
Chemical Engineering Electives 6
Approved Electives 18
Approved Mathematics 3
Total 36

Chemical engineering students in both degree options must pass a comprehensive examination and are expected to attend and to participate in the department's seminars.

Master of Science in Civil Engineering

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

Thesis Option
Civil Engineering Courses 15
Approved Mathematics or Science 3
Approved Electives 6
Master's Thesis 6
Total 30

Nonthesis Option
Civil Engineering Courses 15
Approved Mathematics or Science 3
Approved Electives 12
Engineering Report 2
Total 32

Master of Science in Electrical Engineering

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

Thesis Option
Electrical Engineering Courses 15
Approved Mathematics 6
Approved Electives 3
Master's Thesis 6
Total 30

Nonthesis Option
Electrical Engineering Courses 18
Approved Mathematics 6
Approved Electives 9
Total 33

*The elective chemical engineering courses may not include more than three credits of 500 level courses.
**The required electrical engineering coursework of 18 credits may not include more than six credits of 500-level courses.
Electrical engineering students pursuing the Nonthesis option must pass a graduate level oral comprehensive examination which may be taken after 24 credits have been completed.

**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 the main area of interest to develop some breadth in their graduate education.

**Thesis Option**

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Engineering Courses*</td>
<td>15</td>
</tr>
<tr>
<td>Approved Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Approved Electives</td>
<td>6</td>
</tr>
<tr>
<td>Master’s Thesis</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>30</td>
</tr>
</tbody>
</table>

**Nonthesis Option**

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Engineering Courses*</td>
<td>15</td>
</tr>
<tr>
<td>Approved Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Approved Electives</td>
<td>12</td>
</tr>
<tr>
<td>Engineering Report</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>32</td>
</tr>
</tbody>
</table>

**Master of Science in Engineering**

This program is intended for the student whose educational objectives cannot be met by the four departmental master of science programs or those who wish to specialize in biomedical engineering, polymer engineering, or engineering management. Except for students in biomedical engineering and polymer engineering, students should declare in writing to the Dean of Engineering of their intention to study toward the Master of Science in Engineering degree. Upon admission, the dean will appoint an advisory committee consisting of three faculty members who are selected from at least two different departments. The thesis must be successfully (no "fail" votes) defended before the Advisory Committee, or the engineering report must receive the approval of the Advisory Committee.

**Thesis Option**

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Courses</td>
<td>12</td>
</tr>
<tr>
<td>Approved Mathematics or Science</td>
<td>3</td>
</tr>
<tr>
<td>Approved Electives</td>
<td>9</td>
</tr>
<tr>
<td>Master’s Thesis</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>30</td>
</tr>
</tbody>
</table>

**Nonthesis Option**

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Courses</td>
<td>18</td>
</tr>
<tr>
<td>Approved Mathematics or Science</td>
<td>3</td>
</tr>
<tr>
<td>Approved Electives</td>
<td>9</td>
</tr>
<tr>
<td>Engineering Report</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>32</td>
</tr>
</tbody>
</table>

**Biomedical Engineering Specialization**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4800:601</td>
<td>Biomedical Instrumentation</td>
<td>4</td>
</tr>
<tr>
<td>4800:611</td>
<td>Biometry</td>
<td>3</td>
</tr>
<tr>
<td>3100:695</td>
<td>Physiology for Engineers and Lab</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Approved Electives</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Master’s Thesis</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>33</td>
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</tbody>
</table>

**Polymer Engineering Specialization**

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymer Engineering Core</td>
<td>12</td>
</tr>
<tr>
<td>Polymer Engineering Electives</td>
<td>11</td>
</tr>
<tr>
<td>Approved Engineering and Science Elective</td>
<td>3</td>
</tr>
<tr>
<td>Thesis</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>32</td>
</tr>
</tbody>
</table>

**Engineering Management Specialization**

This is an evening program which is intended primarily for practicing engineers who are working full-time and wish to upgrade their engineering and management skills. The Engineering Management Report must be approved by the Advisory Committee, of which one member shall be from the College of Business Administration.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200:601</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>6400:602</td>
<td>Managerial Finance</td>
<td>2</td>
</tr>
<tr>
<td>6500:600</td>
<td>Management and Organizational Behavior</td>
<td>1</td>
</tr>
<tr>
<td>6800:600</td>
<td>Marketing Concepts</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>21</td>
</tr>
</tbody>
</table>

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200:601</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>6400:602</td>
<td>Managerial Finance</td>
<td>2</td>
</tr>
<tr>
<td>6500:600</td>
<td>Management and Organizational Behavior</td>
<td>1</td>
</tr>
<tr>
<td>6800:600</td>
<td>Marketing Concepts</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>21</td>
</tr>
</tbody>
</table>

**Elective**

Choose three credits of 600 level College Administration courses.

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*The program is limited to not more than three 500 level courses in engineering. Not more than two of the 500-level courses can be applied to the 15 credits of mechanical engineering coursework.*

**The specific courses for the Polymer Engineering Core Courses, Polymer Engineering Electives, and Approved Engineering and Science Courses are listed under the College of Polymer Science and Polymer Engineering.
College of Education

William E. Klingele, Ed.D., Dean
Larry G. Bradley, Ph.D., Associate Dean
Robert K. Eley, Ed.D., Director of Student Services

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 all requirements of the Graduate School, has met the following specific requirements:

- Completion of the Miller Analogies Test and/or the Graduate Record Examination. (Check departments for minimum score requirements.)
- 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 program designed to prepare the student for 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 alternative research skills prescribed by the adviser, subject to review by the department head, depending upon the career goals 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 approval by the department head, in lieu of the foreign language requirement.
- Completion of a 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 must be constituted of at least five full-time faculty members, one of whom must be from outside the college.
- Pass the general requirements for the Doctor of Philosophy degree.

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 baccalaureate 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 to a 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. Students receive exposure to both colleges through shared coursework and faculty involvement with dissertations but must formally register through one or the other of the colleges.

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 (3750:610, 620, 630, 640) is required of all students.
- Students register for dual listed courses (3750/6600) 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.
- Students are required to elect dissertation course (6000:899, Doctoral Dissertation) on which they are working.\n- Doctoral Dissertation (minimum) 15
- Internship (maximum) 15

Counseling and Special Education Track requirements:

Students may be considered for admission to the Counseling Psychology program through the Department of Counseling and Special Education if they have a master's degree in counseling, guidance and counseling, psychology, school psychology, or a related field.

Course Requirements

<table>
<thead>
<tr>
<th>Hours</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>3</td>
<td>Techniques of Research</td>
</tr>
<tr>
<td>3</td>
<td>Counseling: Theory and Practice</td>
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<tr>
<td>3</td>
<td>Group Testing in Counseling</td>
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<tr>
<td>3</td>
<td>Career Counseling: Theory and Practice</td>
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<tr>
<td>3</td>
<td>Techniques of Counseling</td>
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<tr>
<td>4</td>
<td>Psychology Core I</td>
</tr>
<tr>
<td>4</td>
<td>Psychology Core II</td>
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<td>Psychology Core III</td>
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<td>4</td>
<td>Psychology Core IV</td>
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<td>4</td>
<td>Group Counseling</td>
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<tr>
<td>3</td>
<td>Supervision in Counseling Psychology I</td>
</tr>
<tr>
<td>3</td>
<td>Supervision in Counseling Psychology II</td>
</tr>
<tr>
<td>4</td>
<td>Theories of Counseling and Psychotherapy</td>
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<td>4</td>
<td>Vocational Behavior</td>
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<tr>
<td>4</td>
<td>Principles and Practice of Intelligence Testing</td>
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<td>4</td>
<td>Advanced Seminar in Counseling Psychology</td>
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<td>4</td>
<td>Objective Personality Evaluation</td>
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<td>4</td>
<td>Research Design in Counseling I</td>
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<tr>
<td>3</td>
<td>Counseling Psychology Practicum</td>
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<td>3</td>
<td>Counseling Psychology Practicum</td>
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<td>3</td>
<td>Statistics in Education</td>
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<td>3</td>
<td>Advanced Educational Statistics</td>
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<tr>
<td>3</td>
<td>College of Education Foundation</td>
</tr>
<tr>
<td>3</td>
<td>Doctoral Dissertation (minimum)</td>
</tr>
</tbody>
</table>

Minimum Total Credit Hours Required: 72
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 or a related field. The program allows the student a choice of three specialty areas: (a) Counselor Education, (b) Clinical Mental Health Counseling, and (c) 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. Practica 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 can meet the academic requirements for a Licensed Professional Clinical Counselor in Ohio. Graduates with a specialty in Marriage and Family Therapy with the proper selection of courses can meet the academic requirements for membership in the American Association for Marriage and Family Therapy.

The Ph.D. Program in Guidance and Counseling is accredited by the Council for Accreditation of Counseling and Related Education Programs (CACREP), a specialized accrediting body recognized by the Council on Postsecondary Education (COPA).

Ph.D. in Guidance and Counseling Requirements:

<table>
<thead>
<tr>
<th>Master's Degree</th>
<th>31-34</th>
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<tbody>
<tr>
<td>Foundations of Education</td>
<td>9</td>
</tr>
<tr>
<td>Research and Statistics</td>
<td>12</td>
</tr>
<tr>
<td>5100:741 Statistics in Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:742 Advanced Educational Statistics</td>
<td>3</td>
</tr>
<tr>
<td>5600:715 Research Design in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>5600:716 Research Design in Counseling II</td>
<td>3</td>
</tr>
<tr>
<td>Major: Guidance and Counseling</td>
<td>29-32</td>
</tr>
</tbody>
</table>

(Must be taken after admission to the doctoral program)

- 5600:702 Advanced Counseling Practicum | 12 |
- 5600:685 Internship in Counseling | 3-6 |
- 5600:707 Supervision in Counseling Psychology I | 3 |
- 5600:708 Supervision in Counseling Psychology II | 3 |
- 5600:721 Major Electives | 8 |

Cognate

Cognate coursework must be taken outside the College of Education and approved by the major advisor.

Electives

Electives to be selected with the approval of the student's major advisor.

Dissertation

Minimum Total Semester Credits: 120

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

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 advisor, 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.

DOCTOR OF EDUCATION DEGREE

The Department of Educational Administration offers a program leading to the Doctor of Education degree. The program is designed to meet the needs and interests of persons in public or private K-12 educational organizations.

An option in Higher Education Administration is also offered by the department. This program is designed for persons who wish to pursue a career in college, university or other postsecondary 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) | 31 |
  - School Administration (including doctoral residency seminar) | 26 |
  - Curriculum and Supervision | 12 |
  - Cognate | 12 |
  - General Electives | 9 |

- Minimum Requirements of the Higher Education Administration Program
  - Foundations (including dissertation) | 31 |
  - Educational Administration | 10 |
  - Curriculum, Instruction and Student Services | 6 |
  - Doctoral Residency Seminar | 3 |
  - Cognate | 12 |
  - General Electives | 22 |

Foundation Studies Education - Doctoral Program Requirements*

<table>
<thead>
<tr>
<th>Behavioral Studies</th>
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<tbody>
<tr>
<td>5100:670 Behavioral Bases of Education</td>
<td>3</td>
<td></td>
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<tr>
<td>5100:624 Seminar in Educational Psychology</td>
<td>3</td>
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<tr>
<td>5000:721 Learning Processes</td>
<td>3</td>
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<tr>
<td>5100:723 Teaching Behavior and Instruction</td>
<td>3</td>
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<tr>
<th>Humanistic Studies</th>
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<tbody>
<tr>
<td>5100:701 History of Education in American Society</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5100:703 Seminar in History and Philosophy of Higher Education</td>
<td>3</td>
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</tbody>
</table>

*Counseling psychology students contact advisor for requirements.
The Marriage and Family Therapy program has been accredited by the American Association of Marriage and Family Therapy (AAMFT).

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:

- Philosophies of Education (5100:600) 3
- Comparative and International Education (5100:602) 3
- Seminar in Social Foundations of Education (5100:604) 3
- Seminar in Social-Philosophical Foundations (5100:705) 3
- Techniques of Research (5100:640) 3
- Statistics in Education (5100:741) 3
- Doctoral Dissertation (5100:999) 9-20

** Students in some psychology programs may choose other options—see adviser.

### Master's Degree Programs

#### Counseling and Special Education

Selected program offerings in the Department of Counseling and Special Education are available to those 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 Post-secondary Accreditation (COPA), 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—20 credits.

- Counseling Skills for Teachers (5600:610) 3
- Elementary School Guidance (5600:631) 3
- Secondary School Guidance (5600:633) 3

### Community Counseling

The course of study leads to eventual employment in community mental health centers and a wide variety of other community agencies. Note that a counselor license is usually required by most agencies. (Check counselor licensure elsewhere in this handbook.) Any changes in the agreed upon program must be approved by the student's adviser.

- Foundations (Select one course from each area)
  - Behavioral Foundations
    - Behavioral Foundations (5600:648) Individual and Family Development, 3
    - Humanistic Foundations
      - Humanistic Foundations (5600:646) Multicultural Counseling, 3
    - Research
      - Research (5100:840) Techniques of Research, 3
      - Seminar in Evaluation (5100:741) Statistics in Education, 3
  - Required Counseling Department Courses
    - Professional Orientation
      - Seminar in Counseling (5600:600) Community Counseling, 1
      - Seminar in Counseling (5600:635) Community Counseling Subtotal, 3
    - Counseling Theory
      - Counseling Theory & Philosophy (5600:643) Subtotal, 3
      - Career Counseling: Theory & Practice (5600:647) Subtotal, 3
  - Appraisal
    - Seminar in Appraisal (5600:645) Tests and Appraisal in Counseling Subtotal, 4
    - Seminar in Counseling Techniques (5600:640) Subtotal, 4
  - Counseling Process (all required)
    - Techniques of Counseling (5600:651) Subtotal, 3
    - Group Counseling (5600:653) Subtotal, 4
    - Practicum in Counseling (5600:675) Subtotal, 5
    - Practicum or Internship (5600:685) Subtotal, 6-7
  - Internship
    - Internship in Counseling (5600:695) Subtotal, 6-7
  - Minimum Department Hours Required
    - Minimum Department Hours Required (5600:685) Subtotal, 32-43

- Specialized Studies (required)
  - Specialized Studies (5600:650) Subtotal, 2

- Electives (Select a minimum of 6 hours only with help of advisor)
  - Personality (3750:500)
  - Abnormal Psychology (3750:520)
  - Psychological Disorders of Children (3750:530)
  - Learning and Cognition (3750:550)
  - Psychology Core I: Organizational, Social, Applied (3750:610)
  - Psychology Core II: Developmental, Perceptual, Cognitive (3750:620)
Counseling in Elementary or Secondary Schools

This course of study leads to eventual employment as a counselor in the public schools. Note that a school counselor must be certified as a teacher and possess three years of teaching experience. Any changes in the agreed upon program must be approved by the student's advisor.

- **Foundations (select one course from each area)**
  - Behavioral Foundations
    - 5600:648 Individual and Family Development Across the Life Span
      - 3
  - Humanistic Foundations
    - 5600:646 Multicultural Counseling
      - 3
  - Research
    - 5100:640 Techniques of Research
      - 3
  - Minimum Foundation Hours Required
    - 9

- **Required Counseling Department Courses**
  - Professional Orientation (select one course from each area)
    - 5600:600 Seminar in Counseling
      - 1
    - 5600:611 Elementary School Guidance
      - 3
  - Secondary School Guidance
    - 5600:653 Organization & Administration of Guidance Services
      - 3
  - Subtotal
    - 7
  - Counseling Theory
    - 5600:643 Counseling Theory & Philosophy
      - 3
    - 5600:647 Research in Counseling: Theory & Practice
      - 6
  - Subtotal
    - 9
  - Counseling Process (all required)
    - 5600:651 Techniques of Counseling
      - 3
    - 5600:655 Group Counseling
      - 4
    - 5600:675 Practicum in Counseling
      - 5
    - Subtotal
      - 12
  - Internship
    - 5600:665 Internship in Counseling (1 minimum 6 hours)
      - 6-7
    - Prerequisite 5600:675
    - Subtotal
      - 6-7
  - Minimum Department Hours Required
    - 35-36

- **Specialized Studies (both required)**
  - 5610:540 Developmental Characteristics of Exceptional Individuals
    - 3
  - 5600:620 Topical Seminar: Substance Abuse and Sexuality
    - 2
  - Subtotal
    - 5
  - Total Semester Hours Required for Graduation
    - 49-50

*Must register one year in advance.
**Must sign up with Secretary one year in advance.
***Must sign up with Secretary one year in advance.
**Must sign up with Internship Coordinator no later than second week of term preceding internship.
Independent Study, Field Experience, Practicum, and Internship require closed class permission. You must get one from the Department prior to registering.

Marriage and Family Therapy

This course of study leads to eventual employment in family-based mental health settings. Note that in order to practice counseling in Ohio you must possess a counselor license. Any changes in the agreed upon program must be approved by the student's advisor.

- **Foundations (select one course from each area)**
  - Behavioral Foundations
    - 5600:648 Individual and Family Development
      - 3
  - Humanistic Foundations
    - 5600:646 Multicultural Counseling
      - 3
  - Research
    - 5100:640 Techniques of Research
      - 3
    - 5100:641 Statistics in Education
      - 3
  - Minimum Foundation Hours Required
    - 9

- **Required Counseling Department Courses (all required)**
  - Professional Orientation
    - 5600:600 Seminar in Counseling
      - 1
    - 5600:655 Marriage and Family Therapy Theories and Techniques
      - 3
  - Counseling Theory
    - 5600:667 Marital Theory (prerequisite 5600:653)
      - 3
    - 5600:669 Family Systems Theory (prerequisite 5600:653)
      - 3
    - 5600:674 Career Development and Counseling Across the Life Span
      - 3
  - Appraisal
    - 5600:645 Tests and Appraisal in Counseling
      - 4
  - Counseling Process
    - 5600:651 Techniques of Counseling
      - 3
    - 5600:653 Group Counseling (prerequisites 5600:651 and 653)
      - 4
    - 5600:675 Practicum in Counseling (prerequisites 5600:651 and 653)
      - 5
  - Internship
    - 5600:685 Internship in Counseling (2 terms, prerequisite 5600:675)
      - 6-7
  - Minimum Department Hours Required
    - 35-36

- **Specialized Studies**
  - Family Studies
    - (Required)
      - 7400:651 Family and Consumer Law
        - 4
      - 7400:652 Family with Life Span Perspective
        - 2
      - 7400:653 Developmental Parent-Child Interactions
        - 3
      - 7400:675 Conceptual Frameworks in Family Ecology
        - 3
  - Human Development and Individual Differences
    - (Required)
      - 5600:620 Substance Abuse and Sexuality
        - 2
      - 7400:542 Human Sexuality
        - 3
  - Marriage and Family Therapy
    - 6000:648 Individual and Family Development
      - 3
    - 5600:646 Multicultural Counseling
      - 3
    - 5600:647 Career Development and Counseling Across the Life Span
      - 3
    - 5600:648 Individual and Family Development
      - 3
    - 5600:646 Multicultural Counseling
      - 3
    - Minimum Department Hours Required
      - 35-36

**A minimum of 500 client contact hours must be completed by the end of internship.
**Must be taken no later than the second term of the program.
Counseling Theory and Philosophy and Techniques of Counseling may be taken concurrently.
**Must sign up with Secretary one year in advance.

School Psychologist

- **College requirements:**
  - 5100:640 Techniques of Research
    - 3
  - 5120:694 Research Project
    - 2
  - 5620:698 Master's Problem
    - 2-4
  - 5620:699 Master's Thesis
    - 4-6
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
3760:712 Principles and Practice of Individual Intelligence Testing 4
5100:604 Seminar in Cultural Foundations of Education 3
5100:624 Seminar in Human Learning 3
5100:741 Statistics in Education 3
5620:600 Seminar: Role and Function of School Psychology 3
5620:692 Behavioral Assessment 3
5620:699 Educational Diagnosis for the School Psychologist 4

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

• Foundations requirements:

5100:604 Seminar in Cultural Foundations 3
5100:624 Seminar in Educational Psychology 3
5100:640 Techniques of Research 3
5100:741 Statistics in Education 3

• Professional requirements:

3750:700 Survey of Projective Techniques 4
3750:530 Psychological Disorders of Childlhood 4
3760:712 Principles and Practice of Individual Intelligence Testing 4
5600:643 Counseling, Theory and Philosophy 3
5620:600 Seminar: Role and Function of School Psychology 3
5620:692 Behavioral Assessment 3
5620:699 Educational Diagnosis for the School Psychologist 4
5620:694 Research Project in Special Area 2-3
5620:698 Master’s Problem 2-4
5620:699 Master’s Thesis 4-6

The student completing the master’s program who desires Ohio certification must additionally complete the following list: (Note: the requirements of this program are based on full-time study. The program may be completed part-time, but certain courses may not be available in a part-time format.)

3750:500 Personality 4**
5610:643 Developmental Characteristics of Learning Disabled Individuals 3 or Reading Disability, School Psychology and Support Personnel 3
5610:540 Developmental Characteristics of Exceptional Individuals 3**
3750:520 Abnormal Psychology 3**
5620:601 Cognitive Function Models: Principles of Educational Planning 3
5620:603 Consultation Strategies for School Psychology 3
5620:611 Psychodiagnosis in School Psychology 3

The nine-month, full-time internship, and the associated seminars entail the following registration:

5620:630 Internship: School Psychology 3
5620:631 Internship: School Psychology 3
5620:640 Field Seminar I: Professional Topics/Issues in School Psychology 3
5620:641 Field Seminar II: Low Incidence/Related Disabilities 3

The student who does not hold a valid Ohio teaching certificate must additionally complete the following course pattern:

5200:630 Elementary School Curriculum and Instruction 2
5620:696/698 Field Experience: Master’s 3
5700:631 Elementary School Administration 2
5700:601 Principles of Educational Administration 3

The student completing the above listed program will be recommended for Ohio certification if his/her credit pattern numbers 60 graduate semester credit hours, counting no more than 15 semester hours at the 500 level, and including the 10 hours credit for the internship and the associated intern seminars.

Departmental requirements include a minimum of 45 hours in the major field and 12 hours of elective courses.

Special Education

The graduate program in special education is designed for those individuals holding an undergraduate degree in special education or a related field. 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 coursework 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 39 semester hours. Additional hours are necessary for the completion of the Supervisor’s Certificate. The required additional coursework 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 coursework.

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 coursework at The University of Akron or elsewhere.

• Foundation core (nine credits):

5100:600 Philosophes of Education 3
5100:604 Topical Seminar in Cultural Foundations of Education 3
5100:620 Behavioral Bases of Education 3
5100:624 Seminar: Educational Psychology 3
5100:640 Techniques of Research 3

• Departmental core (21 credits):

5600:610 Counseling Skills for Teachers 3
5610:601 Seminar: Curriculum Planning in Special Education 3
5610:605 Program Development and Service Delivery Systems in Special Education 3
5610:606 Research Design and Practice in Special Education 3
5610:601 Assessment and Educational Programming in Special Education 3
5610:614 Education and Management Strategies for Parents of Exceptional Individuals 3
5610:612 Issues in Special Education 3

• Department: Master’s Papers (choose three credits):

5610:694 Research Project in Special Area (Scholarly Paper) 3
5610:696 Master’s Thesis 3
5610:699 Master’s Thesis 3

• 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 coursework:

5100:600 Philosophes of Education 3
5100:620 Behavioral Bases of Education 3
5100:640 Techniques of Research 3
5700:610 Principles of Education Supervision 3
5700:630 Principles of Curriculum Development 3
5610:601 Seminar: Curriculum Planning in Special Education 3
5610:602 Supervision of Instruction in Special Education 3
5700:695 Field Experience for Supervisors 3
5700:740 Theories of Educational Supervision 3

*May be waived if completed as undergraduate.

Educational Foundations and Leadership

Educational Leadership

The Department of Educational Administration and Leadership offers a master’s degree program in general 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 3
5700:603 Administration of Educational Personnel 3
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
Higher Education Administration (Specialized Option)

- Foundation studies – nine credits. (5100:702 is required)
- Required courses:
  - 5600:604 Counseling and Personnel Service in Higher Education (3)
  - 5700:601 Principles of Educational Administration (3)
  - 5700:604 Principles of Educational Administration (2)
  - 5900:700 Introductory Administrative Colloquium in Higher Education (2)
  - 5900:720 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)
  - 5900:801 Internship in Higher Education (2)
  - 5900:902 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 Superintendency (3)
  - 5700:795/796 Internship (2)
  - 6200:601 Financial Accounting (3)
  - 6200:949 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:
  - 5200:603 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)
  - 5700:684 Field Experience I: Elementary Administration (2)
- Post-Master's Degree Requirements for Ohio Certification as an Elementary School Principal:
  - 5700:603 Administration of Educational Personnel (2)
  - 5700:604 School Community Relations (1)
  - 5700:606 Evaluation in Educational Organizations (3)
  - 5700:608 School Finance and Economics (3)
  - 5700:613 Administration of Pupil Services (2)
  - 5700:615 Computer Applications in Educational Administration (2)
  - 5700:668 Field Experience I: Elementary Administration (2)
- Total for Certification: 46 credits.

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

- Foundation Studies courses – nine credits.
- Administration courses:
  - 5100:601 Principles of Educational Administration* (3)
  - 5100:602 School Business Administration** (2)
  - 5100:603 Administration of Educational Personnel* (3)
  - 5100:604 School Law** (2)
  - 5100:606 Evaluation in Educational Organizations* (3)
  - 5100:607 School Law* (2)
  - 5100:608 School Finance and Economics* (3)
  - 5100:697 Independent Study: Business Management** (3)
  - 6200:601 Financial Accounting** (3)
  - 6500:603 Management and Production Concepts** (3)
- 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.
  - Provide the student with practice in implementing a program to improve instruction.
Administrative Specialist: Educational Staff Personnel Administration

- Foundation Studies - nine credits.

- Required courses:
  5700:601 Principles of Educational Administration* 3
  5700:603 Administration of Educational Personnel* 2
  5700:606 Evaluation in Educational Organizations* 2
  5700:607 School Law* 3
  5700:608 School Finance and Economics* 3
  5700:610 Principles of Educational Supervision** 3
  5700:615 Computer Applications in Educational Administration 2
  5700:684 Field Experience I: Elementary Administration* 2
  or 5700:686 Field Experience I: Secondary Administration* 2
  or 5700:695 Field Experience for Supervisors* 2
  5700:704 Advanced Principles of Educational Administration** 3
  5700:705 Decision Making in Educational Administration** 3
  5700:706 Collective Bargaining and Employee Relations* 2
  5700:707 The Superintendency* 3
  5700:895 Field Experience: The Superintendency** 3
  6500:654 Industrial Relations** 3

Administrative Specialist: Instructional Services

- Foundation Studies - nine credits.

- Required courses:
  5700:630 Elementary School Curriculum and Instruction** 3
  5700:631 Secondary School Curriculum and Instruction** 2
  5700:632 Principles of Educational Administration* 2
  5700:663 Administration of Educational Personnel* 2
  5700:686 Evaluation in Educational Organizations* 3
  5700:695 Field Experience for Supervisors* 2
  5700:706 Collective Bargaining and Employee Relations* 2
  5700:707 The Superintendency* 3
  5700:895 Field Experience: The Superintendency** 2

Administrative Specialist: Pupil Personnel Administration

- Foundation Studies - nine credits.

- Required courses:
  5610:631 Elementary Counseling** 3
  or 5610:633 Secondary Counseling** 3
  5610:645 Group Testing** 3
  5610:658 Organization and Administration of Guidance Services** 3
  5700:601 Principles of Educational 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
  5700:613 Administration of Pupil Services** 2
  5700:615 Computer Applications in Educational Administration 2
  5700:684 Field Experience I: Elementary Administration* 2
  or 5700:686 Field Experience I: Secondary Administration* 2
  or 5700:695 Field Experience for Supervisors* 2
  5700:706 Collective Bargaining and Employee Relations* 2
  5700:707 The Superintendency* 3
  5700:895 Field Experience: The Superintendency** 2

Administrative Specialist: School and Community Relations

- Foundation Studies - nine credits.

- Required courses:
  5700:601 Principles of Educational Administration* 3
  5700:603 Administration of Educational Personnel* 2
  5700:604 School Community Relations** 3
  5700:606 Evaluation in Educational Organizations* 3
  5700:607 School Law* 2
  5700:608 School Finance and Economics* 3
  5700:615 Computer Applications in Educational Administration 2
  5700:620 Secondary Administration* 3
  5700:631 Elementary Administration* 3
  5700:684 Field Experience I: Elementary Administration* 2
  or 5700:686 Field Experience I: Secondary Administration* 2
  or 5700:695 Field Experience for Supervisors* 2
  5700:706 Collective Bargaining and Employee Relations* 2
  5700:707 The Superintendency* 3
  5700:895 Field Experience: The Superintendency** 2

Required courses:

- Administrative Specialist: Special Education (Exceptional Children)

- Foundation Studies - nine credits.

- Required courses:
  5610:540 Developmental Characteristics of Exceptional Individuals** 3
  5610:601 Seminar: Curriculum Planning* 3
  5610:602 Supervision of Instruction: Special Education** 3
  5610:605 Program Development and Delivery Systems** 3
  5610:697 Independent Study: Exceptional Children* 1
  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* 3
  5700:608 School Finance and Economics* 3
  5700:615 Computer Applications in Educational Administration* 2
  5700:684 Field Experience I: Elementary Administration* 2
  or 5700:695 Field Experience for Supervisors* 2
  5700:706 Collective Bargaining and Employee Relations* 2
  5700:707 The Superintendency* 3
  5700:895 Field Experience: The Superintendency** 2

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 3
  5700:605 Evaluation in Educational Organizations 3
  5700:607 School Law 2
  5700:608 School Finance and Economics 3
  5700:609 Principles of Curriculum Development 3
  5700:610 Principles of Educational Supervision 3
  5700:615 Administration of Pupil Services 2
  5700:615 Computer Applications in Educational Administration 2
  5700:797 The Superintendency 3

- Required courses - post-master's:
  6700:602 School Business Administration 2
  5700:603 Administration of Educational Personnel 2
  5700:604 School Community Relations 3
  5700:612 Administration of Educational Facilities 2
  5700:706 Collective Bargaining and Employee Relations 2
  5700:895 Two field experiences are required 4.5

Superintendent

- All of the assistant superintendent requirements plus

  5700:704 Advanced Principles of Educational Administration 2

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

* Required only of an elementary student.
** Required only of a secondary student.
*** Required only of a special education student.
Supervisor

- Foundation Studies – nine credits.
- Major field:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5200:620</td>
<td>Elementary School Curriculum and Instruction*</td>
<td>2</td>
</tr>
<tr>
<td>5200:722</td>
<td>Supervision of Instruction in the Elementary-School*</td>
<td>2</td>
</tr>
<tr>
<td>5300:619</td>
<td>Secondary School Curriculum and Instruction**</td>
<td>2</td>
</tr>
<tr>
<td>5300:721</td>
<td>Supervision of Instruction in the Secondary School**</td>
<td>2</td>
</tr>
<tr>
<td>5610:601</td>
<td>Seminar: Special Education Curriculum Planning*</td>
<td>3</td>
</tr>
<tr>
<td>5610:602</td>
<td>Supervision of Instruction: Special Education†</td>
<td>3</td>
</tr>
<tr>
<td>5700:605</td>
<td>Principles of Curriculum Development</td>
<td>3</td>
</tr>
<tr>
<td>5700:810</td>
<td>Principle of Educational Supervision</td>
<td>3</td>
</tr>
<tr>
<td>5700:695</td>
<td>Field Experience for Supervisors</td>
<td>3</td>
</tr>
<tr>
<td>5700:740</td>
<td>Theories in Educational Supervision</td>
<td>3</td>
</tr>
</tbody>
</table>
- Electives – With the approval of the adviser, the student will select at least one of the following courses and others to fulfill the program minimum of 30 credits:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:701</td>
<td>History of Education in American Society</td>
<td>3</td>
</tr>
<tr>
<td>5100:741</td>
<td>Statistics in Education</td>
<td>3</td>
</tr>
<tr>
<td>5700:698</td>
<td>Master’s Problem</td>
<td>2</td>
</tr>
</tbody>
</table>

- Required only of an elementary student.
- Required only of a secondary student.
- Required 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 adviser. 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 Educational 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 as either the undergraduate or graduate level. Certification requires that a student become certified in one of the following areas: elementary education, secondary education, special education, or physical education.

At the end of the program, the student must demonstrate proficiency in English and a language other than English in order to meet the certification requirements of the Ohio State Department of Education.

Graduate students wishing a master’s degree in addition to bilingual multicultural certification may earn a master's degree in multicultural education by taking additional coursework.

The program incorporates coursework 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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3300:589</td>
<td>Seminar in English: Introduction to Bilingual Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>5630:582</td>
<td>Characteristics of Culturally Different Youth</td>
<td>3</td>
</tr>
<tr>
<td>5630:584</td>
<td>Principles of Bilingual/Multicultural Education</td>
<td>3</td>
</tr>
<tr>
<td>5630:587</td>
<td>Techniques for Teaching English as a Second Language in the Bilingual Classroom</td>
<td>4</td>
</tr>
<tr>
<td>5630:588</td>
<td>Field Experience in Bilingual Classrooms/Settings</td>
<td>3</td>
</tr>
</tbody>
</table>

- Select one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5630:589</td>
<td>Teaching Reading and Language to Bilingual Students</td>
<td>4</td>
</tr>
<tr>
<td>5630:586</td>
<td>Teaching Mathematics, Social Studies and Science to Bilingual Students</td>
<td>7</td>
</tr>
</tbody>
</table>

*After accumulating 22 credits, the student will take a master’s comprehensive examination.

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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:640</td>
<td>Techniques of Research</td>
<td>3</td>
</tr>
<tr>
<td>5300:761</td>
<td>Seminar in Secondary Education†</td>
<td>4</td>
</tr>
<tr>
<td>5600:645</td>
<td>Group Testing in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>5630:561</td>
<td>Multicultural Education in the United States</td>
<td>3</td>
</tr>
<tr>
<td>5630:581</td>
<td>Characteristics of Culturally Different Youth</td>
<td>3</td>
</tr>
<tr>
<td>5630:696</td>
<td>Seminar: Education of the Culturally Different</td>
<td>3</td>
</tr>
</tbody>
</table>

- Electives in related special fields – 17 credits.

Elementary Education

Students seeking a master’s degree in elementary education can follow several options. A 30-credit program is available for students who contemplate pursuing the Ph.D. in the future. This 30-credit program includes the completion of a master’s thesis under the direction of a faculty advisor. The thesis provides the student with research/scholarly writing experiences that form the foundation for further study at the doctoral level.

30 Credit Option

- Foundation studies – nine credits.
- Elementary Education:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5200:538</td>
<td>Materials and Laboratory Techniques in Elementary School Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>5200:630</td>
<td>Elementary School Curriculum and Instruction</td>
<td>3</td>
</tr>
<tr>
<td>5200:631</td>
<td>Trends in Elementary Education</td>
<td>2</td>
</tr>
<tr>
<td>5250:680</td>
<td>Trends in Reading Instruction</td>
<td>2</td>
</tr>
<tr>
<td>5200:695</td>
<td>Master’s Thesis</td>
<td>4</td>
</tr>
<tr>
<td>5200:780</td>
<td>Seminar in Elementary Education (two seminars required)</td>
<td>4</td>
</tr>
</tbody>
</table>

- Electives: Total to fulfill program minimum of 36 credits and to be taken from 5200, 5250, or 5700 coursework. 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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5200:538</td>
<td>Materials and Laboratory Techniques in Elementary School Mathematics</td>
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</tr>
<tr>
<td>5200:630</td>
<td>Elementary School Curriculum and Instruction</td>
<td>3</td>
</tr>
<tr>
<td>5200:631</td>
<td>Trends in Elementary Education</td>
<td>2</td>
</tr>
<tr>
<td>5250:680</td>
<td>Trends in Reading Instruction</td>
<td>2</td>
</tr>
<tr>
<td>5200:695</td>
<td>Field Experience: Master’s</td>
<td>4</td>
</tr>
<tr>
<td>5200:780</td>
<td>Seminar in Elementary Education</td>
<td>2</td>
</tr>
</tbody>
</table>

- 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 5700 as listed in the bulletin

Middle School Education

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

- Required courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:604</td>
<td>Cultural Foundations of Education</td>
<td>3</td>
</tr>
<tr>
<td>5120:624</td>
<td>Psychology of Early Adolescence</td>
<td>3</td>
</tr>
<tr>
<td>5200:780</td>
<td>Curriculum Development in Middle School</td>
<td>2</td>
</tr>
<tr>
<td>5300:625</td>
<td>Reading Programs in Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>5300:780</td>
<td>Philosophy and Organization of Middle School</td>
<td>2</td>
</tr>
<tr>
<td>5402:528</td>
<td>Career Education/ Guidance in Middle School</td>
<td>2</td>
</tr>
</tbody>
</table>

Reading

The master’s degree is designed for early childhood, elementary junior, 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 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 Master’s Thesis
  - 5200:780 Seminar in Elementary Education: Children’s Literature
  - 5250:643 Developmental Reading in the Content Areas - Elementary
  - 5250:680 Trends in Reading Instruction
  - 5250:681 Diagnosis and Correction of Reading Problems
  - 5250:682 Clinical Practices in Reading

36 Credit Option
- Foundation studies - nine credits.
- Reading:
  - 5200:699 Field Experience: Master’s
  - 5200:780 Seminar in Elementary Education: Children’s Literature
  - 5250:643 Developmental Reading in the Content Areas - Elementary
  - 5250:680 Trends in Reading Instruction
  - 5250:681 Diagnosis and Correction of Reading Problems
  - 5250:682 Clinical Practices in Reading
  - 5250:692 Advanced Study and Research in Reading Instruction
  - 5250:693 Supervision and Curriculum Development in Reading Instruction

Physical Education and Health Education

Athletic Training for Sports Medicine

The Athletic Training program, requiring 35 credits, is designed primarily for students having an undergraduate degree in the same area. Students may become involved in supervising university undergraduates, working with athletic teams, and other clinical experience both on and off campus. Students interested in this program should not assume they are automatically admitted into it. Admission is based on an interview process conducted by the athletic trainer staff. If interested in this program, you should contact the head athletic trainer (MTH-77, ext. 6956) as soon as possible so that you can be fully apprised of your individual situation.

- Foundation Courses:
  - 5100:640 Techniques of Research

- Required Courses:
  - 3100:561 Human Physiology
  - 3100:562 Human Physiology
  - 3100:565 Advanced Cardiovascular Physiology
  - 5560:605 Physiological Basis of Muscular Activity and Exercise
  - 5550:608 Statistics: Qualitative and Quantitative Methods
  - 5550:641 Advanced Athletic Injury Management
  - 5550:642 Therapeutic Modalities and Equipment in Sports Medicine
  - 5550:680 Special Topics: Pharmacology for Sports

At least two (2) credit hours from the following:
  - 5550:695 Field Experience: Master’s
  - 5550:698 Master’s Problem
  - 5550:698 Master’s Thesis

- Electives to be taken with permission of the adviser (at least one course from among the following is required):  
  - 5100:520 Introduction to Instructional Computing
  - 5550:536 Foundations and Elements of Adapted Physical Education
  - 5550:555 Motor Development of Special Populations
  - 5550:601 Administration of Physical Education, Intramurals, and Athletics
  - 5550:603 Motivational Aspects of Physical Activity
  - 5550:680 Special Topics: Laboratory Instrumentation
  - 7400:587 Sports Nutrition

Students who enter the NATA program with undergraduate training in the required courses listed above (section 3) will take course work from the electives listed (after consultation with their adviser) in a number sufficient to meet the 35-hour program requirement.

Outdoor Education

Outdoor Education is a 32-credit program, designed for students who wish to enhance their knowledge of outdoor education in public, private, and parochial schools. Students must have an undergraduate degree in education, physical education, or biological sciences. This program offers an opportunity to work with elementary, secondary, and post-secondary educators in the field of education. Students will have the opportunity to gain experience in teaching and learning in outdoor environments.

- Required Foundation Courses:
  - 5560:550 Application of Outdoor Education to the School Curriculum
  - 5560:552 Resources and Resource Management for the Teaching of Outdoor Education

- Required courses:
  - 5560:605 Outdoor Education: Special Topics
  - 5560:606 Outdoor Education: Rural Influences
  - 5560:606 Field Experience

With the approval of the advisor, the student may select additional courses and/or workshops related to the graduate program.

Physical Education

The graduate program in physical education, requiring 30 credits, is designed for post-baccalaureate and in-service physical educators. The emphasis of the program is on the physical educator as decision-maker. Training received in this program is organized around the following areas:

- **Required Department Courses:**
  - 5550:536 Foundations and Elements of Adapted Physical Education
  - 5550:555 Motor Development of Special Populations
  - 5550:601 Administration of Physical Education, Intramurals, and Athletics
  - 5550:603 Presentation of Physical Education
  - 5550:605 Supervision of Physical Education
  - 5550:606 Motivational Aspects of Physical Activity
  - 5550:695 Field Experience: Master’s

- **Required Courses:**
  - 5100:600 Philosophies of Education
  - 5100:604 Seminars in Human Development
  - 5100:620 Behavioral Bases of Education
  - 5100:624 Seminar in Human Development and Education
  - 5100:640 Techniques of Research

- **Required Department Courses:**
  - 5550:536 Foundations and Elements of Adapted Physical Education
  - 5550:555 Motor Development of Special Populations
  - 5550:601 Administration of Physical Education, Intramurals, and Athletics
  - 5550:603 Presentation of Physical Education
  - 5550:606 Motivational Aspects of Physical Activity
  - 5550:695 Field Experience: Master’s

With the approval of the advisor, the student may select additional courses and/or workshops related to the graduate program.

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 that 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 34 graduate credits is required. Completion of this program will also afford the student an Ohio validation for teaching this content area.

Graduate Studies 43
• Required Foundation Courses:
  5100:600 Philosophies of Education 3
  or
  5100:604 Topical Seminar in the Cultural Foundations of Education 3
  5100:620 Behavioral Bases of Education 3
  or
  5100:624 Seminar in Human Development and Education 3
  5100:640 Techniques of Research 3

• Required Department Courses:
  5550:516 Foundations and Findings of Physical Education 3
  5550:511 Assessment and Evaluation in Physical Education 3
  5550:550 Motor Development of Special Populations 3
  5550:561 Physiology of Muscular Activity and Exercise 3
  5550:561 Statistics: Qualitative and Quantitative Methods 3
  5550:626 Field Experience: Master’s 2
  5610:605 Neurodevelopmental Aspects of Physical Disabilities 3
  6100:567 Management of Strategies in Special Education 3

• At least two (2) credits from among the following:
  5550:695 Field Experience: Master’s 1-6
  or
  5550:696 Master’s Problem 2-4
  or
  5550:699 Master’s Thesis 4-6

Option: Exercise Physiology/Adult Fitness
This graduate program, requiring a minimum of 34 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.

• Required Foundation Courses:
  5100:620 Behavioral Bases of Education 3
  or
  5100:624 Seminar in Human Development and Education 3
  5100:640 Techniques of Research 3

• Required Department Courses:
  3100:561 Human Physiology 4
  3100:562 Human Physiology 4
  2100:565 Advanced Cardiovascular Exercise 3
  5550:500 Physiology of Muscular Activity and Exercise 3
  5550:503 Statistics: Qualitative and Quantitative Methods 3
  5550:589 Special Topics in Health and Physical Education: Laboratory Instrumentation 3
  7500:507 Sports Nutrition 3

• At least two (2) credits from among the following:
  5550:695 Field Experience: Master’s 1-6
  or
  5550:698 Master’s Problem 2-4
  or
  5550:699 Master’s Thesis 4-6

• Electives: Select at least one (1) course from among the following and have advisor approval:
  5100:620 Introduction to Instructional Computing 3
  5100:741 Statistics in Education 3
  5100:743 Advanced Education Statistics 3
  5550:601 Administration of Physical Education, Athletics and Intramurals 3
  5550:609 Motivational Aspects of Physical Activity 3

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-school certified curriculum and programs. The student should seek advisement within the appropriate department for other requirements peculiar to the elementary and secondary programs.

• Required courses:
  5100:604 Cultural Foundations of Education 3
  5100:624 Psychology of Early Adolescence 3
  5300:780 Curriculum Development in Middle School 2
  5300:785 Reading Programs in Secondary School 3
  5300:780 Philosophy and Organization of Middle School 2
  5600:515 Career Education Guidance in Middle School 2

Secondary Education
This program is open to highly qualified students who hold the B.A. or B.S. degree. All requirements for certification must be met including the 600 hours of field and clinical diagnostic experience.

• Foundation Courses (10 credits):
  5100:600 Philosophies of Education 3
  or
  5100:604 Topical Seminar in the Cultural Foundations of Education 3
  5100:620 Behavioral Bases of Education 3
  5100:642 Topical Seminar in Measurement and Evaluation 2
  5100:695 Field Experience: Master’s 1

• Secondary Education Seminar (2 credits):
  5300:780 Seminar in Secondary Education 2

• Secondary Education (16):
  5300:695 Field Experience: Master’s 1
  5300:500 Instructional and Management Practices 3
  5300:619 Secondary School Curriculum and Instruction 2
  or
  5300:721 Supervision of Instruction in the Secondary School 2

• A comprehensive examination is required.

Total Program: 44
Technical Education

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

Program

- **Foundation Studies** - nine credits.
- **Professional technical education courses:**
  - 5400:505 Occupational Education for Youth and Adults
  - 5400:510 The Two-Year College
  - 5400:530 Curriculum Development in Technical Education
  - 5400:535 Instructional Techniques in Technical Education
- **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
  - 5400:691 Internship: Teaching Technical Education
  - 5400:692 Internship: Post-Secondary Education
- **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
- 5600:651 Techniques of Counseling
- 5600:653 Group Counseling
- 5600:675 Practicum in Counseling I

**Guidance Option B**

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

Select one of the following:

- 5600:649 Counseling and Personnel Services in Higher Education
- 5600:626 Career Education
- 5600:610 Counseling Skills for Teachers

**Curriculum and Supervision**

- 5700:609 Principles of Curriculum Development
- 5700:610 Principles of Educational Supervision

- **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

Stephen F. Hallam, Ph.D., Dean
James E. Inman, Jr., Associate Dean
Kenneth E. Mast, D.B.A., Assistant Dean and
Director of Undergraduate Programs
John Daniel Williams, D.B.A., Assistant Dean and
Director of Graduate Programs

Masters Degree

The College of Business Administration (CBA) offers graduate programs which lead to the degree 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. Master's degree 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 1,200 graduate students, the community and regional business organizations. To meet its objectives, the college offers five programs: (1) a full-time program, (2) a part-time program, (3) an executive MBA program, (4) a second degree program, and (5) a distance education program.

Admission

Policy

The applicant must meet one (or of the following eligibility requirements which are in conformity with the Graduate School and the college's accrediting agency (AACSB): (1) Hold a 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 (CPAIA) or 4.00 times 200 plus the Graduate Management Admissions Test (GMAT) score. (2) Hold a 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 (CPAIA) or 4.00 times 200 plus the GMAT score. (3) 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 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 quality, scope and relevance of the applicant's undergraduate program; the length of time and activities since graduation; and the degree of risk 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 those 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" 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 44325-4806 (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 from Educational Testing Service, Box 966-R Princeton, NJ 08540. Those who have taken the GMAT more than five years ago are normally referred to retake it.

All applications and accompanying documentation are evaluated simultaneously by the Graduate Admissions Committee (GAC). The GAC meets monthly and the applicant will be informed in writing of the GAC's decision within one week of the meeting.

Requirements

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

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

Transfer Policy

The College of Business Administration will permit 9 credits of comparable graduate credits to be transferred into any of the graduate business programs (10 law school credits into the J.D./M.B.A. program). These credits must be approved by the director of graduate programs in the C.B.A. This 9 credit policy also applies to second degree applicants.

Second Degree

For a student who has already obtained one master's degree in business, it is possible to pursue another degree in the college provided that: (1) no second M.B.A. is to be obtained; (2) the degree sought is not in the same functional discipline; (3) the desired program (degree curriculum) is specifically approved in advance by the director of graduate programs in business; and (4) not fewer than 21 new credits are earned for the second degree.

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 following areas: accounting, finance, management, marketing or international business. The program consists of 58 graduate credits. Foundation courses may be waived for those who have had recent study in the areas. Foundation and advanced courses may be taken concurrently provided that all prerequisites have been met.

Foundation Courses

All are required unless waived at the time of admission:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200.600</td>
<td>Foundation of Economic Analysis</td>
<td>3</td>
</tr>
<tr>
<td>6200.601</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>6200.602</td>
<td>Managerial Finance</td>
<td>3</td>
</tr>
<tr>
<td>6200.605</td>
<td>Government and Business</td>
<td>3</td>
</tr>
<tr>
<td>6500.600</td>
<td>Management and Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>6500.601</td>
<td>Quantitative Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>6500.602</td>
<td>Computer Techniques for Management</td>
<td>3</td>
</tr>
<tr>
<td>6500.603</td>
<td>Marketing Concepts</td>
<td>3</td>
</tr>
</tbody>
</table>

Professional Core (12 credits):

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200.610</td>
<td>Accounting Management and Control</td>
<td>3</td>
</tr>
<tr>
<td>6400.674</td>
<td>Financial Management and Policy</td>
<td>3</td>
</tr>
<tr>
<td>6500.670</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>6500.620</td>
<td>Strategic Marketing Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Professional Core (4 credits):

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6700.690</td>
<td>Professional Responsibility</td>
<td>1</td>
</tr>
<tr>
<td>6700.692</td>
<td>International Business</td>
<td>1</td>
</tr>
<tr>
<td>6600.694</td>
<td>Advanced Business Documentation and Contact</td>
<td>1</td>
</tr>
<tr>
<td>6700.688</td>
<td>Special Topics in Professional Development</td>
<td>1</td>
</tr>
</tbody>
</table>

Quantitative Tools (3 credits):

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200.664</td>
<td>Research and Quantitative Methods in Accounting</td>
<td>3</td>
</tr>
<tr>
<td>6400.662</td>
<td>Applied Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>6500.662</td>
<td>Business Research Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

Cognate (3 credits):

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200.664</td>
<td>Research and Quantitative Methods in Accounting</td>
<td>3</td>
</tr>
<tr>
<td>6400.662</td>
<td>Applied Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>6500.662</td>
<td>Business Research Methods</td>
<td>3</td>
</tr>
</tbody>
</table>
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.

Phases:

Phase I
- Postbaccaulaurate Foundation
  - 6200:630 Taxation I 3

Phase II
- Required
  - 6200:628 Basic Tax Research 1 credit
  - 6300:631 Corporate Taxation I 3 credits
  - 6300:632 Taxation of Transactions in Property 3 credits
  - 6200:633 Estate and Gift Taxation 3 credits

- Electives: Twenty credits of which at least 14 must be in tax, 6200:641-693
  - Taxation electives 14 credits
  - CPMA electives 6 credits
  - Total Required Credits 30-33

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 Resource Management, Materials Management, and Health Services Administration. 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 of 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
  - 3250:600 Foundation in Economic Analysis 3
  - 6200:631 Financial Accounting 3
  - 6400:602 Managerial Finance 3
  - 6400:666 Government and Business 3
  - 6500:640 Management and Organizational Behavior 3
  - 8500:601 Quantitative Decision Making 3
  - 6600:602 Computer Techniques for Management 3
  - 6600:601 Marketing Concepts 3

Phase II
- Business Courses
  - 6200:601 Accounting Management and Control for alternate accounting electives 3
  - 6400:674 Financial Management and Policy 3
  - 6500:663 Organizational Theory 3

- Core Courses
  - 6500:640 Management Information Systems 3
  - 6500:652 Organizational Behavior 3
  - 6500:662 Applied Operations Research 3

Options:
- Choose a concentration from the following:
  - Quality Management
    - Concentration Courses
      - 6500:651 Productivity and Quality of Worklife Issues 3
      - 6500:653 Applied Industrial Statistics I 3
      - 6500:654 Applied Industrial Statistics II 3
      - 6400:673 Quality and Productivity Techniques 3
      - 6400:674 Advanced Quality and Productivity Techniques 3
    - Information Systems Management
      - Cobol Proficiency is Required
        - Concentration Courses:
          - 6500:641 Data Management and Communication 3
          - 6500:645 Advanced Management Information Systems 3
          - 6500:672 Manufacturing and Operations Analysis 3
        - Electives (Choose three of):
          - 6500:642 Systems Simulation 3
          - 6500:643 Analysis and Design of Business Systems 3
          - 6500:644 Managerial Decision Support and Expert Systems 3
          - 6500:678 Project Management 3
  - Human Resource Management
    - Concentration Courses
      - 6500:651 Productivity and Quality of Worklife Issues 3
      - 6500:654 Industrial Relations 3
      - 6500:655 Compensation Administration 3
      - 6500:656 Strategic Human Resource Management 3
      - 6500:660 Employment Regulation 3
  - Materials Management
    - Concentration Courses
      - 6500:651 Data Management and Communication 3
      - 6500:642 Systems Simulation 3
      - 6500:651 Productivity and Quality of Worklife Issues 3
      - 6500:670 Operations Management 3
      - 6500:673 Quality and Productivity Techniques 3
      - 6500:678 Project Management 3
  - Health Services Administration
    - The Department of Management has made the Master of Science in Management-Health Services program inactive. No students will be admitted to this program until further notice.

Note: International Business concentration requires reading and conversational proficiency in one language other than English.
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 44325-2970). A baccalaureate degree is required.

Degree Requirements

A student is required to fulfill the requirements of the School of Law, 87 credits, which includes 20 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 (Foundation) courses (unless waved because of prior undergraduate credits earned) and 25 credits for M.B.A. of advanced courses in the CBA plus six credits transferred from the School of Law. The Master of Taxation program consists of 20-24 credits of advanced courses in the CBA plus 10 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 102 (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 Foundation 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 Master of Taxation degree. No more than 10 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.

J.D./M.B.A. students may transfer nine credits of School of Law courses into the M.B.A. program. Six credits must be in their area of concentration and must be selected from the courses listed below. Related courses not listed under concentrations may transfer with approval of the director of graduate programs in Business Administration. Three credits of free electives may be chosen from other business-related law courses and must be approved by the director of graduate programs in Business Administration.

Law Courses to be used as MBA Concentration Courses

Choices for Concentration Electives:

Accounting (choose 6 credits)
- 3200:639 Estate and Gift Taxation
- 3200:640 Individual Taxation
- 3200:641/642 Corporate Taxation I, II
- 3200:665 Taxation of Partnerships and S Corporations
- 3200:674 Current Problems in Taxation
- 3200:675 Special Problems in Estate Planning
- 3200:680 Qualified Pension and Profit Sharing
- 3200:685/686 Wills, Trusts and Estates I, II

Finance (choose 6 credits)
- 3200:629 Commercial Law II
- 3200:635 Bankruptcy Law
- 3200:639 Estate and Gift Taxation
- 3200:652 Land Use Planning
- 3200:671 Securities Regulation
- 3200:675 Special Problems in Estate Planning
- 3200:680 Qualified Pension and Profit Sharing
- 3200:685/686 Wills, Trusts and Estates I, II
- 3200:691 International Investments

International Business (choose 6 credits)
- 3200:649 International Law
- 3200:675 International Trade
- 3200:691 International Investments and the European Economic Community

Management (choose 6 credits)
- 3200:637 Equal Opportunity Law
- 3200:650 Labor and Employment Law
- 3200:651 Labor Arbitration and Collective Bargaining
- 3200:659 Lawyer as Negotiator
- 3200:660 Workers’ Compensation
- 3200:672 Seminar in Business Planning
- 3200:679 Labor Law

Marketing (choose 6 credits)
- 3200:627 Commercial Law I
- 3200:659 Lawyer as Negotiator
- 3200:662 Media Law
- 3200:667 Patent, Trademark and Copyright Law
- 3200:672 Seminar in Business Planning
- 3200:683 Seminar in Product Liability
- 3200:684 Sports and Entertainment Law
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 options in child development; child life; textiles and interiors; family development; and food science. 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.

• Have completed the general Graduate Record Examination within the five years preceding the application and achieved a minimum total score of 1200 on the three parts of the GRE.

• Submit a letter of personal career goals.

• Offer two letters of recommendation if desired.

The graduate faculty of the School of Home Economics and Family Ecology 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 adviser.

• Complete a thesis, project 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 1

Child Development Option

• Core Courses:
  7400:605 Developmental Parent-Child Interactions 3
  7400:610 Child Development Theories 3
  7400:665 Development in Infancy and Early Childhood 3

Other Courses

• Cognate Electives

Select 7 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.

• Internship or Thesis (Select one):
  7400:695 Internship 5
  7400:699 Master's Thesis 5

Child Life Option

• Core Courses:
  7400:551 Child in the Hospital 4
  7400:555 Practicum: Establishing and Supervising a Child Life Program 3
  7400:585 Orientation to the Hospital Setting 2

• 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.)

• Cognate Electives:

Select 7 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.

• Internship or Thesis (Select one):
  7400:695 Internship 5
  7400:699 Master's Thesis 5

Clothing, Textiles and Interiors Option

• Core Courses:
  7400:634 Material Culture Studies 3
  7400:639 Theories of Fashion 3
  7400:677 Social Psychology of Dress and the Environment 3

• Options Electives:

7400:516 History of Interior Design I 4
7400:519 History of Interior Design II 4
7400:522 Professional Image Analysis 3
7400:525 Advanced Textiles 3
7400:527 Textile and Apparel Industry 3
7400:533 Residential Design 3
7400:536 Principles and Practices of Interior Design 3
7400:537 Historic Costume to 1800 3
7400:538 History of Fashion Since 1780 3
7400:631 Problems in Design 1-6
7400:665 Individual Investigation in Home Economics and Family Ecology 1-6

• Cognate Electives:

Select 6 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.

• Internship/Thesis Master's Project (Select one):
  7400:694 Master's Project 5
  7400:696 Internship 5
  7400:699 Master's Thesis 5

Total 40
Family Development Option

- Core Courses:

  7400.602  Family Life in a Changing Perspective  3
  7400.607  Family Dynamics  3
  7400.651  Family and Consumer Law  4

- Option Electives

Select 12 credits from the following courses with approval of advisor; (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  2
  7400.504  Adolescence in the Family Context  3
  7400.506  Family Financial Management  3
  7400.540  Family Crisis  3
  7400.542  Human Sexuality  3
  7400.545  Public Policy and American Families  3
  7400.546  Culture, Ethnicity and the Family  3
  7400.556  Parent Education  2
  7400.601  Families in Transition  2
  7400.603  Family Relationships in Middle and Later Years  3
  7400.605  Developmental Parent-Child Interactions  3
  7400.610  Child Development Theories  3

- Cognate Electives:

Select 7 credits with the approval of advisor from within the School of Home Economics and Family Ecology OR from a Cognate Area outside the School OR a combination of the above.

- Internship or Thesis (Select one):

  7400.695  Internship  5
  7400.699  Master's Thesis  5

**Total** 40

Food Science Option

- Core Courses:

  7400.575  Analysis of Food  3
  7400.576  Developments in Food Science  3
  7400.520  Experimental Foods (If taken at the undergraduate level, choose 3 additional credits from option electives)  3

**Total** 9

- Option Electives

Select 9-12 credit hours with the approval of advisor from among the following; (If a course has been taken at the undergraduate level, other courses must be selected from among option electives.)

  3100.505  Food Plants  2
  3250.540  Special Topics: Economics of World Food Problems  4
  7400.574  Culture Dimensions of Food  3
  7400.585  Seminar in Home Economics and Family Ecology: Topics in Food Science  2
  7400.571  The Food Industry: Analysis and Field Study  3
  7400.603  Advanced Food Preparation  3
  7400.624  Nutrition in the Life Cycle  3
  7400.626  Advanced Human Nutrition  3

- Cognate Electives

Select 5-6 credits with approval of advisor from the School of Home Economics and Family Ecology OR from a Cognate Area outside the School OR from a combination of the above.

- Internship/Thesis (Select one):

  7400.695  Internship  5
  7400.699  Master's Thesis  5

**Total** 40

Nutrition and Dietetics

A program of study is offered leading to the Master of Science in Nutrition and 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.
- Have completed the general Graduate Record Examination within the five years preceding the application and achieved a minimum total score of 1200 on the three parts of the GRE.
- Submit a letter of personal career goals.
- Offer two letters of recommendation if desired.

The graduate faculty of the School of Home Economics and Family Ecology 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 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 specialization;
  - 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.
  - 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 project.
  - Complete a thesis or a project. 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 project option involves the design, development, implementation and evaluation of original and creative programs and/or resource materials. A written proposal for the thesis or project option cannot be submitted until the successful completion of a comprehensive examination.
  - Pass an oral examination covering the thesis or project.

**Foundation Courses**

- Required by all program options:

  7400.404  Orientation to Graduate Studies in Home Economics and Family Ecology  1
  7400.560  Historical and Conceptual Bases of Home Economics and Family Ecology  3
  7400.685  Research Methods in Home Economics and Family Ecology  3

- Core Courses:

  7400.624  Advanced Human Nutrition I  3
  7400.625  Advanced Human Nutrition II  3

- Electives (9 to 12 credits required)

Select with the approval of advisor from among the following. At least 2 courses must be selected from Biology (3100) or Chemistry (3150). If a nutrition course has been taken at the undergraduate level, it may not be used at the graduate level.

  3100.561  Human Physiology  4
  3100.562  Human Physiology II  4
  3100.565  Cardiovascular Physiology  3
  3100.564  Pharmacology  3
  3100.670  Medical Physiology, Pathophysiology, and Pharmacology  3
  3100.666  Research in the Biology of Aging  3
  3150.501  Biochemistry I - Lecture  3
  3150.552  Biochemistry I - Laboratory  3
  7400.520  Experimental Foods  3
  7400.524  Nutrition in the Life Cycle  3
  7400.574  Cultural Dimensions of Foods  3
  7400.576  Developments in Food Science  3
  7400.589  Community Nutrition I - Lecture  3
  7400.582  Community Nutrition II - Lecture  3
  7400.587  Sports Nutrition  3
  7400.588  Preventive Dietetics  3
  7400.640  Nutrition in Diminished Health  3

- Cognate Electives (9 to 11 credits required)

Select with the approval of advisor from among the following or other courses that strengthen the student's goals.

  3470.664  Statistics for the Health Sciences  4
  3890.679  Social Gerontology  3
  5600.651  Techniques of Counseling  3
  6500.603  Management and Organizational Behavior  3
  6500.602  Computer Techniques for Management  3

**Note:** The M.S. in Nutrition and Dietetics is not a route to becoming a Registered Dietitian (R.D.). Students interested in becoming R.D's should contact the School for proper course selection, some of which can be done at the graduate level.

**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.
**Graduate Studies**

### Composition Option

- **Music core courses** – eight credits (to be selected): 7500:555 Advanced Conducting: Instrumental 2
- 7500:556 Advanced Conducting: Choral 2
- 7500:615 Musical Styles and Analysis I (Chant through Palestrina) 2
- 7500:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
- 7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Strauss) 2
- 7500:619 Theory Pedagogy 2

#### Major required courses – 21-23 credits:
- 7500:601 Choral Literature 2
- 7500:606 Musical Styles and Analysis IV (20th Century) 2
- 7500:624 Historical Survey: Music of the 20th Century 2
- 7500:647 Master's Chamber Recital 1
- 7500:699 Master's Thesis 4-6
- 7510:616 Ensemble (participation in two ensembles required) 2
- 7520:642 Applied Composition 8

- **Additional music courses** – zero to two credits.

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

- **Electives** – three credits.

To be selected by student and adviser. Areas include graduate-level courses in other disciplines, such as theatre arts, 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 3
  - 7500:612 Practices and Trends in Music Education 3
  - 7500:614 Measurement and Evaluation in Music Education 3
  - 7500:699 Master's Thesis 4-6

- **Additional music/education courses** – select 17-19 credits with approval of music education and graduate advisers:
  - 7500:675 Seminar in Music Education 1-3
  - 7500:697 Advanced Problems in Music Education 2-8

- **Non-Thesis Option**

#### Required Music Education Core Courses – 9 credits:
- 7500:611 Foundations of Music Education 3
- 7500:612 Practices and Trends in Music Education 3
- 7500:614 Measurement and Evaluation in Music Education 3

- **Additional music/education courses** – select 25 credits with approval of music education and graduate advisers:
  - 7500:675 Seminar in Music Education 1-3
  - 7500:697 Advanced Problems in Music Education 2-8

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.

### 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
  - 7500:618 Musical Styles and Analysis IV (20th Century) 2
  - 7500:619 Theory Pedagogy 2
  - 7500:633 Historical Survey: Music of the Baroque 2
  - 7500:643 Historical Survey: Music of the Classical and Romantic Eras 2
  - 7500:647 Advanced Problems in Music 4
  - 7500:699 Master's Thesis 4-6

- **Additional music courses** – two to four credits.
- **Graduate-level (music) courses, workshops, applied music and other courses to be selected by the student and adviser.
- **Electives** – two to four credits.

To be selected by the student and adviser. Areas include graduate-level courses in other disciplines in which the student obtains permission of instructor.

Degree total: 34-36 credits.

### 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
  - 7500:615 Musical Styles and Analysis I (Chant through Palestrina) 2
  - 7500:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
  - 7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Strauss) 2
  - 7500:618 Musical Styles and Analysis IV (20th Century) 2
  - 7500:621 Historical Survey: Music of the Middle Ages and Renaissance 2
  - 7500:633 Historical Survey: Music of the Baroque 2
  - 7500:643 Historical Survey: Music of the Classical and Romantic Eras 2
  - 7500:647 Advanced Problems in Music 4

- **Major required courses** – 20-22 credits:
  - 7500:651 Introduction to Musicology 2
  - 7500:655 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
  - 7500:624 Historical Survey: Music of the 20th Century 2
  - 7500:697 Advanced Problems in Music 4

- **Additional music courses** – two to four credits.
- **Graduate-level (music) workshops, applied music and/or courses to be selected by the student and adviser.
- **Electives** – two to four credits.

To be selected by the student and adviser. Areas include graduate-level courses in other disciplines in which the 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
  - 7500:618 Musical Styles and Analysis IV (20th Century) 2
  - 7500:621 Historical Survey: Music of the Middle Ages and Renaissance 2
  - 7500:622 Historical Survey: Music of the Baroque 2
  - 7500:624 Historical Survey: Music of the 20th Century 2
  - 7500:697 Advanced Problems in Music 4

- **Major required courses** – 23-26 credits:
  - Select either 7500:650 or 7500:652
  - 7500:652 Répertoire and Pedagogy: Organ or 7500:653 Teaching and Literature: Piano and Harpsichord 2
  - 7500:640 Advanced Accompanying I 2
  - 7500:641 Advanced Accompanying II 1
  - 7500:642 Advanced Accompanying III 1
  - 7500:643 Advanced Accompanying IV 1
  - 7500:666 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.

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

- **Elective** – two credits.

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

Degree total: 33-36 credits.

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*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.*

**Two semesters ensemble participation required for degrees completed in two semesters. Four semesters ensemble participation required for degrees completed in four semesters.
Performance Option in Winds, String 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 Palestine) 2
  7500:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
  7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Stravinsky) 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 Analyis IV (20th Century) Ensemble participation in two ensembles required** 2
  7500:619- Applied Music (select appropriate instrument) 3
  7500:621- Advanced Setting and Literature: Brasr Instruments 2
  7500:622- Teaching and Literature: Woodwind Instruments 2
  7500:623- Teaching and Literature: Percussion Instruments 2
  7500:624- Teaching and Literature: String Instruments 2
  7500:625- 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.

Note: No more than a total of 16 credits of 7520 courses may be applied to the degree.

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 Palestine) 2
  7500:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
  7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Stravinsky) 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 Analyis IV (20th Century) 2
  7500:619 Vocal Pedagogy 3
  7500:666 Advanced Song Literature 3
  7500:698 Graduação Recital 2
  7510:66 Ensemble participation in two ensembles required** 2
  7520:624 Applied Voice 4

- 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 Palestine) 2
  7500:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
  7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Stravinsky) 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 Analyis IV (20th Century) Select either 7500:652 or 7500:653 2
  7500:652- Repertoire and Pedagogy: Organ 2
  7500:653- Teaching and Literature: Piano and Harpsichord 2

- Additional music courses – three to four credits.
  Graduate-level (music) courses, workshops, and/or applied lessons, to be selected by the student and adviser.

Degree total: 34-36 credits.

Theory Option

- Music core courses – six credits to be selected:
  7500:553 Bibliography and Research 2
  7500:554 Advanced Conducting: Instrumental 2
  7500:556 Advanced Conducting: Choral 2
  7500:621 Historical Survey: Music of the Middle Ages and Renaissance 2
  7500:622 Historical Survey: Music of the Baroque 2
  7500:623 Historical Survey: Music of the Classic and Romantic Eras 2
  7500:624 Historical Survey: Music of the 20th Century 2

- Major required courses – 26-28 credits:
  7500:615 Musical Styles and Analyis I (Chant through Palestine) 2
  7500:616 Musical Styles and Analyis II (Baroque through early Beethoven) 2
  7500:617 Musical Styles and Analyis III (Late Beethoven through Mahler/Stravinsky) 2
  7500:618 Musical Styles and Analyis IV (20th Century) 2
  7500:619 Theory Pedagogy 2
  7500:621 Advanced Problems in Music 2
  7500:699 Master's Thesis 4-6
  7510:66 Ensemble participation in two ensembles required** 2
  7520:642 Applied Composition 2

- Additional music courses – zero to two credits.
  Graduate-level (music) workshops, applied music (other than composition), advanced problems, and/or courses to be selected by student and adviser.

- Electives – zero to two credits.
  To be selected by student and adviser. Areas may include graduate-level courses in other disciplines in which student obtains permission of instructor or coursework in other disciplines in which student obtains permission of instructor.

Degree total: 34-36 credits.

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

Communication

The School of Communication offers the master of arts degree in a coordinated program of communication arts.

Entrance requirements:
- Meet the general requirements for admission to the Graduate School.
- Possess an undergraduate major in communication, journalism, or a related field; or, complete at least 15 semester credits of undergraduate communication coursework approved by the department.

Program requirements:
- Complete 32 credits, distributed as follows:
  - School core courses – 16 credits:
    7600:600 Introduction to Graduate Study in Mass Media Communication 6
    7600:601 Introductions to Telecommunications 6
    7600:624 Survey of Communication Theory 3
    7600:625 Theory of Mass Communication 3
    7600:670 Communication Criticism 4
  - School coursework – 10 credits. Graduate electives – six credits.
    - Complete a qualifying exam over 24 credits of coursework.
    - Be advanced to candidacy.
- Register for at least four credits for thesis/project/production (may only be done after successful completion of qualifying exam).
- Present and defend a thesis/project/production.

The requirement is designed to be the culmination of the student's academic program and involves the conception, design and execution of an academic problem in a manner which requires a high level of substantive, methodological and writing skills. These skills may be demonstrated in any of these types of activity, depending on the student's background and orientation.

### Theatre Arts

The following will qualify the student in the field of theatre:

- Complete the general requirements for admission to the Graduate School.
- Complete an undergraduate major in the area of proposed graduate work or equivalent work as approved by the coordinator of the graduate theatre program.

**Continuous Enrollment Requirement:** Regarding the completion of 7800:698-699

Master's Thesis, students must enroll for one credit of 7800:699 each Fall and Spring semester until the thesis project is completed (approved).

### Theatre Option

- Complete a minimum of 36 credits from one of the following courses of study

#### Acting/Directing Course of Study

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7800:600</td>
<td>Introduction to Graduate Studies</td>
<td>3</td>
</tr>
<tr>
<td>7800:636</td>
<td>Lighting Design</td>
<td>3</td>
</tr>
<tr>
<td>7800:661</td>
<td>Seminar in Stage Costume Design</td>
<td>3</td>
</tr>
<tr>
<td>7800:695</td>
<td>Problems in Directing</td>
<td>3</td>
</tr>
<tr>
<td>7800:696</td>
<td>Seminar in Scene Design</td>
<td>3</td>
</tr>
<tr>
<td>7800:697</td>
<td>Graduate Acting Styles</td>
<td>3</td>
</tr>
<tr>
<td>7800:698</td>
<td>History of Theatre</td>
<td>3</td>
</tr>
<tr>
<td>7800:699</td>
<td>Master's Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

**Electives in related fields (4-7 credits):**

Options here include course work in business, computer science, urban studies, and music.

- Complete an oral defense of the thesis.
- General Electives

#### Design/Technology Course of Study

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7800:602</td>
<td>Introduction to Graduate Studies</td>
<td>3</td>
</tr>
<tr>
<td>7800:636</td>
<td>Advanced Problems in Lighting</td>
<td>3</td>
</tr>
<tr>
<td>7800:641</td>
<td>Problems in Design</td>
<td>3</td>
</tr>
<tr>
<td>7800:654</td>
<td>Graduate Acting Techniques</td>
<td>3</td>
</tr>
<tr>
<td>7800:656</td>
<td>Seminar in Dramatic Literature</td>
<td>3</td>
</tr>
<tr>
<td>7800:658</td>
<td>History of Theatre</td>
<td>3</td>
</tr>
<tr>
<td>7800:660</td>
<td>Advanced Technical Theatre</td>
<td>3</td>
</tr>
<tr>
<td>7800:661</td>
<td>Seminar in Stage Costume Design</td>
<td>3</td>
</tr>
<tr>
<td>7800:662</td>
<td>Seminar in Scene Design</td>
<td>3</td>
</tr>
<tr>
<td>7800:699</td>
<td>General Theatre Electives</td>
<td>6</td>
</tr>
</tbody>
</table>

#### General M.A. Course of Study - History, Literature, Criticism

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7800:567</td>
<td>Contemporary Theatre Styles</td>
<td>3</td>
</tr>
<tr>
<td>7800:600</td>
<td>Introduction to Graduate Studies</td>
<td>3</td>
</tr>
<tr>
<td>7800:641</td>
<td>Problems in Directing</td>
<td>3</td>
</tr>
<tr>
<td>7800:662</td>
<td>Seminar in Scene Design</td>
<td>3</td>
</tr>
<tr>
<td>7800:665</td>
<td>Seminar in Dramatic Literature</td>
<td>3</td>
</tr>
<tr>
<td>7800:667</td>
<td>Dramatic Theory and Criticism</td>
<td>3</td>
</tr>
<tr>
<td>7800:669</td>
<td>History of Theatre</td>
<td>3</td>
</tr>
<tr>
<td>7800:699</td>
<td>General Theatre Electives</td>
<td>6</td>
</tr>
</tbody>
</table>

**Electives in related fields: (4-7 credits):**

Options here include course work in business, computer science, urban studies, and music.

- Complete an oral defense of the thesis or production.

### Arts Administration Option

- Complete a minimum of 42 credits.

#### Required theatre arts courses (23-32 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7800:600</td>
<td>Introduction to Graduate Studies in Theatre Arts</td>
<td>3</td>
</tr>
<tr>
<td>7800:605</td>
<td>Colloquium in the Arts</td>
<td>2</td>
</tr>
<tr>
<td>7800:665</td>
<td>Audience Development</td>
<td>3</td>
</tr>
<tr>
<td>7800:666</td>
<td>Principles of Arts Management</td>
<td>3</td>
</tr>
<tr>
<td>7800:682</td>
<td>Fund-Raising and Grantmanship in the Arts</td>
<td>3</td>
</tr>
<tr>
<td>7800:691</td>
<td>Arts Administration Practices and Places</td>
<td>3</td>
</tr>
<tr>
<td>7800:692</td>
<td>Legal Aspects of Arts Administration</td>
<td>3</td>
</tr>
<tr>
<td>7800:698</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>7800:699</td>
<td>Master's Thesis® @ credits required</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives in related fields (4-7 credits):**

Options here include course work in business, computer science, urban studies, and music.

- Complete an oral defense of the thesis.
- General Electives

#### Communication Disorders

This program, leading to the M.A. in Communicative Disorders, is designed to lead to professional certification by the American Speech-Language-Hearing Association (ASHA) in speech-language pathology and/laboratory and licensure by the State of Ohio Board of Speech-Language Pathology and Audiology. To enter the program:

- Complete requirements for admission to the Graduate School.
- Hold an undergraduate major in the area of proposed graduate specialty or complete undergraduate work within one calendar year of application.
- Complete department requirements for admission which include submission of three letters of recommendation and Graduate Record Examination Aptitude Test results.

 Declare intent to major in either speech-language pathology or audiology.

Speech-language pathology and audiology majors are accepted for entrance into the program only for Fall Semester. Applications for admission should be received by February 15th.

#### Degree Requirements

- The master's thesis is optional for students in speech-language pathology and audiology. All students will successfully complete a course of study with a minimum of 38 credits, two of which may be thesis credits for students electing the thesis option. Students in the non-thesis option also will write comprehensive examinations during their final semester. Academic requirements within the school include:

  **For speech-language pathology majors:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7700:611</td>
<td>Research Methods in Communicative Disorders I</td>
<td>3</td>
</tr>
<tr>
<td>7700:628</td>
<td>Topics in Differential Diagnosis of Speech and Language Disorders</td>
<td>2</td>
</tr>
<tr>
<td>7700:650</td>
<td>Advanced Clinical Practicum: Differential Diagnosis</td>
<td>1</td>
</tr>
</tbody>
</table>

At least two credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7700:651</td>
<td>Advanced Clinical Practicum: Voice</td>
<td>1</td>
</tr>
<tr>
<td>7700:652</td>
<td>Advanced Clinical Practicum: Fluency</td>
<td>1</td>
</tr>
<tr>
<td>7700:655</td>
<td>Advanced Clinical Practicum: Articulation</td>
<td>1</td>
</tr>
<tr>
<td>7700:656</td>
<td>Advanced Clinical Practicum: Language</td>
<td>1</td>
</tr>
</tbody>
</table>

**For audiology majors:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7700:611</td>
<td>Research Methods in Communicative Disorders I</td>
<td>3</td>
</tr>
<tr>
<td>7700:612</td>
<td>Research Methods in Communicative Disorders II</td>
<td>2</td>
</tr>
<tr>
<td>7700:699</td>
<td>Master's Thesis</td>
<td>4</td>
</tr>
<tr>
<td>7700:654</td>
<td>Advanced Clinical Practicum: Diagnostic Audiology</td>
<td>1</td>
</tr>
<tr>
<td>7700:657</td>
<td>Advanced Clinical Practicum: Rehabilitative Audiology</td>
<td>1</td>
</tr>
</tbody>
</table>

The student must take four credits of 7700:696 Externship: Speech Pathology and Audiology. Two credits of 5610:695 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-language pathology, and the speech-language pathology student must take 4 credits in audiology. It is recommended that the speech-language pathology major elect 7700:639 Advanced Clinical Testing to fulfill this requirement.

- The following limitations on work toward the degree may be exceeded only with the approval of two-thirds of the school'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 only, or be required, to complete one or more practica in addition to degree requirements. Only 2 credits of student teaching (5610:692 or 5610:693) 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.
The Master of Social Work Program is a joint degree program administered by Cleveland State University and The University of Akron. The two-year program began in January 1995 on a one-time basis with a new class beginning each Fall Semester on both campuses. Distance learning technology, which utilizes interactive video and audio systems, will link faculty and students at the two institutions. The degree program is in candidacy status with the Council on Social Work Education.

Students accepted into the graduate program leading to a master's degree in social work must register only for 600 and 700 level courses. Graduate courses taken at the 500 level are not applicable for the graduate degree program in social work, but can be used (with approval) as an elective for other University of Akron graduate programs.

Admission Requirements:
- Meet the general Graduate School requirements for admission.
- An undergraduate major in social work or a related field.
- Have a minimum grade point average of 3.00 in social work and behavioral science courses taken prior to application for admission. A minimum of 8 courses is required in this area.
- Submit 3 letters of reference.
- Submit an essay of 3-5 typed pages explaining:
  a) why he/she wants to be a social worker.
  b) why a graduate degree is felt to be necessary to fulfill his/her personal or professional objectives;
  c) his/her views regarding diversity in society;
  d) a situation in which he/she was the recipient/provider of help, emotionally, socially, or economically.
A description of any social work/human service work experience must be submitted.

Program Requirements:
- Complete a minimum of 60 graduate credits of approved courses in social work. Up to 9 credits of graduate-level electives outside the department may be included in the program. There is no foreign language requirement.
- Complete an approved program of courses which include the following required courses:

First Year Professional Foundation:
- Fall Semester
  - 7750:604 Social Work Practice with Small Systems 3
  - 7750:606 Foundation Field Practicum 3
  - 7750:631 Human Behavior and Social Environment: Small Social Systems 3
  - 7750:646 Social Welfare Policy 3
- Spring Semester
  - 7750:605 Social Work Practice with Large Systems 3
  - 7750:611 Dynamics of Racism and Discrimination 3
  - 7750:623 Fundamentals of Research II 3
  - 7750:632 Human Behavior and Social Environment: Large Systems 3

Second Year Concentrations (Direct Practice):
- Fall Semester
  - 7750:704 Advanced Practice with Small Systems I 3
  - 7750:706 Advanced Field Practicum 3
  - 7750:707 Social Welfare Policy II 3
  - 7750:763 Psychopathology and Social Work 3
    One elective 3
- Spring Semester
  - 7750:705 Advanced Practice with Small Systems II 3
  - 7750:706 Advanced Field Practicum 3
  - 7750:764 Single System Design 3
    Two electives 6

Second Year Concentrations (Macro Practice):
- Fall Semester
  - 7750:706 Advanced Field Practicum 3
  - 7750:747 Social Welfare Policy II 3
  - 7750:773 Introduction to Community Organization and Planning 3
  - 7750:774 Community, Economic Systems and Social Policy Analysis 3
    One elective 3
- Spring Semester
  - 7750:706 Advanced Field Practicum 3
  - 7750:771 Social Work Administration 3
  - 7750:772 Strategies of Community Organization 3
  - 7750:775 Program Evaluation 3
    One elective 3
College of Nursing

V. Ruth Gray, R.N., Ed.D., Dean
Delores Bower, R.N., Ph.D., 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

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 a conscious effort to serve the nursing student in the urban and rural community.

The College of Nursing faculty believe that the focus of professional nursing is individuals, families and communities.

The Individual is seen as a complex whole whose existence involves patterns, dynamic change, transformation and interdependence. The individual involves 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 effecting personal health.

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

Nursing is an an 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 in 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 students 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 roles.
- 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 4.0 scale for all previous college work.
- Miller Analogies Test taken within the last five years with a minimum score of 50 or GRE taken within the last five years. During the past three years, the range of GRE scores has been verbal 400-614, quantitative 400-695, and analytical 400-640.
- Three (3) letters of reference from a recent employer, a member of the nursing profession, a former faculty member.
- 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 occurs is required for all students admitted to the nurse anesthesia specialty.

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, or the Office of Student Affairs, College of Nursing. Criteria specific for admission to the Graduate Nursing Program may be secured from the Associate Dean of the Graduate Program in Nursing or the Office of Student Affairs.

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 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 when the file is complete 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, Commission on Accreditation of Rehabilitation Facilities (CARF), Child and Adolescent Health Nursing, and Gerontological Nursing. Graduates 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 for 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 (CRNA).

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: N8200:613, Master's Thesis or N8200:618 Nursing Inquiry II.

*National League for Nursing

**A baccalaureate degree in nursing from a foreign university which is recognized by The University of Akron.
Advanced Practice Roles

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

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:

- 8200:908 Pathophysiological Concepts of Nursing Care *
- 8200:903 Theoretical Basis for Nursing
- 8200:905 Computer Applications in Nursing
- 8200:907 Policy Issues in Nursing
- 8200:913 Nursing Inquiry
- 8200:918 Nursing Inquiry II
- 8200:999 Master's Thesis

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

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

- Administration:
  - 8200:632 Fiscal Management in Nursing Administration
  - 8200:630 Resource Management in Nursing Settings
  - 8200:635 Organizational Behavior in Nursing Settings
  - 8200:639 Practicum: Administration I
  - 8200:639 Practicum: Administration II

- Nurse Anesthesia**

The Anesthesia Track is accredited by the Council on Accreditation of Nurse Anesthesia Programs.

- 3100:561 Human Physiology I
- 3100:562 Human Physiology II
- 8200:640 Scientific Components of Nurse Anesthesia
- 8200:641 Pharmacology for Nurse Anesthesia I
- 8200:642 Pharmacology for Nurse Anesthesia II
- 8200:645 Principles of Anesthesia I
- 8200:646 Principles of Anesthesia II
- 8200:647 Professional Role Seminar
- 8200:649 Nurse Anesthesia Residency

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

- Liaison-Community/Mental Health Nursing***
  - 3100:606 Psychopharmacology
  - 8200:661 Liaison-Community Mental Health Nursing I
  - 8200:665 Liaison-Community Mental Health Nursing II
  - 8200:667 Liaison-Community Mental Health Nursing III
  - 8200:669 Practicum: Liaison-Community Mental Health Nursing

- Adult Health
  - 8200:671 Adult Health Nursing I
  - 8200:675 Adult Health Nursing II
  - 8200:677 Adult Health Nursing III
  - 8200:679 Practicum: Adult Health Nursing

- Gerontological Nursing***
  - 8200:621 Gerontological Nursing I
  - 8200:625 Gerontological Nursing II
  - 8200:627 Gerontological Nursing III
  - 8200:629 Practicum: Gerontological Nursing

- Clinical Nurse Specialization***
  - 8200:615 Advanced Clinical Practice Seminar

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* Cognate electives may be substituted for this course for the Administrative track.

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

*** 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 admissions 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.
- Miller Analogies Test taken within the last five years with a minimum score of 50 or Graduate Record Exam (GRE) taken within the last five years. During the past three years, the range of GRE scores has been: verbal 400-614, quantitative 430-665, and analytical 400-640.
- 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. Sequence 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 67 hours of prerequisite undergraduate coursework prior to acceptance into the Sequence. The R.N.-M.S.N. Sequence consists of bridge courses totaling 21 hours of upper-division baccalaureate coursework and a minimum of 36 hours of graduate coursework. Students will receive 46 hours of undergraduate by-passed credit after successful completion of all undergraduate course requirements. This is in accordance with the current University policy for by-passed credit. Upon successful completion of all program requirements, the student will receive the B.S.N. and M.S.N. degrees.

- R.N.-M.S.N. Bridge Courses:
  - 8200:225 Health Assessment
  - 8200:435 Nursing Research
  - 8200:450 Issues and Roles of the Profession of Nursing
  - 8200:465 Concepts and Theories of Professional Nursing
  - 8200:470 Community Health Nursing
  - 8200:485 Leadership Roles of Professional Nursing
College of Polymer Science and Polymer Engineering

Frank N. Kelley, Ph.D., Dean
Rudolph J. Scavuzzo, Ph.D., Associate Dean

HISTORY
The University of Akron has been a focus for training and research in polymer science since 1910 when Professor Charles M. Knight began offering courses in rubber chemistry. Master's theses treating rubber chemistry on the University library shelves date to 1920. The University began developing major laboratories in 1942 under the leadership of Professor G.S. Whitby, and the UA program played a significant role in the synthetic rubber industry of the U.S. government during World War II. An Institute of Rubber Research under the direction of Professor Maurice Morton was created in 1956, which became an Institute of Polymer Science in 1964. A Ph.D. program in Polymer Chemistry was introduced in 1956. In 1967, a Department of Polymer Science in the College of Arts and Sciences was formed which awarded M.S. and Ph.D. degrees in Polymer Science.

A Center for Polymer Engineering was created in 1983 and a Department of Polymer Engineering in the College of Engineering in January 1984 with Professor J.L. White as director and department head to give thrust to polymer processing and engineering applications. In 1988 the College of Polymer Science and Polymer Engineering was established to consolidate the administration of the two academic departments, the Institute of Polymer Science and the renamed Institute of Polymer Engineering.

DEPARTMENT OF POLYMER ENGINEERING

Students with an undergraduate degree in Chemical Engineering, Mechanical Engineering or related degrees with a grade point average of 2.75/4.0 or better are admissible. Students holding a degree in the natural sciences usually need additional undergraduate engineering courses, which are required prerequisites for core courses. For such students, depending upon their background, a special non-degree admission may be given followed by full admission upon successful completion of a series of required remedial courses.

A student with a M.S. in Mechanical or Chemical Engineering from another university can be admitted to the Ph.D. program. Two letters of recommendation are required in such cases to be certain that the student is likely to be successful in doctoral research.

DOCTOR OF PHILOSOPHY

Students may pursue the Doctor of Philosophy degree in either Polymer Science or Polymer Engineering.

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 dissertation 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, or their equivalent, plus sufficient Ph.D. research credits to make a total of 84 credits (exclusive of Master of Science thesis credit). Credits for participation in either Polymer Science of Polymer Engineering seminars do not apply toward the degree. At least 18 credits of graduate course work and all dissertation credits must be completed at the University.

- There is a university minimum residence time requiring one year, although graduate students starting with a B.S. or B.A. typically spend 4 years in residence.

- Completion of 18 credits among the following core courses (2 credits each) in polymer science:
  - 4 credits of polymer chemistry courses:
    - 9871:601 Polymer Concepts
    - 9871:602 Synthesis and Chemical Behavior of Polymers
    - 9871:704 Condensation Polymerization
    - 9871:705 Free Radical Reactions in Polymer Science
    - 9871:706 Ionic and Monomer Insertion Reactions
  - 4 credits of polymer physical chemistry courses:
    - 9871:674 Polymer Structure and Characterization
    - 9871:675 Polymer Thermodynamics
  - 4 credits of polymer physical property courses:
    - 9871:631 Physical Properties of Polymers I
    - 9871:632 Physical Properties of Polymers II

- 4 credits of polymer engineering and technology courses:
  - 9871:701 Polymer Technology I
  - 9871:702 Polymer Technology II
  - 9871:703 Polymer Technology III

- 3 credits of polymer science laboratory:
  - 9871:813 Polymer Science Laboratory

- Completion of 18 credits of elective courses appropriate to each student's area of interest.
- Pass eight cumulative examinations which are given at monthly intervals during the academic year. The candidate is urged to begin these examinations early in the graduate program.
- Complete 9871:607B Polymer Science Seminar I and II.
- 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.
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 11 of credits in the following required core courses in polymer science: 9871:631 Polymer Concepts, 613 Polymer Science Laboratory, 631 Physical Properties of Polymers I, 674 Polymer Structure and Characterization, 701 Polymer Technology.

Completion of 13 credit hours of elective courses appropriate to each student’s area of interest.

Completion of a research project (9871:699) and the resulting 6 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.

Demonstrated competence in computer skills.

At least 12 credits of graduate coursework and all theses credits must be completed at the University.

Master of Science in Engineering (Polymer Engineering Specialization)

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

The academic program requires the completion of 33 credits: 12 credits of core courses, 3 credits of approved mathematics courses, 6 thesis credits, and 12 credits of approved electives.

- Polymer engineering core:
  9841:611 Structural Characterization of Polymers with Electromagnetic Radiation 2
  9841:621 Rheology and Polymer Processing 3
  9841:622 Analysis and Design of Polymer Processing Operations I 3
  9841:631 Engineering Properties of Solid Polymers 2
  9841:641 Polymeric Materials Engineering Science 2
  Total 12

- Polymer engineering elective:
  9841:691 Polymer Engineering Seminar 1
  9841:623 Analysis and Design of Polymer Processing Operations II 3
  9841:642 Engineering Aspects of Polymer Colloids 2
  9841:651 Polymer Engineering Laboratory 2
  9841:661 Polymerization Reactor Engineering 3

- Approved engineering and science elective (a minimum of 3 credits of approved science or mathematics required):
  3450 Approved Mathematics 3
  4300:661 Advanced Engineering Materials 3
  4600:622 Continuum Mechanics 3
  9871:613 Polymer Science Laboratory 3
  9871:674 Polymer Structure and Characterization 2
  9871:675 Polymer Thermodynamics 2

- Thesis:
  9841:699 Master’s Thesis 6

- Requirements:
  Polymer Engineering Core 12
  Approved Electives 12
  Approved Mathematics 3
  Thesis 6
  Total 33

- 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 departmental 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 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 1800. 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 Roy C. Bliss Institute and the Department of Political Science have combined to offer a Certificate Program in Applied Politics for graduate students. The Certificate Program in Applied Politics offers coursework in the history, organization and management of campaigns intended to influence the outcome of political decisions. Working from a set of core courses, students are allowed to concentrate in the area of applied politics of greatest interest—campaigns, communications, lobbying, and inter-party, etc. Believing that democracy is best served by having active and informed citizens, the certificate is designed for all students, no matter what their degree program as long as they have a deep interest in practical politics.

Requirements
Persons are eligible for admission to the Certificate Program in Applied Politics if they have been admitted to study as full-time students, special, or non-degree 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 chair/director of the department/school in which they are enrolled. Students shall seek admission to this program by filing an application with the Bliss Institute. The student shall schedule courses with the assistance of an advisor at the earliest possible time.

Core Courses (required 12 credits):
- 3700:570 Campaign Management I 3
- 3700:571 Campaign Management II 3
- 3700:672 Seminar: Political Influence and Organizations 3
- 3700:685 Internship in Government and Politics 3

Electives:
Six credits selected from the following (at least 3 credits must be from 3700:502, 540, 572, 573, 574, 575, 576, or 630):
- 3700:502 Political Opinion, Behavior and Electoral Politics 3
- 3700:540 Survey Research Methods 3
- 3700:572 Campaign Finance 3
- 3700:573 Voter Contact and Elections 3
- 3700:574 Political Opinion, Behavior and Electoral Politics 3
- 3700:575 American Interest Groups 3
- 3700:576 American Political Parties 3
- 3700:630 Seminar in National Politics 3

Additional 3 credits from above or from approved courses from Political Science, Communication or other departments. Students must maintain at least a 3.0 average in their course work for the certificate.

Certificate
Political science majors will upon completion of the program, be awarded an M.A. degree in Political Science with a Certificate in Applied Politics. Majors in other disciplines will have the Certificate noted on their permanent record.

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:
- 3300:576 Seminar: Theory and Teaching of Basic Composition 3
- 3300:573 Theories of Composition 3
- 3300:675 Seminar Research Methodologies in Composition 3

Optional Courses:
- 3300:570 History of the English Language 3
- 3300:571 U.S. Dialects: Black and White 3
- 3300:589 Grammatical Structures of Modern English 3
- 3300:578 Theory of Rhetoric 2
- 3300:589 Seminar: Sociolinguistic 3
- 3300:679 Seminar: Stylistics 3
- 3300:669 Seminar: Contextual Linguistics 3

DIVORCE MEDIATION
Helen Clemintshaw, Ph.D., Coordinator

Requirements
This graduate certificate program in divorce mediation requires a minimum of 15 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 Jura 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:
- 1800:601 Divorce Mediation 3
- 1800:602 Divorce Mediation Practicum 2

Select at least one from each area:
- Law
  - 7400:651 Family Law 3
- Accounting
  - 6200:601 Financial Accounting 3
  - 9200:621 Accounting for Lawyers 3
- Family
  - 5600:655 Marriage and Family Therapy: Theory and Techniques 3
  - 5600:667 Marital Therapy 3
  - 7400:607 Family Dynamics 3

Electives:
Students who have already completed coursework in Law, Accounting or Family may select from courses listed below:
- 5600:647 Career Counseling 3
- 5600:669 Systems Theory in Family Therapy 3
- 7400:540 Family Crisis 3
- 7400:590 Family and Divorce 2
- 7400:602 Family in Life Span Perspective 2
- 9200:694 Alternate Dispute Resolution 3
GERONTOLOGY

Harvey Sterns, Ph.D., Director
Isadore Newman, Ph.D., Associate Director
Raymond E. Sanders, Ph.D., Associate Director of Research
Evelyn Sutton, M.S., Program Coordinator, Gerontology
Jerome Kaplan, Ph.D., Program Coordinator, Nursing Home Administrator Program

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. Individuals who already hold undergraduate or graduate degrees may also pursue the certificate. The program represents a concentration involving current knowledge and research in gerontology. It adds another dimension to the knowledge and skills a student is able to offer in the many professions that are becoming specialized in research and service to adults and older adults. This course of study coordinates multidisciplinary training of personnel in adult development and aging and help to meet the critical shortage of trained individuals in the field of gerontology.

The undergraduate and graduate curriculum committees of the institute will oversee this certificate program and certify through the director of the institute that all requirements for the certificate have been completed.

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 in Industrial Management (Personal Option) with a Certificate in Gerontology.

B.S./M.D. students may complete Practicum/Internship and electives from available gerontology courses or the Office of Geriatric Medicine and Gerontology, NEOUCOM.

Admission

To participate in the program at the graduate level, a student should:

• Be formally admitted to The University of Akron Graduate School.
• Make written application to the program co-signed 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 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:

3006:680 Interdisciplinary Seminar in Life-Span Development and Gerontology 3
3006:695 Practicum/Internship 3
3006:696 Research Methods Course 3*

Electives:**

3006:666 Retirement Specialist 2
3006:690 Workshop - Women: Middle and Later Years 2
3006:695 Workshop - Aging: Process and Intervention 2
3700:580 Policy Problems: Aging 3
3750:620 Psychology Core II: Developmental, Perceptual, Cognitive 4
3750:727 Psychology of Adulthood and Aging 4
3800:676 Social Gerontology 3
3800:681 Cross Cultural Perspectives in Aging 3
5400:541 Educational Gerontology Seminar 3
5400:661 Current Issues in Higher Education: Life-Span and Community Education 2
6500:687 Seminar in Health Services Policy and Administration 3 or
6500:688 Health Systems Management (with permission) 3
7400:603 Family Relationships in Middle and Later Years 3
7400:650 Social Needs and Services for Later Adulthood and Aging 3

*From student's home department
**Select 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.
***Offered every other year.

HIGHER EDUCATION

Dianne Brown-Wright, Ph.D., Coordinator

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. This person will consider the student's degree program and determine the number and types of courses the student will complete and the time required to complete them. The program may be completed on a part-time or full-time basis.

Program

Courses and internships in higher education are directed toward the study of administrative and academic operations of colleges and universities. Specified program options include: administration, student services, 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:

5700:703 Seminar: History and Philosophy of Higher Education 3
5900:700 Introductory Administrative Colloquium in Higher Education 1
5900:700 Advanced Administrative Colloquium in Higher Education 1
5900:801 Seminar in Independent Study or Course Work to Support Concentration 2
5900:801 Seminar: Independent Study or Course Work to Support Concentration 3

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)

5700:704 Administrative Colloquium in Higher Education 2
5700:715 Seminar in Higher Education Administration in Higher Education (B) 3

Student Services in Higher Education (II)

5600:649 Counseling and Personnel Services in Higher Education (A) 3
5600:726 Seminar in Higher Education Student Services (B) 3

Program Planning, Curriculum and Instruction in Higher Education (III)

5500:730 Higher Education Curriculum and Program Planning (A) 3
5500:735 Instructional Strategies and Techniques for the College Instructor (B) 3 or
5700:609 Principles of Curriculum Development (B) 3

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

HOME-BASED INTERVENTION THERAPY

Helen K. Clemshaw, Ph.D., Coordinator

Program

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 postbacalaureate 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 at the graduate level, the student should:

- Be formally admitted to The University of Akron Graduate School.
- Make written application to the program countersigned by student's major academic adviser (if applicable).
- Have an interview with the Director of the Certificate Programs in Home-Based Intervention.
- Receive written notification 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 postbaccalaureate 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:

1820:500 Home-based Intervention Theory 3
1820:504 Home-based Intervention Techniques and Practice 3
1820:505 Home-based Intervention Internship 3-5

Eligibility Courses:
Students must have completed at least 9 credits of coursework in theoretical frameworks from their discipline or related areas follows:

Theoretical Frameworks:
- Systems Theory
  3850:620 General Systems Theory 3
  5600:643 Theories and Philosophy of Counseling 3
  5600:655 Marriage and Family Therapy Theory and Techniques 3
  7400:607 Family Dynamics 3
- Developmental Theory
  3850:512 Socialization: Child to Adult 3
  7400:602 Family in Life Span Perspective 3
  7400:605 Developmental Parent-Child Interactions 3
  7400:610 Child Development Theories 3
- Therapeutic Theory
  5600:651 Techniques in Counseling 3
  5600:667 Marital Therapy 3
  5600:688 Systems Theory in Family Therapy 3
  7750:553 Social Work with Families 3

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 4
  3750:704 Theories of Personality 3
- Sociology
  3850:550 Sociology of Mental Health 3
  3850:688 Human Ecology 3
  3850:753 Family and Health (Special Topics) 1-3
- Counseling
  5600:550 Counseling Problems Related to Life/Death 3
  5600:620 Multicultural Counseling 1-4
  5600:620 Substance Abuse 1-4
  5600:620 Human Sexuality 1-4
- Special Education
  5610:546 Developmental Characteristics of Exceptional Individuals 3
  5610:546 Developmental Characteristics of Behaviorally Disordered Individuals 3
  5610:660 Working with Parents of MSPR Individuals 3
  5610:684 Education and Management Strategies for Parents of Exceptional Individuals 3
- Multicultural Education
  5630:582 Characteristics of Culturally Different Youth 3

- Home Economics and Family Ecology
  7400:501 Family Life Patterns in the Economically Deprived Homes 3
  7400:504 Adolescence in the Family Context 3
  7400:506 Family Resource Management 3
  7400:540 Family Crisis 3
  7400:542 Human Sexuality 3
  7400:546 Culture, Ethnicity, and the Family 3
  7400:590 Family and Divorce 3
  7400:596 Parent Education 3
  7400:675 Conceptual Frameworks in Family Ecology 3
- Social Work
  7750:510 Minority Issues in Social Work Practice 3
  7750:551 Social Work and Child Welfare 3
  7750:552 Social Work and Mental Health 3
  7750:554 Social Work in Juvenile Justice 3

MID-CAREERS PROGRAM IN URBAN STUDIES

Gary M. Gappert, Ph.D., Director

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-Careers Certificate Program in Urban Studies will require the successful completion of a plan of study which must include a minimum of 16 credits of work in existing courses offered by the Department of Public Administration and 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:
3980:600 Basic Analytical Research 3
or
3980:601 Advanced Research and Statistical Methods 3

Options:
Geography/Urban Planning
3350:630 Introduction to Planning Theory 3
3350:600.1,2 Seminar: Urban Planning Design 3
3350:600.1,2 Seminar: Planning Theory and Innovation 3
Elective(s)
3

Public Administration
3980:611 Introduction to the Profession of Public Administration 3
3980:640 Fiscal Analysis 3
3980:643 Introduction to Public Policy 3
Elective(s)
4

Urban Research Methods
3980:670 Research for Futures Planning 3
3980:673 Computer Applications in Public Organizations 3
Elective(s)
4

Urban Service Systems
3980:620 Social Services Planning 3
3980:621 Urban Society and Service Systems 3
3980:671 Program Evaluation in Urban Studies 3
Elective(s)
4

Urban Studies
3980:602 History of Urban Development 3
3980:6—Elective(s)
10

PUBLIC POLICY

Stephen C. Brooks, Ph.D., Chairman, coordinating committee

Program
This program will assist the person in understanding, formulating and implementing decisions in the public realm. A person who is interested in government service, administration of publicly supported institutions and the teaching of government at the college level should find such an interdisciplinary program to be of great value.
Admission

Persons are eligible for admission to the Graduate Certificate in Public Policy Program if they have been admitted to graduate study as non-degree students in the departments of economics, political science or sociology, or are pursuing a master's or doctoral degree in one of those three departments. Students who are pursuing a graduate degree in other departments at the University may be admitted upon the recommendation of the chair of the department in which they are enrolled.

Requirements

Core:
Each student enrolled in the program shall complete three of the following courses: one from the Department of Economics, one from the Department of Political Science and one from the Department of Sociology.

- Economics (choose one)
  3250:530 Human Resource Policy 3
  3250:666 Public Finance 3
  3250:665 Seminar on Economic Planning 3
- Political Science (choose one)
  3700:541 The Policy Process 3
  3700:642 Methods of Policy Analysis 3
  3700:666 Seminar in Public Policy Agendas and Decisions 3
  3700:670 Seminar in the Administrative Process 3
- Sociology (choose one)
  3850:613 Sociology of Program Evaluation and Program Improvement 3
  3850:679 Political Sociology 3

In addition to the courses listed above, each student, after receiving the approval of his or her adviser, shall complete two courses related to public policy.

Each student shall complete a scholarly paper dealing with public policy under the direction of a graduate faculty member in the departments of economics, political science or sociology. The student shall enroll for three credits in one of the following courses: 3250:697/698 Reading in Advanced Economics, 3700:697 Independent Research and Readings or 3850:697 Readings in Contemporary Sociological Literature. The student's paper shall be evaluated by an interdisciplinary committee consisting of graduate faculty from at least two of the previously mentioned departments.

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

At least two-thirds of the credits earned for this certificate must be in 600- or 700-level courses. No more than three courses in which the student enrolls, of the seven required for the Graduate Certificate in Public Policy, may also apply toward meeting requirements for graduate degrees at The University of Akron.

The student must maintain at least a "B" (3.00) average in course work for the certificate.

Administration of the Program

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

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

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>3300:573</td>
<td>Seminar in Teaching ESL: Theory and Method</td>
<td>3</td>
</tr>
<tr>
<td>3300:588</td>
<td>Special Topics: Grammatical Structures of English</td>
<td>3</td>
</tr>
<tr>
<td>5630:581</td>
<td>Multicultural Education in the U.S.**</td>
<td>3</td>
</tr>
<tr>
<td>3300:588</td>
<td>Special Topics: Sociolinguistics**</td>
<td>3</td>
</tr>
<tr>
<td>5630:587</td>
<td>Techniques for Teaching ESL</td>
<td>3</td>
</tr>
</tbody>
</table>

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

TECHNICAL AND SKILLS TRAINING

This certificate program in technical and skills training is a special course of study within the College of Education undergraduate and graduate programs to serve the practicing or prospective business and/or industrial-technical trainer.

Persons are eligible for admission to the Certificate in Technical and Skills Training if they have been admitted to study as special, non-degree or full-time students in any department of the University. Undergraduates will earn the certificate upon graduation from their degree program; individuals who already hold undergraduate or graduate degrees may also pursue this certificate. Students with an undergraduate degree who do not seek a graduate degree may pursue the certificate at the post-baccalaureate level. Students who already hold a graduate degree or do not wish to pursue a graduate degree may be admitted to the program as a non-degree graduate student. Students pursuing graduate degrees will receive their graduate certificate upon completion of the requirements for their graduate degree. 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.

Those formally admitted to The University of Akron and meeting the Certificate entrance requirements may pursue the Certificate in Technical and Skills Training. Students shall seek admission to this program by filing an application with the program coordinator. The student will schedule courses with the assistance of an adviser in the Technical Education Program.

Those who have completed either a BS or MS in Technical Education at The University of Akron prior to the Fall of 1994 must seek adviser approval before pursuing the Certificate. Only six hours of prior technical education coursework can be accepted towards the certificate and all accepted coursework must be no older than six years at the time of completion of the certificate. Only graduate credit may be used for a graduate certificate and only undergraduate credit may be used for an undergraduate or post-baccalaureate certificate. Any course substitutions must be made with the adviser's prior written approval. Students must maintain at least a 3.00 average in certificate coursework to receive this certificate. Enrollment will be limited to space available. All those applying for the undergraduate certificate, must have completed at least 60 semester hours with a 2.75 GPA. For those applying for the graduate certificate, students must have a 2.75 GPA in their completed undergraduate degree. All coursework must be completed within six years.

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 coordinator.
- Receive written notification from the program coordinator.
- Consult with a Technical Education Program Advisor to formulate a program of study.

Requirements

Minimum: 16 Credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5400:500</td>
<td>The Postsecondary Learner</td>
<td>3</td>
</tr>
<tr>
<td>5400:515</td>
<td>Training in Business and Industry</td>
<td>3</td>
</tr>
<tr>
<td>5400:530</td>
<td>Curriculum Development in Technical Education</td>
<td>2</td>
</tr>
<tr>
<td>5400:531</td>
<td>Curriculum Development for Technical Education Lab</td>
<td>1</td>
</tr>
<tr>
<td>5400:535</td>
<td>Instructional Techniques in Technical Education</td>
<td>4</td>
</tr>
<tr>
<td>5400:691</td>
<td>Internship: Teaching Technical Education</td>
<td>2</td>
</tr>
<tr>
<td>5100:520</td>
<td>Introduction to Computer-Based Education</td>
<td>3</td>
</tr>
</tbody>
</table>

The Internship is the last course taken. This course can not be taken until all other certificate courses have been completed with a 3.00 GPA or better. 5400:531 and 5400:530 must be taken together and before 5400:533.
5
Research centers and institutes
Research Centers and Institutes

University Research Council:
Nicholas Sylvester, Ph.D., Vice President for Research and University Development (Chair)
———, Associate Vice President for Research (member)
Frank Kelley, Ph.D., Dean of Polymer Science and Polymer Engineering (member)
Randy Moore, Ph.D., Dean, Buchtel College of Arts and Sciences (member)
Kirk Miler, Ph.D., Dean, College of Engineering (member)
Charles Dye, Ph.D., Dean, Graduate School (member)
Chairman Strehausky, Ed.D., Director of Research Services and Sponsored Programs (member and secretary)
Ted Mollo, J.D., Assistant Professor, General Counsel (member, ex-officio)
Virginia Gunn, Ph.D., Faculty Senate Nominee (member)
Forster Antonia, Ph.D., Faculty Senate Nominee (member)
James White, Ph.D., Institute of Polymer Engineering (member)

In the past, colleges and universities have been thought of as ivy-covered stone-houses 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. 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 Associate Vice President for Research and the Director of Research Services and Sponsored Programs. The University Research Council is responsible for encouraging, supporting, and making recommendations pertaining to sponsored and contractual research carried out at the University’s departments, centers, and institutes. The Council consists of the Vice President for Research and the President and the Associate 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 its 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

Stanley Rittgers, 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 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 at 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

Annabelle M. Foos, Ph.D., Interim 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
Nancy B. Miller, Ph.D., Associate Director of Research

The Center for Family Studies, established in 1973, 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 5 colleges and over 15 disciplines. It also includes leaders from various community systems, such as the schools, hospitals, 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.

The Center offers certificates in the following specialty areas: Divorce Mediation and Home-Based Intervention. Please refer to the sections on Certificate Programs in this Bulletin or the Undergraduate Bulletin for further information.

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. In contrast to the usual local, county, provincial, municipal and agency programs, these programs are supported by the faculty of the Fire Protection Technology degree program in association with other state and nationally recognized professionals.
Fisher Institute for Professional Selling
Jon M. Havas, Ph.D., Director
James T. Strong, Ph.D., Associate Director
The Fisher Institute for Professional Selling was founded in 1983. Its mission is to enhance the image of the sales profession, to promote professional selling and sales management as a rewarding lifetime career, to provide quality sales training and learning experiences, and to advance the knowledge of professional selling through the support of applied research.

Institute for Futures Studies
Gary Gappert, Ph.D., Director
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.

Initiated In 1987, The Ohio Policy Issues Network (OPIN) continues to research and analyze emerging policy issues in the state of Ohio and beyond. In addition, in 1990, the OPIN began to provide and disseminate valuable option and specific range of policy problems. The biannual publications of the Ohio Policy Issues Network are the OPIN Policy Book, Ohio Foresight and the Issues Analysis Report.

More recently, the Institute has undertaken initiatives relating to international activities and global studies, with a focus on education, economic and political change as well as policy development. The Institute has cooperated with the U.S. Peace Corps in both Washington, D.C. and Africa on its new urban initiatives. An Ohio-Quebec Urban Symposium was conducted in 1990 as an effort to continue promoting Great Lakes collaboration and Canadian studies. Discussions have been held in several Eastern European countries concerning urban planning and future studies. In these emerging activities, the Institute encourages involvement and cooperation of faculty, staff, and students from a variety of disciplines.

Through its relationship with the Department of Public Administration and Urban Studies and The Center for Urban Studies, the Institute has organized and produced several books relating to the urban future including the 1990 publication, Cities in a Global Society and the forthcoming The Future of Urban Environments. It has also sponsored major conferences on George Orwell, Aldous Huxley, and Edward Bellamy in cooperation with the Ohio Humanities Council.

Institute for Life-Span Development and Gerontology
Harvey L. Sterns, Ph.D., Director
Isadore Newman, Ph.D., Associate Director
Raymond E. Sanders, Ph.D., Associate Director for Research
Evelyn Sutton, M.A., Program Coordinator
Gerontology Certificate Program
Jerome Kaplan, Ph.D., Program Coordinator
Nursing Home Administrator Program
The Institute for Life-Span Development and Gerontology, founded in 1976, coordinates multidisciplinary 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 certificate programs 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 Northeast Ohio Consortium on Geriatric Medicine and Gerontology, serving 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
Elizabeth Kinion, Ed.D., 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 physiologic, stress management and self-care assistance, family and group education and support sessions. Community outreach to vulnerable populations is a major emphasis of the center.

Center for Peace Studies
Hon. J ohn 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 or 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.

Joint Center for Policy Research
Shara L. Davis, M.A., Director
James L. Shanahan, Ph.D., Director, Center for Urban Studies
Designed as a partnership between The University of Akron’s Center for Urban Studies (CUS) and Lorain County Community College’s Public Services Institute, the Joint Center for Policy Research (JCPR) combines the energies of research faculty, staff and graduate students of the University with the strong commitment of a community college in responding to local needs.

The Joint Center’s primary mission is to serve the Lorain County community-leaders, nonprofit organizations, government agencies, and citizens-and to extend the college’s commitment to local economic development. In addition, its services are provided on a regional level.

In its fourth year of operation, the services being offered upon request are: Customized Policy Research and Consultation: Data Service Delivery System; and Capacity Building. Customized policy research and consultation services involve the collection of qualitative and quantitative information utilizing various data gathering techniques, primarily survey research and focus group techniques. The data service delivery system involves the sharing of information from sources including the 1990 Census data as well as data from other JCPR and CUS research endeavors. Capacity building involves training and empowering organizations with the ability to facilitate their own qualitative information collection and to use that information through the decision making process. The Joint Center carries out its projects by drawing upon the full services of the CUS Research Lab.

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 characterizations. 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 in characterization of new polymer technology and new materials. Its activities also include organization of scientific symposia and various seminars related to polymer processing and engineering.

The Maurice Morton Institute of Polymer Science
Frank Harris, Ph.D., Director
The institute is concerned with basic and applied research in polymers. It was established in 1956 as the 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)**

Sunghyu Lee, Ph.D., Director  
Kathy L. Fullerton, Ph.D., Assistant Director  
The Process Research Center (PRC), founded in 1986, 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 facilities. The PRC aims at responding more positively to the needs of industries enhancing cooperation between the University and industries. Great opportunities are available for both graduate and undergraduate students to conduct practical research.

**Small Business Institute**

Jeffrey C. Ditto, Ph.D., Director  
The Small Business Institute was established in 1973 and was the first Small Business Institute funded in Northern Ohio. The Small Business Institute’s objective is to offer management assistance counseling to area organizations through the utilization of senior students in the College of Business Administration, working as interns 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 Scarisbrick-Hauser, Ph.D., Associate 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 1962, utilizing research and professional staff, graduate assistants, and over 50 regular interviewers. Most of the work done by the Center is on behalf of the 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 98,000 completed interviews in 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 Urban Studies**

James L. Shanahan, Ph.D., Director  
The Center for Urban Studies (CUS) is The University of Akron’s oldest policy research and professional service unit. Established in 1965, the Center acts as a bridge between the University and the Akron community. Ohio and beyond in pursuit of the University’s urban mission. To meet the needs of urban communities the Center engages in a wide variety of scholarly and applied research projects, research consultation, and information and data services. Using the talents of faculty, researchers, support staff, and students, the Center explores important economic, social, and political issues; works with others to reach a better understanding of these issues; and assists groups and organizations actively engaged in problem solving, coalition building, or strategic planning. Since 1979, the Center has been the University’s representative to the Ohio Board of Regents’ Urban University Program (UUP) which links eight state universities to help Ohio meet the challenges of its urban future. UUP’s Northeast Ohio Institutional Research Consortium focuses on the revitalization of the region through the efforts of the faculty and staff of the four urban universities in Northeast Ohio. Over the years, the Center has expanded its programs and services, building a substantial intellectual and technological infrastructure. The majority of the Center’s research and services is supported by external grants and contracts which represent UUP funding for multiyear projects, multicampus projects, and faculty research projects as well as funding from private sources for client-driven research and services.

CUS activities are organized under three broad programs: Public Policy Issues Program; Public Sector Marketing Research and Data/GIS Services Program; and Community Institution and Leadership Building Program. Increasingly, these areas are becoming distinct programs, each with its own program head, professional staff and affiliated faculty from various disciplines and professions. This multidisciplinary approach encourages faculty and graduate student participation from all departments with an urban focus. A part of the Buchtel College of Arts and Sciences, the Center for Urban Studies provides the setting and facilities through which interested faculty and graduate students do become involved in urban research or professional service activities in 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 participation. Linked with CUS is another important center: the Joint Center for Policy Research, an innovative partnership with the Public Services Institute at Lorain County Community College which is intended to serve the needs of Lorain County for policy research services.
Courses of instruction
# Course Numbering System*

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*A more detailed explanation of the numbering system can be found in Section One, "Course Numbering System," in this Bulletin.*
Interdisciplinary Programs

DIVORCE MEDIATION

1800:

501 DIVORCE MEDIATION 2 credits
Prerequisites: Admission to the Graduate Certificate Program in 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.

502 DIVORCE MEDIATION PRACTICUM 2 credits
Prerequisite: 501. Practical application of divorce mediation procedures. Review of strategies and ethical considerations.

HOME-BASED INTERVENTION THERAPY

1820:

503 HOME-BASED INTERVENTION THEORY 3 credits
Prerequisite: Admission to Certificate Program. Overview of home-based intervention to include psychology and description of the programming as well as assessment of family, their home and community environment.

504 HOME-BASED INTERVENTION TECHNIQUES AND PRACTICE 3 credits
Prerequisite: 503. Provides intervention techniques and skill areas required for home-based intervention and training opportunities for matching techniques with specific family problems.

505 HOME-BASED INTERVENTION INTERNSHIP 3 credits
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.

MEDICAL STUDIES

1880:

501 SPECIAL TOPICS: MEDICAL EDUCATION 1-3 credits
(May be repeated). Specialized topics and current issues in medical education. Credits toward graduation. Upper-college student status and permission. Selected topics on medical education offered by professionals. Intended to provide advanced undergraduate education and continuing education for student and practitioners in the health services.

WOMEN'S STUDIES

3001:

585 SPECIAL TOPICS IN WOMEN'S STUDIES 1-3 credits
(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 1-2 credits
(May be repeated). Group experiential study of special issues in Women's Studies.

INSTITUTE FOR LIFE-SPAN DEVELOPMENT AND GERONTOLOGY

3006:

680 INTERDISCIPLINARY SEMINAR IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY 3 credits
Prerequisite: permission. The certificate program student only. Explores interdisciplinary issues in life-span development and gerontology. Guest speakers from various disciplines and services which have life-span development and gerontological components and from government and community facilities and services.

685 SPECIAL TOPICS 1-3 credits
Prerequisite: permission of instructor. Specialized topics and current issues in life-span development and gerontology or gender. Emphasis is on original source materials, critical analyses and the synthesis of empirical, theoretical and applied aspects.

686 RETIREMENT SPECIALIST 2 credits
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 1-2 credits
(May be repeated). Group study of special topics in life-span development and gerontology. May be used as elective credit but not as part of certificate required courses.

695 PRACTICUM IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY 3 credits
Prerequisite: permission. Supervised experience in research or community agency work.

ENVIRONMENTAL STUDIES

3010:

590 WORKSHOP IN ENVIRONMENTAL STUDIES 1-4 credits
Prerequisite: varies with topic. Credit in graduate program must have prior approval of advisor. Survey and fundamental concepts dealing with timely environmental problems and issues currently covered. Instruction under direction of University faculty.

602 EVALUATION OF ENVIRONMENTAL DATA 3 credits
Prerequisites: graduate standing, one year of chemistry, physics, job experience or course work in chemical engineering. Review of environmental testing techniques in current use, emphasis on interpretation and limitations.

661 GRADUATE SEMINAR IN ENVIRONMENTAL STUDIES 3 credits
Prerequisite: graduate standing. Explores topics of current environmental concerns. Emphasis on presentation of oral and written reports and subsequent student-faculty dialogue.
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<tr>
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<td>546B INVERTEBRATE ZOOLOGY</td>
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<td>548 PROCARCYOTIC DNA TECHNOLOGIES</td>
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<td>556 CYTOLOGY</td>
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<tr>
<td>558 RESEARCH IN THE BIOLOGY OF AGING</td>
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<tr>
<td>559 PRINCIPLES OF TRANSMISSION ELECTRON MICROSCOPY</td>
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*Field trips involved minor transportation costs.
689 PRINCIPLES OF SCANNING ELECTRON MICROSCOPY 3 credits
Prerequisite: 311, 681 or equivalent. An introduction to modern cytological methods using the scanning electron microscope. A portfolio is required to demonstrate proficiency in electron techniques. The use of experimental equipment such as mechanical point counting apparatus and the stereoscan apparatus and the efficient use of the scanning electron microscope.

695 SPECIAL TOPICS: BIOLOGY 1-2 credits
May be repeated. Permission: Special courses offered three or in occasional cases where no formal course exists.

678A BIOLOGY COLLOQUIUM 1 credit
May be repeated. Permission: Attendance at all departmental seminars and presentation of talk by original research. Required of all thesis option students who will present their thesis research.

699 MASTERS' THESIS 1-6 credits
May be repeated. A minimum of six credits is required for thesis option students.

**BIOLOGY/NEUROCOM**

**3110:**

620 MICROSCOPIC ANATOMY 6 credits
Prerequisites: 244 or permission. Introduction to the histology of higher organisms. Morphological basis for normal and disturbed functions, structure-function relationships in human and animal systems. Lecture, special laboratory, learning techniques using human tissues.

530 HUMAN GROSS ANATOMY 3 credits
Prerequisites: graduate standing and permission. An intensive survey of human microanatomy.

621 HUMAN GROSS ANATOMY II 3 credits
Prerequisites: graduate standing and permission. An intensive survey of human microanatomy.

621 FUNCTIONAL NEUROANATOMY 6 credits
Prerequisites: 621. The relation of aspects of the neuroanatomical systems to the fundamental properties of nervous tissue, establishing a firm basis in experimental neurobiology. Laboratory.

643 NEUROPHYSIOLOGY 3 credits
Prerequisites: 621. Spectral analysis of the changing brain and behavior. Laboratory.

695 SPECIAL TOPICS: BIOLOGY/NEUROCOM 1-3 credits
Prerequisites: permission. Advanced topics in medical education covering areas not otherwise covered. May be repeated with a change in topic.

**CHEMISTRY**

**3150:**

591 BIOCHEMISTRY I 2 credits
Prerequisites: 244 or permission. Biochemistry of amino acids, carbohydrates, lipids, and nucleic acids. Structure-function relationships. Enzymes are catalysts: kinetics and regulation. Carbohydrates.

502 BIOCHEMISTRY LECTURE II 3 credits

572 ADVANCED INORGANIC CHEMISTRY II 2 credits
Prerequisites: 314 or 311. Concepts of atomic structure integrated in systematic classification of elements. Periodic table. Chemistry of the representative elements. Transition elements including coordination compounds, organic molecular and metalorganic chemistry.

590 WORKSHOP IN CHEMISTRY 1-3 credits
(May be repeated) Discussion of special topics in chemistry. May not be used in conjunction with undergraduate major requirements in chemistry.

612 CHEMISTRY OF POLYMERS I & II 2 credits each
Prerequisites: 244 or permission. Structure, properties, and applications. Methods and theories of polymerization. Reinforcement of basic principles. Treatment of several classes of polymers. Lecture and laboratory.

645 CHEMISTRY OF POLYMERS LABORATORY I & II 2 credits each
Prerequisites: 244, 299. Polymerization, identification of polymers to illustrate polymerization methods in old, new, and experimental science.

610 BASIC QUANTUM CHEMISTRY 3 credits
Prerequisite: 6730 or permission. Quantum mechanics and applications to molecular systems. Includes angular momentum, molecular transitions, vibration and electronic spectra, nuclear and atomic spectra.

611 SPECTROSCOPY 3 credits
Prerequisites: 610 or permission. Introduction to the interaction of light with matter. Linear and nonlinear spectroscopy. Applications to chemistry.

613 TRANSITION-METAL ORGANOMETALLIC CHEMISTRY 2 credits
Prerequisites: 673 or permission. The organometallic chemistry of the transition metal elements. Topics covered include synthesis, characterization methods, structure, bonding, reactivity, and applications.

620 MAIN GROUP ORGANOMETALLICS 3 credits
Prerequisites: 673 or permission. The organometallic chemistry of main group elements. Topics covered include synthesis and characterization methods, structure, bonding, reactivity, and applications.

621 ADVANCED PREPARATIONS 1 credit
Prerequisite: permission. Methodology for preparing and purifying organic and inorganic compounds. Laboratory.

625 CHEMISTRY SEMINAR 1 credit
Lectures on current research topics in chemistry by invited speakers.

629 PHYSICAL INORGANIC CHEMISTRY 2 credits
Prerequisites: 314 or permission. Catalytic treatment of chemistry of transition elements. Group theoretical applications, ligand field theory, kinetics and mechanisms, magnetism, electronic spectra, molecular orbital theory.

630 THEORETICAL INORGANIC CHEMISTRY 2 credits
Prerequisites: 314, 471, 620, or permission. Detailed treatment of chemistry of transition elements. Group theoretical applications, ligand field theory, kinetics and mechanisms, electronic spectra, molecular orbital theory.

631 THERMODYNAMICS AND STATISTICAL THERMODYNAMICS 3 credits
Prerequisites: 313 and 314 or permission of instructor. Rigorous treatment of laws of thermodynamics and their applications to selected chemical systems. Fundamentals of statistical thermodynamics and applications to systems in chemical equilibrium.

636 CHEMICAL KINETICS 3 credits
Prerequisite: 315 or permission of the instructor. Phenomenological kinetics, experimental methods of investigation and analysis of reaction systems. Theoretical treatments of reaction rates.

639 DESCRIPTIVE INORGANIC CHEMISTRY 3 credits
Prerequisite: Undergraduate inorganic chemistry. The synthesis, characterization, structure, bonding, and reactivity of inorganic compounds. Emphasis is placed on applications and examples from the literature.

640 X-RAY CRYSTALLOGRAPHY 3 credits
Prerequisites: permission. The theoretical and practical aspects of single crystal x-ray crystallography are discussed. Topics covered include diffraction, space group, structure solution and refinement.

674 PHYSICAL CHEMISTRY OF POLYMERS I & II 2 credits each
Prerequisites: 621, 624, 461 or permission of instructor. Basic statistical ideas. Molecular weights, distributions, size and shapes, kinetics and mechanism of polymerization. Copolymers, degradation, thermodynamics of polymer solutions.

683 EXPERIMENTAL PHYSICAL CHEMISTRY 2 credits for 690:
2 credits for 696:
Prerequisites: 624, 672, 674, or permission. Laboratory work in instrumental techniques including spectrophotometers, papers, paper chromatography, gas chromatography, and electrophoresis.

699 MASTERS' THESIS 1-6 credits
For properly qualified candidates for master's degree. Supervised original research in analytical, inorganic, organic or physical chemistry.

701 CHEMICAL LITERATURE 1 credit
Prerequisites: 401/501, 402/502 or permission. Reading and research in recent literature.

702 SPECIAL TOPICS: ANALYTICAL CHEMISTRY 1-3 credits
(May be repeated) Prerequisites: permission. Topics in advanced analytical chemistry. May be repeated. Emphasis on modern techniques such as spectrophotometry, colorimetry, stripping analysis, gas chromatography, thermoanalytical methods, separation, standards, sampling, and recent developments.

711 SPECIAL TOPICS: INORGANIC CHEMISTRY 1-3 credits
(May be repeated) Prerequisites: permission. Topics in modern inorganic chemistry such as coordination compounds, chemistry of the solid state, representative elements, organometallics, organometallics, homogeneous catalysis.

712 SPECIAL TOPICS: ORGANIC CHEMISTRY 1-3 credits
(May be repeated) Prerequisites: permission. Topics in modern organic chemistry such as nucleic acids, heterocyclic compounds, pharamaceuticals.

713 SPECIAL TOPICS: PHYSICAL CHEMISTRY 1-3 credits
(May be repeated) Prerequisites: permission. Topics in modern physical chemistry. May be repeated.

716 SPECIAL TOPICS: BIOCHEMISTRY 1-3 credits
(May be repeated) Prerequisites: permission. Consideration of topics in biochemistry such as proteins, amino acid and other biological macromolecules, biotechnology, and recently discovered proteins.

717 ADVANCED BIOCHEMICAL TECHNIQUES 3 credits
Prerequisites: 401/501. An advanced lecture course on physical techniques in biochemistry. Includes current techniques in analytical methods, protein chemistry, and enzyme reaction kinetics.

722 ENZYMATIC REACTIONS 3 credits
Prerequisites: 621, 624, 461, 462 or permission. Mechanisms of enzymic catalysis. General aspects and specific examples for classical and modern enzymatic mechanisms. Chemistry of inhibitors.

724 BIOINORGANIC CHEMISTRY 3 credits

736 ADVANCED METABOLISM 3 credits
Prerequisites: 402/502 and 403/503. Study of advanced pathways in carbohydrate, lipid and protein metabolism with emphasis placed on metabolic modulation.

899 DOCTORAL DISSERTATION 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, or analytical chemistry.

**CLASSICS**

**3200:**

501 EGYPTOLOGY I AND II 3 credits
Prerequisites: permission of the instructor. The history and antiquities of ancient Egypt.

504 ASYRIOLOGY 3 credits each
Prerequisites: permission of the instructor. Assyrology.

507 ANCIENT NEAR EASTERN ARCHAEOLOGY 3 credits each
Prerequisites: permission of the instructor. Ancient Near Eastern archaeology.

560 SELECTED TOPICS IN ANCIENT CULTURES 3 credits each
Prerequisites: permission of the instructor. Advanced study of a selected topic in ancient cultures.
590 WORKSHOP IN CLASSICS 1-3 credits (May be repeated with change in topic. Group studies of special topics in classics. Credit given only for change in topic. Prerequisites: Undergraduate college requirements in classics for elective credit only.)

597.8 READING AND RESEARCH IN THE ANCIENT NEAR EAST 1-2 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 (May be repeated with change of subject. Prerequisite: permission of instructor. May be taken as a seminar in Latin or Greek. Prerequisite: permission of instructor.)(May be repeated for credit with change of subject)

LATIN

3220:

597.8 LATIN READING AND RESEARCH 3 credits (May be repeated with change of subject. Prerequisite: permission of instructor. May be taken as a seminar in Latin or Greek. May be repeated for credit with change of subject)

ECONOMICS

3250:

506 STATE AND LOCAL PUBLIC FINANCE 3 credits Prerequisite: 410, recommended 405. Examinations of economic rationale and problems of provision of goods and services by different governmental units. Considerations alternative revenue sources and special topics.

507 ECONOMIC FORECASTING 2 credits Prerequisite: 275, 440. Empirical estimation of economic indicators. Use of these models for forecasting. Emphasis on the application of available computer software systems.

530 LABOR MARKET POLICY 3 credits Prerequisites: 310 or 323. Intensive study of current labor market policies issued by g., discrimination, poverty, the changing industrial structure, and the economics of education.

535 THE DEVELOPMENT OF AMERICAN CORPORATE STRUCTURE 3 credits Prerequisite: An understanding of American corporate structure from late 19th Century to present. Explores and analyzes changing directions of corporate structure and responsibility of government. Case studies analyzed. Concentrates on top issues.

540 SPECIAL TOPICS: ECONOMICS 3 credits Prerequisite: permission. Opportunity to study special topics and current issues in economics.

550 COMPARATIVE ECONOMIC SYSTEMS 3 credits Prerequisite: permission of instructor. Systems of economic organization, ranging from the theoretical extremes of a perfect free market economy to the socialist varieties. Historical evolution of economic systems covering problems in theory and practice.

560 ECONOMIC DEVELOPMENT AND PLANNING FOR UNDERDEVELOPED COUNTRIES 3 credits Prerequisites: 220 and 222, or 244. Basic problems in economic development. Theories of development. Government planning for development. Trade and development of underdeveloped countries. Credit not available for students with credit for 350D.104.

575 DEVELOPMENT OF ECONOMIC THOUGHT 3 credits Prerequisites: 200 and 221, or 244. Evolution of theory and method. Renewal of ideas of economy. Contemporary to contemporary.

581 MONETARY AND BANKING POLICY 3 credits Prerequisite: 380. 400. Control over currency and credit, policies of control, central banks and governments, United States Treasury and Federal Reserve System.

591 WORKSHOP IN ECONOMICS 1-2 credits May be repeated. Group studies of special topics in economics. May be used to meet undergraduate or graduate major requirements in economics. May be used for elective credit.

600 FOUNDATIONS OF ECONOMIC ANALYSIS 3 credits Prerequisite: graduate standing. Determination of national income, employment and price level. Aggregate consumption, investment, and asset holding, economic problems faced by households and firms. Partial equilibrium and analysis of accumulation and mobility of goods and factors. May be substituted for 602, 603, 591, or applied towards the 30-graduate credit requirement for M.A. in economics.

602 MACROECONOMIC ANALYSIS I 3 credits Construction of basic macroeconomic models. Analysis of modern keynesian theories of aggregate demand and national income equilibrium.

603 MACROECONOMIC ANALYSIS II 3 credits Prerequisite: 602. Macroeconomic and stability analysis of closed and open keynesian systems. Inflation and growth under gold standard; international capital flows.


610 FRAMEWORK OF ECONOMIC ANALYSIS 3 credits Prerequisite: graduate standing. Development of theoretical and analytical framework for decision making. Depictions of applications of the framework to situations concerning demand or cost, supply, production, prices, employment, and wages.

611 MICROECONOMIC THEORY I 3 credits Modern theory of consumer behavior and of the firm. Determination of market prices. Optimization models establish the demand for productive allocative and distributional efficiency.

612 MICROECONOMIC THEORY II 3 credits Prerequisite: 611. Continuation of 611. Coverage of microeconomic theory, and applications in public choice and applied welfare theory.

615 INDUSTRIAL ORGANIZATION 3 credits Prerequisite: 611 or permission. Examination of market structures, firm conduct and economic performance. Measurement and effects of monopoly power, industrial concentration and changes.

616 ANTITRUST ECONOMICS 3 credits Prerequisite: 611 or permission. Economic rationale behind legislative and judicial decisions affecting mergers, vertical, horizontal restraints, monopolization, collusions, price discrimination.

617 THE ECONOMICS OF REGULATION 3 credits Prerequisite: 611 or permission. Examinations of the economic rationale behind institutional and formal regulations. Prerequisites: Course in intermediate microeconomics. Emphasis on the analysis of production and consumption, static macroeconomic models of cost and demand, and welfare analysis.

621 APPLICATION OF LINEAR MODELS IN ECONOMIC ANALYSIS 3 credits Prerequisites: Course in intermediate microeconomics. Review of selected topics of linear regression, introduction to econometric models and their application to economic analysis, analysis of production and consumption, static macroeconomic models of cost and demand, and welfare analysis.

626 STATISTICS FOR ECONOMETRICS 3 credits Prerequisites: Courses in elementary differential and integral calculus, 620. May be repeated for credit with change of subject. A review of statistical theory and its application to research in econometrics. Emphasis is on practical, hypothesis testing and estimation.

627 ECONOMETRICS 3 credits Prerequisite: 626 or equivalent. Formulation of functional relations among economic variables suitable for statistical estimation from observational data and construction of multivariate econometric models and methods of estimation.

628 SEMINAR IN RESEARCH METHODS 3 credits Prerequisites: permission of instructor. A seminar in the research use of applied mathematical economics and econometrics. Emphasis is on individual work of students, preparation of research papers, and the topic implications of the selection of topics.


634 COLLECTIVE BARGAINING 3 credits Economic issues and implications involving in hours of work, employment and unemployment, and the impact of federal unions upon basic institutions of a free enterprise private economy.

635 LABOR LAW 3 credits Labor relations laws dealing with public and private worker organizations; collective bargaining, strikes, picketing.

636 COLLECTIVE BARGAINING 3 credits Prerequisite: 615 or permission of instructor. Examines the process of negotiation. Course may include contact negotiation. Student decides on outline, positions and tactics, then negotiates contract.

637 EMPLOYMENT LAW 3 credits Study of selected aspects of legislation and case decisions affecting employer-employee relations. Topics include employment, health and safety, hours and benefits, arbitration.

639 PUBLIC SECTOR LABOR MARKETS 3 credits Prerequisite: 615 or permission of instructor. Examination of various public policy problems, special labor markets, collective bargaining, strikes, picketing.

639A POLICY RESEARCH IN ECONOMIC POLICY RESEARCH 3 credits Preparation of professional research reports. Economic rationale behind issues, such as unemployment, inflation, fiscal and monetary policies, government program effectiveness.

644 SEMINAR ON ECONOMIC GROWTH AND DEVELOPMENT 3 credits Prerequisite: 611 or permission of instructor. Examination of various market growth since classical economic theory. Analysis of problems in development of emerging countries. Discussion of problems of industrial relative to regional economic growth, and the implications of regional economic growth.

655 SEMINAR ON ECONOMIC PLANNING 3 credits Prerequisite: 611. Analysis of economic growth and development of regional economic growth, and the implications of regional economic growth.

655A POLICY RESEARCH IN ECONOMIC GROWTH 3 credits Preparation of professional research reports. Economic rationale behind issues, such as unemployment, inflation, fiscal and monetary policies, government program effectiveness.

656 SEMINAR ON REGIONAL ECONOMIC ANALYSIS AND DEVELOPMENT 3 credits Study of a particular national or international regional development. Any area or region. For example, the Middle East, North Africa, etc. Students write a research project and present it in class.

670 INTERNATIONAL MONETARY ECONOMICS 3 credits International financial relations through exchange market and exchange rate adjustments. Balance of payments adjustment problems, international monetary system.

671 INTERNATIONAL TRADE 3 credits International trade patterns. Effects of trade policies on trade relations and economic growth. Prerequisites: 611.

683 MONETARY ECONOMICS 3 credits Intensive study of important areas of monetary theory. Emphasis on the integration of money and value theory, among other areas, with the existing policy issues.

685 ACHIEVING IN ADVANCED ECONOMICS 1-4 credits (A maximum of 6 credits may be applied toward the master's degree in economics. Intensive investigation of selected problems in advanced economic under supervision of instructor. Since the subject matter is decided upon in each case, the course may be taken repeatedly for credit.

699 MASTER'S THESIS 3 credits (May be repeated for a total of 6 credits.)
515 AMERICAN POETRY TO 1900
Prerequisites: Completion of 1100:111 and 1100:112 or their equivalents; permission of the instructor.
Survey of American poetry of the 17th, 18th and 19th Centuries.
3 credits

520 MODERN AMERICAN POETRY
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor.
3 credits

523 AMERICAN WOMEN POETS
Prerequisites: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor.
Study of modern poetry, uses and missions of tradition, treatment of relationships between women and men, and between women, explorations of art and of the anti-arts world, and confrontations of the debate between "public" and "private" poetry.
3 credits

540 20TH CENTURY AMERICAN DRAMA
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor.
Examination of playwrights (including O'Casey, Miller and Williams) and sampling of new and rising ones.
3 credits

595 THE AMERICAN SHORT STORY
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor.
A study of the development of the short story as a particularly American genre, from Washington Irving to the present.
3 credits

598 FAULKNER: AMERICAN SHORT STORY
Prerequisites: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor.
An indepth study of William Faulkner's major novels and short stories, primarily those set in the imaginary Yoknapatawpha region.
3 credits

604 MODERN CHINESE FICTION
Prerequisite: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor.
A study of modern Chinese fiction, together with a selection of significant recent short stories, primarily those written in the Chinese language.
3 credits

605 AMERICAN SHORT STORY
Prerequisites: Completion of 1100:111 and 1100:112 or their equivalents, or permission of the instructor.
Study of significant American short fiction from World War I to the present.
3 credits
642 SEMINAR IN DICKINSON
3 credits
An in-depth study of Dickinson’s poetry, with special attention to her various poetic identities and their relationship to her life, and an examination of some of the major critical approaches to her poetry.

643 SEMINAR IN JAMES
3 credits
A study of Henry James’ critical and fictional works. Particular emphasis will be on James’ fiction, both long and short, early and late, but some attention will also be given to his literary criticism, travel pieces, and plays.

685 LITERARY CRITICISM
3 credits
Insight into nature and value of literature and problems of practical criticism as represented in major statements of ancient and modern critics.

691 MODERN LINGUISTICS
3 credits
Introduction to examination of methods and results of modern phonological research. Emphasis on linguistic paradigms; phonetics, phonology, and phonemics. Goals include understanding of language variation and the background knowledge for linguistic studies of literature.

693 THEORIES OF COMPOSITION
3 credits
Study of composition theories and their relationship to writing, with attention to their implications for writing instruction. Particular focus on such topics as composing processes, invention, style, mode of writing, language variables and evaluation of writing. Class sessions include discussion of readings and presentations.

674 RESEARCH METHODOLOGIES IN COMPOSITION
3 credits
Research methodologies in composition and their application. Students will define research areas, summarize and evaluate work already done, and propose and complete semester research projects.

675 WRITING FOR MBAs
3 credits
Emphasizes managerial writing. Writing tasks are presented as decision-making tools, and student develop strategies for messages to stakeholders, analytical reports and messages to outside audiences.

679 SCHOLARLY WRITING
3 credits
Study of constructing, analyzing, and evaluating academic arguments. Practice in specific forms of scholarly writing such as reviews of research, analyses and book reviews.

681 SEMINAR IN SATIRE
3 credits
A study of satire from the middle ages through the late 20th Century, with particular attention to themes in the works of major satirists, modes of comedy and irony, and literary techniques.

689 SEMINAR IN ENGLISH
2 credits
May be repeated with change of topic. Special topics within the general field of literature and language and major topics in the English language.

698 BIBLIOGRAPHY AND LITERARY RESEARCH
3 credits
Ongoing research topics, typical problems in literary scholarship, assessing scholarly material and bibliographic sources for literary research. Bibliographic exercises done, middle level of literary scholarship level.

699 INDIVIDUAL READING IN ENGLISH
1-3 credits
Individual study under guidance of professor who directs and approves student’s reading and research.

899 MASTER’S THESIS
1-6 credits
Original work in the field of literature and language and completion of graduate student’s required thesis.

GEOGRAPHY AND PLANNING
3350:

505 GEOGRAPHIC INFORMATION SYSTEMS
3 credits
Prerequisites: six credits of advanced geography or GIS-related courses at the 300 level or above. Not included in major and minors. Required for the GIS minor. Includes mapping and data management principles. Includes special cartographic considerations for the interpretation of remote sensing images.

527 TRANSPORTATION SYSTEMS PLANNING
3 credits
Prerequisite: 320 or permission. Study and analysis of transportation systems from a geographic perspective. Emphasis on transportation problems and issues, elements of transportation planning.

532 INDUSTRIAL AND COMMERCIAL SITE LOCATION
3 credits
Prerequisite: 320 or permission. Relationship between labor, resources, population, transportation, and industrial and commercial location process.

533 INTRODUCTION TO PLANNING
3 credits
Prerequisite: 320 or permission. Role of geographic information in city, regional, and resource planning.

536 URBAN LAND USE ANALYSIS
3 credits
Prerequisite: 320 or permission. Land use classification systems and their spatial variation in urban areas. Use of data is collected by student field work and analysis to identify the spatial association and structure of subzones.

538 WORLD METROPOLITAN AREAS
3 credits
Prerequisite: 320 or permission. Comparative analysis of metropolitan regions. Urbanization, land use, transportation, population, and role of cities in economic development in different cultures.

539 DEVELOPMENT OF AMERICAN PLANNING
3 credits
Prerequisite: 320 or permission. Development of urban and regional planning theory and practice and the development of a planning profession, particularly in the twentieth century.

542 THEMATIC CARTOGRAPHY
3 credits
Prerequisite: 320 or permission. Principles and techniques used in thematic mapping. Standard uses of maps to indicate certain characteristics or classes of information both qualitative and quantitative.

544 MAP COMPARISON AND REPRODUCTION
3 credits
Prerequisites: 340 or permission. Production of new/improved maps from existing maps, aerial/photographic survey, new, and other data. Includes special cartographic considerations for the interpretation of remote sensing images.

545 INTRODUCTION TO REMOTE SENSING
3 credits
Prerequisite: 340 or permission. Study of aerial photographs and non-photographic imagery developed by lidar, thermal, multispectral and lidar sensors. Emphasis on use in geological, geographical, biological and engineering research.

548 AUTOMATED COMPUTER MAPPING
3 credits
Prerequisite: 340 or permission. Study of computer-assisted map compilation and execution. Focus on integration of computer and cartographic skills and techniques. Includes application to specialized interests.

553 ADVANCED REMOTE SENSING
3 credits
Prerequisites: 447/547 or permission. Current research in remote sensing. Applications in study of human cultural and natural environments. Problem-solving skills and interpretation of remote sensing studies.

562 DEVELOPMENT PLANNING
3 credits
A study of development planning concepts and techniques for developing countries, including growth and development planning, agencies, regional inequities and alternative approaches.

571 MEDICAL GEOGRAPHY AND HEALTH PLANNING
3 credits
Prerequisites: 12 credits in geography. Theories of disease transmission and effect on public health with particular reference to North America, health planning processes and spatial analysis of health services delivery.

581 GEOGRAPHIC RESEARCH METHODS
3 credits
Prerequisites: 12 credits in geography. Techniques in geographic research. Library resource techniques, professional writing.

583 SPATIAL ANALYSIS
3 credits
Prerequisite: 487/581 or permission. Applications of mapped geographic surfaces. Principles for use of maps as models for statistical evidence, prediction, hypothesis testing.

589 SPECIAL TOPICS IN GEOGRAPHY
1-3 credits
May be repeated for a total of six credits. Group studies of special topics in geography.

598 WORKSHOP IN GEOGRAPHY
1-3 credits
May be repeated for a total of six credits. Group studies of special topics in geography.

599 SOIL AND WATER FIELD STUDIES
2 credits
Prerequisites: 320 or permission. Properties, origins and uses of soils and water regime landscape. Stress relationships between soil and the hydrological cycle, urbanization, sub-surface flow and agriculture. Field trips required.

590 FIELD RESEARCH METHODS
3 credits
Prerequisite: 487/581 or permission. Field work engaging student to become competent in collecting, carrying and analyzing data while carrying out field research projects.

600 SEMINAR IN LAND USE PLANNING
2 credits
May be repeated for a total of six credits. Each credit will be tailored to the student’s individual needs with emphasis on land use planning.

613 LAND USE PLANNING LAW
3 credits
Prerequisite: permission. Acquaints students with the pertinent aspects of land use control in the United States and examine the political, economic, social and legal forces which have shaped existing land use legislation.

632 COMPARATIVE PLANNING
3 credits
A survey of national, regional and local planning principles and practices of developed nations, with special emphasis on current planning trends in developing countries.

637 METHODS OF PLANNING ANALYSIS I
3 credits
Prerequisite: 610. Introduction to the primary analytic techniques for small area demographic and economic analysis and projection.

638 METHODS OF PLANNING ANALYSIS II
3 credits
Prerequisite: 610. Review of the primary techniques for comprehensive plan preparation, evaluation and implementation.

680 ADVANCED SPATIAL ANALYSIS
3 credits
Prerequisite: 487/581 or permission. Advanced concepts and methodologies in geographic research, with emphasis on spatial analysis in geographic analysis using advanced techniques and procedures as factors. Drawings and maps used in this course.

685 PLANNING INTERNSHIP
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: 487/581 or permission. Critical review of major developments in geographic thought and planning, focusing on selected major figures and events.

689 INDIVIDUAL READING AND RESEARCH
1-3 credits
May be repeated for a total of six credits. Prerequisite: permission of faculty member.

699 MASTER’S THESIS
2 credits
May be repeated for a total of six credits. Prerequisite: permission of department head. Supervised original research.

GEOLOGY
3370:

510 REGIONAL GEOLOGY OF NORTH AMERICA
2 credits
Prerequisite: 210 or permission. Recommended: 250. Examination of physiographic provinces of North America emphasizing structure, climate, geographic, geologic, and tectonic setting and the evolution of associated biogeographic features.

511 GLACIAL GEOLOGY
2 credits
Prerequisite: 210 or permission. Causes and effects of Pleistocene expansion of polar ice sheets with emphasis on glacial deposits and world climate changes.

521 COASTAL GEOLOGY
3 credits
Prerequisites: 101, 320 or permission of instructor. Study of the origins and evolution of coastal regions, with special attention paid to the interaction of waves and currents with the coastal environment, and the development of associated biogeographic features.

525 ADVANCED STRUCTURAT SITY
2 credits
Prerequisites: 600, 320 or permission. Emphasis on correlation, depositional systems, structural geology and techniques, structural stratigraphy, and tectonic analysis. Laboratory and field work required.

509 THE UNIVERSITY OF AKRON
532 OPTICAL MINERALOGY-INTRODUCTORY PETROGRAPHY 3 credits
Prequisites: 231 and 321 or equivalent. Optical techniques for identification, characterization, and classification of minerals and rocks using the petrographic microscope. Laboratory.

533 ADVANCED PETROGRAPHY 3 credits
Prequisite: 532. Petrography of igneous, metamorphic, and sedimentary rocks as determined by microscopic studies of textures and mineral assemblage(s) using this section Laboratory.

556 COAL GEOLOGY 2 credits
Prequisites: 231, 324, and 350. Study of petrography of coal, petrography of coal, and petrography of coal. Laboratory.

563 ECONOMIC GEOLOGY 2 credits

567 EXPLORATION GEOPHYSICS 3 credits
Prequisites: 360 or permission, and 360. Fundamental concepts in geophysical exploration, including location and evaluation of natural resources. Laboratory.

586 GEOMORPHOLOGY 3 credits
Prequisite: 570. Study of the landform characteristics, ongin, entrapment and exploration methods. Laboratory.

590 BOREHOLE GEOPHYSICS 3 credits
Prequisite: 594. Principles and applications of borehole geophysics. Laboratory.

595 ADVANCED STRUCTURAL GEOLOGY 3 credits
Prequisite: 360 or permission. Fundamental concepts of structural geology with emphasis on current and developing concepts. Laboratory.

595 MICROPALEONTOLOGY 3 credits
Prequisite: 360 or permission. Introduction to techniques of micropaleontology and paleontology of selected fossil groups. Laboratory.

590 GEOCHEMISTRY 3 credits
Prequisites: 321, 230, 310, 350, 312, 132, or permission. Application of chemical principles to the study of geological processes. Laboratory.

574 GROUNDWATER HYDROLOGY 3 credits
Prequisite: 570. Study of the occurrence, regime, and utilization of groundwater. Qualitative and quantitative description of geological and geophysical aspects of groundwater hydrology. Laboratory.

595 WORKSHOP 3 credits
Prequisite: 570. May be repeated. Group studies of special topics in hydrology. May be used to meet undergraduate or graduate major requirements in geology. May be used for elective credit only.

595 GEOLOGY FIELD CAMPS 3 credits
Prequistes: 360 or permission, and 360. Field study of geology in various geological environments. Laboratory.

595 GEOLOGY FIELD CAMPS II 3 credits
Prequisite: 360 or permission. Field study of geology in various geological environments. Laboratory.

608 REMOTELY SENSING IN GEOLOGY 3 credits
Prequisite: 330 or 400 or equivalent. Principles of remote sensing, data acquisition and processing, and interpretation of remotely sensed data from conventional and satellite sensors. Applications to local, regional, national, and international geology. Laboratory.

609 APPLIED QUANTITATIVE GEOMORPHOLOGY 3 credits
Prequisite: 210. Quantification of geomorphic processes and associated landforms. Application of statistical methods to evaluation of validity of these methods. Examination of these methods in practical problems. Laboratory.

623 CARBONATE PETROLOGY 3 credits
Prequisietes: 321, 324, 325, 326, 327, or permission of instructor. Study of genetic relationships of carbonate rocks and implications of depositional facies and diagenetic alteration. Laboratory.

624 SILTICULC-SEDIMENTOLOGY 3 credits
Prequisites: 324 and 325 or permission of instructor. Basic processes that transport and deposit sediments and the classification associated with these processes. Laboratory.

631 ROCKS AND MINERALS 3 credits
Prequisite: 570 or permission. Intensive course integrating cystallography, mineralogy, and petrology for the science student and graduate student from disciplines other than geology. Laboratory.

632 IGNEOUS PETROLOGY 3 credits
Prequisite: 570. Origin and paragenesis of igneous rocks. Theory, petrochemistry, and occurrence of major igneous rock types. Selected rock suites studied. Laboratory.

633 METAMORPHIC PETROLOGY 3 credits
Prequisite: 570. Theory, petrochemistry, and occurrence of metamorphic rocks. Selected rock suites studied. Laboratory.

634 CLAY MINERALOGY 3 credits
Prequisite: 570. Classification, identification, genesis of clay minerals, clay rocks, soil formation, and exploitation. Laboratory. A study of identification of clay minerals, analysis, petrographic description of clay minerals from soils and sediments. Laboratory.

636 CRYOGEOL0GY 3 credits
Prequisite: 570. Theory, petrochemistry, and occurrence of metamorphic rocks. Selected rock suites studied. Laboratory.

637 GEOSTATISTICS 3 credits
Prequisite: 570, 455.561. An advanced course in statistics. Application of statistical methods to geology and petrology including analysis of data and data analysis, analysis of variance, and time series analysis. Laboratory.

656 GLOBAL TECTONICS 3 credits
Prequisite: 570, 455.561. An advanced course in statistics. Application of statistical methods to geology and petrology including analysis of data and data analysis, analysis of variance, and time series analysis. Laboratory.

674 ADVANCED GROUNDWATER HYDROLOGY 3 credits
Prequisite: 455.561. Study of water table and aquifer systems under steady and nonsteady state conditions. Collection and evaluation of field data with regard to theory. Water well and well field design and laboratory work.

675 GEOCHEMICAL METHODS OF PROSPECTING 3 credits
Prequisite: 570. Application of geophysical methods of analysis and interpretation to search for ore deposits, emphasis on stability, mobility and dissolution of elements in geological environments. Laboratory.

679 URBAN GEOLOGY 3 credits
Prequisite: 570, 720 or permission. Problems of urbanization related to our finite resources and quality of life. Laboratory.

680 SEMINAR IN GEOLOGY 2 credits
Two credits awarded for a year of six credits. Selected topics with acceptance material from original sources.

594 SELECTED TOPICS IN GEOLOGY 3 credits
Prequisite: 570. May be repeated for a total of eight credits. Prerequiste: permission. Topics in geology not regularly offered as formal courses, emphasis on classic importance. Lectures, discussions, and/or guided laboratory work.

699 ADVANCED FIELD STUDIES 3 credits
May be repeated for a total of four credits. Prerequisite: permission of instructor. Field course emphasizing projects of geology not readily studied in Ohio. Includes field preparation, field observations and data gathering, post-trip examination and/or written report. Student will hear the expenses.

676 GEOLOGY CIVILIZATION 1 credit
Lecture on current topics in geological sciences and their impact on development by graduate students. May be repeated. Does not satisfy degree requirements.

698 GRADUATE RESEARCH PROBLEMS 1-2 credits
May be repeated for a total of six credits. Prerequisite: permission. Directed readings and research in areas of geology chosen by student in consultation with an instructor.

699 MASTER'S THESIS 1-6 credits
Independent and original investigation. Must be successfully completed, reported written and defended before a committee.

HISTORY

3400:

500 WOMEN IN REVOLUTIONARY AMERICA 3 credits
Prerequisite: 3400 or 500. Prerequisite: permission of instructor. Study of the roles of women in America's major events and issues, such as the American Revolution, the War of 1812, and the Civil War.

501 IMPERIALISM IN EAST ASIA 3 credits
An examination of the role of imperialism in the modern period, highlighting the expansion of European powers in the 19th and 20th centuries.

516 MODERN INDIA 3 credits
History of the subcontinent from c. 500 with emphasis on both domestic and international factors, including the emergence of Indian nationalism.

524 THE RENAISSANCE 3 credits
The age of transition from the Middle Ages to modern times (1350-1600). Special emphasis on intellectual trends, the development of humanism, and the fine arts.

525 THE REFORMATION 3 credits
European and religious, political and diplomatic development, with special emphasis on the religious and social constraints of the Protestant Reformation.

529 EUROPE IN THE FRENCH REVOLUTIONARY ERA, 1789-1815 3 credits
Development of Napoleon's regime and the changing nature of society and thought.

530 NAZI GERMANY 3 credits
Focus on the political, social, cultural, and political aspects of Nazi Germany, with an emphasis on its history from 1933 to 1945.

539 THE POLITICAL, SOCIAL, AND CULTURAL HISTORY OF EUROPE FROM THE END OF THE SECOND WORLD WAR TO THE 1980S 3 credits
Search for new technologies and the development of the welfare state.

546 TUDOR AND STUART ENGLAND, 1485-1714 3 credits
A study of the social, economic, and cultural topics, including literature, art and architecture.

547 CURRCHILL'S ENGLAND 3 credits
A study of the social, economic, and cultural topics, including literature, art and architecture.

550 THE AMERICAN REVOLUTIONS AT THE 17TH CENTURY, 1607-1713 3 credits
Establishment of the American colonies. Includes special emphasis on English settling and the development of the British Empire to 1713.

551 THE 18TH CENTURY AND FOUNDING OF THE UNITED STATES, 1713-1800 3 credits
The development of the United States from the 17th century to 1800, focusing on the role of the British Empire and the struggle for independence.

552 THE AMERICAN REVOLUTIONARY ERA: POLITICAL, MILITARY, AND CONSTITUTIONAL ASPECTS 3 credits
A study of the political, military, and constitutional aspects of the American Revolution.

555 THE AMERICAN REVOLUTIONARY ERA: POLITICAL, MILITARY, AND CONSTITUTIONAL ASPECTS 3 credits
A study of the political, military, and constitutional aspects of the American Revolution.

557 THE ORIGINS OF MODERN AMERICA, 1877-1917 3 credits
A study of the social, economic, and cultural topics, including literature, art and architecture.

560 WORLD IN WAR AND DEPRESSION, 1917-1945 3 credits
A study of the social, economic, and cultural topics, including literature, art and architecture.
640 READING SEMINAR IN HISTORY OF SCIENCE 4 credits
Study of historical literature, sources of materials, and major interpretations in history of science.

641 WRITING SEMINAR IN HISTORY OF SCIENCE 4 credits
Consultative seminar and writing in selected topics in history of science.

651 READING SEMINAR IN THE HISTORY OF ENGLAND AND THE EMPIRE 4 credits
Study of historical literature, sources of materials, and major interpretations of English and British imperial history.

662 WRITING SEMINAR IN THE HISTORY OF ENGLAND AND THE EMPIRE 4 credits
Prepared topics. 651 Research and writing in selected topics of English and British imperial history.

666 READING SEMINAR IN AMERICAN HISTORY 4 credits
Study of historical literature, sources of materials and major interpretations of American colonial and United States History since Civil War.

676 WRITING SEMINAR IN AMERICAN HISTORY 4 credits
Prepared. 666. Research and writing in selected topics of American History from colonial to Civil War.

669 READING SEMINAR IN AMERICAN HISTORY SINCE 1877 4 credits
Study of historical literature, sources of materials and major interpretations of United States History since Civil War.

670 WRITING SEMINAR IN AMERICAN HISTORY SINCE 1877 4 credits
Prepared. 669. Research and writing in selected topics of United States History since Civil War.

677 READING SEMINAR IN LATIN AMERICAN HISTORY 4 credits
Prepared. Two courses in Latin American studies of permission of instructor. Study of historical literature, sources of materials and major interpretations of Latin American history.

687 WRITING SEMINAR IN LATIN AMERICAN HISTORY 4 credits
Prepared. 677. Research and writing in selected topics in social, cultural, diplomatic, intellectual and political history of Latin America.

689 READING SEMINAR: CHINA 4 credits
Preparation of research paper, including bibliographic essay. Surveying scholarship on the topic, research and analysis of primary sources, and writing.

690 HISTORIOGRAPHY 3 credits
Study of primary sources, historical writings and interpretations through the ages. Required for master's and candidate 19th and 20th century undergraduate and graduate course work.

691 HISTORY TEACHING PRACTICUM 3 credits
Preparation of graduate assistants. Required of all graduate assistants each fall semester. Teaching and experience in college teaching of history under supervision of an experienced faculty member. Credits may not be used to meet degree requirements.

693 THESIS RESEARCH 3 credits
Research for Master's degree thesis.

697, 697 Individual Reading for M.A. Student 1.4 credits each
May be repeated for a total of 12 credits. Directed reading to fit individual student programs. May be applied, but no more than 6 credits may count toward the M.A. degree in History. Written permission of the instructor required.

699 MASTER'S THESIS 3 credits
Prepared. 693. Writing of Master's degree thesis.

797, 797 Individual Reading for Ph.D. Student 1.6 credits each
May be repeated, but no more than 12 credits may apply toward the Ph.D. in History. Directed reading to fit individual student programs. Written permission of the instructor required.

894 DISSERTATION RESEARCH 3 credits
Research for Doctor of Philosophy degree dissertation.

899 DOCTORAL DISSERTATION 3 credits

MATHMATICS

3450:

501 HISTORY OF MATHEMATICS 3 credits
Preparation. 222. Origin and development of mathematical ideas. Course does not meet degree requirements in the department.

510 ADVANCED LINEAR ALGEBRA 3 credits

511 ABSTRACT ALGEBRA I 3 credits
Preparation. 221. Study of groups, rings, fields, integral domains, vector spaces, field extensions, Galois theory.

512 ABSTRACT ALGEBRA II 3 credits
Preparation. 410. Division in a ring of mathematical structure. Study of groups, rings, fields, integral domains, vector spaces, field extensions, Galois theory.

513 THEORY OF NUMBERS 3 credits
Preparation. 222 or permission of instructor. Study of groups, rings, fields, integral domains, vector spaces, field extensions, Galois theory.

514 VECTOR ANALYSIS 3 credits

515 COMBINATORICS AND GRAPH THEORY 3 credits
Preparation. 222 or permission. Introduction to basic ideas and techniques of mathematical combinatorics properties of structures in systems.

521, 522, 523 ADVANCED CALCULUS 1 AND II 3 credits each
Preparation. 222. 233, 307, highly recommended. Real number system, sequences, series, linear algebra, continuity, differentiation, integration, partial derivatives, multiple integration, convergence, and uniform convergence, power series, improper integrals, transformations, line and surface integrals.

525, 526, 527 COMPLEX VARIABLES 3 credits
Preparation. 222. Complex variables, elementary functions, differentiation and analytic functions, integration and Cauchy's theorem, power series and Laurent series residue theorem, applications such as conformal mappings, inversion of integral transforms.
### Courses of Instruction

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites/Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIFFERENTIAL GEOMETRY</td>
<td>3</td>
<td>Provided: 422/425. Analytic representation of space curves, surfaces; intrinsic geometry of surface; geometry of surfaces in large</td>
</tr>
<tr>
<td>TOPOLOGY</td>
<td>3</td>
<td>Prerequisite: 423/422. Set-theory, ordinal and cardinal numbers, topological spaces, filters and nets, convergence, metric spaces, homotopy, related topics</td>
</tr>
<tr>
<td>ADVANCED TOPICS IN MATHEMATICS</td>
<td>2</td>
<td>May be repeated for a total of 6 credits. Prerequisite: permission of advisor. Seminar-type discussions on topics in mathematics leading to supervised research project. No more than 2 credits apply to major requirements.</td>
</tr>
<tr>
<td>SEMINAR IN MATHEMATICS</td>
<td>1-3</td>
<td>Prerequisite: permission of advisor. Seminar-type discussion on topics in mathematics leading to supervised research project. No more than 2 credits apply to major requirements.</td>
</tr>
<tr>
<td>INTRODUCTION TO MATHEMATICS AND STATISTICS</td>
<td>1-2</td>
<td>May be repeated for a total of 4 credits. Prerequisites: graduate standing and permission. DHS or studies in mathematics at graduate level under guidance of selected faculty member.</td>
</tr>
<tr>
<td>MASTER'S RESEARCH</td>
<td>1-6</td>
<td>Prerequisite: permission of advisor. Research in suitable topics in mathematics or applied mathematics culminating in a research paper. No more than 2 credits applicable to major requirements.</td>
</tr>
<tr>
<td>MASTER'S THESIS</td>
<td>2</td>
<td>May be repeated for a total of 4 credits. Prerequisite: permission. Properly qualified candidate for master's degree may obtain four credits for research experience which culminates in presentation of faculty-supervised thesis.</td>
</tr>
<tr>
<td>ADVANCED NUMERICAL SOLUTIONS OF PARTIAL DIFFERENTIAL EQUATIONS</td>
<td>3</td>
<td>Prerequisites: 422 and 522 or equivalent. Analytical and numerical approximation of functions and solutions of partial differential equations which are either difficult or impossible to compute, or which defy reliable representation.</td>
</tr>
<tr>
<td>ADVANCED TOPICS IN MATHEMATICS</td>
<td>3</td>
<td>Prerequisites: 422 or 522. Introduction to topological spaces and topological properties, including convergence, topological properties of sets in Euclidean and metric spaces.</td>
</tr>
<tr>
<td>INTRODUCTION TO DISCRETE MATHEMATICS I AND II</td>
<td>2</td>
<td>Prerequisites: 125 and 412 or permission. Sequences, matrices, eigenvalues, eigenvectors, vector spaces, linear transformations, structures in algebra of particular interest.</td>
</tr>
<tr>
<td>PROYECTIVE GEOMETRY</td>
<td>3</td>
<td>Prerequisite: 422 or permission. Complex projective planes, dualities, homogeneous coordinates, projective space theory, and linear transformations.</td>
</tr>
<tr>
<td>WORKSHOP IN MATHEMATICS</td>
<td>1-2</td>
<td>May be repeated for a total of six credit. Prerequisite: permission. Instruction and analysis of mathematical topics which may not be used to meet undergraduate or graduate major requirements in mathematics and statistics.</td>
</tr>
<tr>
<td>MEASURE THEORY</td>
<td>3</td>
<td>Prerequisite: 422/425 or permission. In-depth study of real analysis - metric spaces, norms, vector spaces, integration theory, Hilbert spaces.</td>
</tr>
<tr>
<td>ANALYTIC FUNCTION THEORY</td>
<td>3</td>
<td>Prerequisite: 422/425. Complex number system, holomorphic functions, continuity, differentiability, power series, complex integration, residue theory, singularities, analytic continuation, asymptotic expansion.</td>
</tr>
<tr>
<td>ADVANCED NUMERICAL ANALYSIS AND INTEGRATION II</td>
<td>2</td>
<td>Prerequisite: 422 or permission. Theoretical analysis of numerical methods in linear algebra, polynomial interpolation and approximation, integration and ordinary differential equations.</td>
</tr>
<tr>
<td>MATRICES COMPUTATIONS I AND II</td>
<td>2</td>
<td>Prerequisite: 422 or permission. Sequences. This course is a treatment of numerical linear algebra based on the principles of scientific computing.</td>
</tr>
<tr>
<td>CALCULATIONS OF VARIATIONS</td>
<td>3</td>
<td>Prerequisites: 315 or 325. Formulas with fixed and movable endpoints, problems with constraints, generalization to several variables, the maximum principle, linear Programming problems, the connection between classical mathematics and the minimax principle.</td>
</tr>
<tr>
<td>ADVANCED PARTIAL DIFFERENTIAL EQUATIONS</td>
<td>3</td>
<td>Prerequisite: 410. Existence, uniqueness, and stability of solutions to general classes of partial differential equations. Methods for solving these classes introduced, emphasizing both analytical and numerical techniques.</td>
</tr>
<tr>
<td>METHODS OF APPLIED MATHEMATICS I AND II</td>
<td>3</td>
<td>Prerequisites: 421 or permission. Methods of applying mathematics concentrating on techniques for analyzing linear and integral equations - applied complex analysis, integrals transforms, partial differential equations, and integral equations.</td>
</tr>
<tr>
<td>OPTIMIZATION</td>
<td>3</td>
<td>Prerequisite: 462/465 or permission. Unconstrained and constrained optimization theory and methods in applied problems.</td>
</tr>
<tr>
<td>ADVANCED APPLICATIONS OF LINEAR AND FUNCTION THEORIES</td>
<td>3</td>
<td>Prerequisite: 422 or permission. Theory and techniques of linear and function theories as applied to network problems and general theoretical problems.</td>
</tr>
</tbody>
</table>

### COMPUTER SCIENCE

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>560 INTRODUCTION TO C AND UNIX</td>
<td>3</td>
</tr>
<tr>
<td>Programming. Experience. C language programing. UNIX shell programming. file structure, system calls, and interprocess communication. Not an approved mathematical sciences major. min 30 or certificate elective.</td>
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</tr>
<tr>
<td>569 INTRODUCTION TO CHOREOGRAPHY STRUCTURES</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to a number of structures in algebra for the use to student in computer science. Topics include algorithms and flow chart language, graphs and digraphs, trees, and tree codes.</td>
<td></td>
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<tr>
<td>565 STRUCTURED PROGRAMMING</td>
<td>3</td>
</tr>
<tr>
<td>Techniques of block programming using a structured programing languages. Program reassemblability, program verification and design program.</td>
<td></td>
</tr>
<tr>
<td>580 OPERATING SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: 307 and 310 or knowledge of C. Introduction to various types of operating systems, batch processing systems, multiprogramming systems, and interactive processing. Storage management, process and resource control, deadlock problem. Course is a survey of any particular operating system.</td>
<td></td>
</tr>
<tr>
<td>585 UNIX SYSTEM PROGRAMMING</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: 310, 316 and 330 or knowledge of C. An overview of the UNIX operating systems. Dynamic programming, process management, process management, storage management, language, algorithms, resource projections, and system programming.</td>
<td></td>
</tr>
<tr>
<td>590 THEORY OF PROGRAMMING LANGUAGES</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: 310 and 330. More advanced concepts underlying programming languages and their applications, formal definitions of grammatical languages. Backus Normal Form, semantics, compiler design.</td>
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</tr>
</tbody>
</table>
358 ANALYSIS OF ALGORITHMS
Prerequisites: 356 and 357. Analysis and evaluation of efficient algorithms for problems in graph theory, sorting, searching, and computational geometry. 3 credits

540 COMPILER DESIGN
Prerequisites: 221 and 316. Techniques used in designing compilers, including abstract syntax, translation techniques, and implementation of compiler. 3 credits

555 DATA COMMUNICATIONS AND COMPUTER NETWORKS
Prerequisite: 221 and 305 or knowledge of CO. Topics in data communication, protocol architecture, client-server applications, and network security. 3 credits

567 MICROPROCESSOR PROGRAMMING AND INTERFACING
Prerequisites: 210 and 316. Detailed study of a single microprocessor architecture and instruction set. Software development tools used in microcomputer systems. 3 credits

570 AUTOMATA, COMPUTABILITY AND FORMAL LANGUAGES
Prerequisite: 110 or knowledge of formal languages and automata theory. Topics include context-free grammars, computability theory, complexity theory, and decidability. 3 credits

580 DATA-BASE MANAGEMENT
Prerequisites: 210 and 316. Detailed study of data-base organization, data manipulation and representation, and database privacy. 3 credits

581 TOPICS IN COMPUTER SCIENCE
Prerequisite: 356. Special topics in computer science. Content determined by interaction with the department. May be repeated for a maximum of six credits. 3 credits

585 WORKSHOP IN COMPUTER SCIENCE
Prerequisites: 210 and 316. Group studies of topics in computer science. May not be used to meet graduation requirements in mathematics. 3 credits

591 INDIVIDUAL READING IN COMPUTER SCIENCE
Prerequisite: 210 or permission of instructor. May be repeated for a maximum of three credits. 3 credits

620 ADVANCED OPERATING SYSTEMS
Prerequisite: 316. Advanced topics in operating system design and implementation: synchronization mechanisms, performance evaluation, security, distributed operating systems. 3 credits

625 ADVANCED ALGORITHMS AND COMPLEXITY THEORY
Prerequisite: 356 or permission of instructor. Advanced topics in approximation algorithms, problem reduction, approximation algorithms, and complexities. 3 credits

685 ADVANCED COMPUTER DESIGN AND CONSTRUCTION
Prerequisite: 485/585. Design of computer systems. 3 credits

699 MASTER’S RESEARCH
May be repeated with permission of advisor. Research suitable for a master’s thesis. No more than 8 credits applicable to master’s requirements. 1-6 credits

699 MASTER’S THESIS
Thesis required. May be repeated for a total of 4 credits. 2 credits

710 ADVANCED COMPUTER TECHNIQUES IN PHYSICAL SCIENCES
Prerequisites: Programming experience in FORTRAN. 359. Knowledge of the UNIX operating system. Introduction to current trends and techniques in scientific computing. Topics include numerical software design, symbolic computation, and parallel computing. 3 credits

715 STATISTICAL METHODS
Prerequisite: 461/561 or equivalent. Application of statistical methods to social sciences including description statistics, probability distributions, statistical inference, hypothesis testing, correlation, linear regression, and analysis of variance. 3 credits

715 STATISTICS I AND II
Prerequisite: 461/561 or equivalent. Sequences in stochastic processes, probability distributions, estimation, hypothesis testing, and regression analysis. 3 credits

717 PREREQUISITES FOR ACTUARIAL EXAMS
Prerequisites: Programming experience in FORTRAN. 359 or equivalent. Preparation for actuarial exams. 3 credits

717 ACTUARIAL SCIENCE I
Prerequisite: 461/561 or equivalent. Course provides a foundation in the theory and applications of actuarial science. Topics include basic probability models, exposure functions, risk theory, and insurance mathematics. 3 credits

717 ACTUARIAL SCIENCE II
Prerequisite: 470/571. Continuation of Actuarial Science I. Topics include risk theory, ruin theory, and advanced topics in insurance mathematics. 3 credits

717 FOUNDATIONS OF STATISTICAL QUALITY CONTROL
Prerequisite: 461/561 or equivalent. Course provides a foundation in the theory and applications of statistical techniques widely used in industry. 3 credits

717 STATISTICAL COMPUTER APPLICATIONS
Prerequisites: 3450.222 and 216 or equivalent. Study of statistical software packages. Topics may include regression analysis, analysis of variance, and decision theory. 3 credits

717 TOPICS IN STATISTICS
Prerequisite: 470/571. May be repeated for a total of six credits. Topics may include nonparametric methods, Bayesian statistics, and advanced topics in stochastic processes. 3 credits

717 WORKSHOP IN STATISTICS
Prerequisite: 470/571. May be repeated with change of topic. Group studies of special topics in statistics. May not be used to meet undergraduate major requirements in mathematics and statistics. 3 credits

717 STATISTICAL CONSULTING
Prerequisite: 485/585 or equivalent. Students will be assigned to work with an instructor on consulting projects in the Center for Statistics. Projects may be directed toward the needs of a client. 1-3 credits; however, only 2 credits will count toward major requirements. Does not count for elective credit. 1 credit

717 APPLICATIONS OF MATRICES TO STATISTICS
Prerequisites: 485/585 or equivalent. Matrices, introduction to multivariate normal distribution, applications to linear models. 3 credits

717 ADVANCED PROBABILITY AND STOCHASTIC PROCESSES
Prerequisite: 651. Random walk, distributions, limit theorems. 3 credits

717 PROBABILITY AND STATISTICS
Prerequisites: 345/521, 345/522 or 525/526. Introduction to probability. Probability, random variables, continuous and discrete distributions. 3 credits

717 ADVANCED STATISTICAL METHODS
Prerequisites: 461/561 or equivalent. Linear models, maximum likelihood estimation, likelihood ratio tests, and Bayesian estimation. 3 credits

717 RANDOM VARIABLES
Prerequisites: 461/561 or equivalent. Random variable, probability, probability generating function, expectation. 3 credits

717 BAYESIAN MODELS
Prerequisites: 461/561 or equivalent. General linear models in matrix notation; general linear hypothesis; regression models; experimental design; analysis of variance; and covariance, variance components. 3 credits

STATISTICS
3470:

515 MATHEMATICAL CONCEPTS FOR STATISTICS
Prerequisites: 3450.221, 3450.312, or equivalent. Topics from real analysis and abstract algebra: sets, functions, limits, continuity, differentiation, integration, infinite sequences, and series. May not be used to meet graduate degree requirements for mathematical sciences majors. 3 credits

550 PROBABILITY
Prerequisites: 3450.221. Introduction to probability, random variables and probability distributions, expectation, various forms of convergence. 3 credits

515.1 THEORETICAL STATISTICS I AND II
Prerequisite: 461/561 or equivalent. Sequences in stochastic processes, probability distributions, estimation, hypothesis testing, and regression analysis. 3 credits

550 STATISTICAL METHODS
Prerequisite: 461/561 or equivalent. Application of statistical methods to social sciences including description statistics, probability distributions, statistical inference, hypothesis testing, correlation, linear regression, and analysis of variance. 3 credits

550 DESIGN OF SAMPLE SURVEYS
Prerequisite: 461/561 or equivalent. Design and analysis of sample surveys. 3 credits

550 RELIABILITY MODELS
Prerequisite: 461/561. Selection of topics in reliability modeling including parametric and nonparametric models, competing models of failure, and simulated data for accelerated life models. 3 credits

550 ACTUARIAL SCIENCE I
Prerequisite: 461/561 or equivalent. Course provides a foundation in the theory and applications of actuarial science. Topics include basic probability models, exposure functions, risk theory, and insurance mathematics. 3 credits

550 ACTUARIAL SCIENCE II
Prerequisite: 470/571. Continuation of Actuarial Science I. Topics include risk theory, ruin theory, and advanced topics in stochastic processes. 3 credits

550 FOUNDATIONS OF STATISTICAL QUALITY CONTROL
Prerequisite: 461/561 or equivalent. Course provides a foundation in the theory and applications of statistical techniques widely used in industry. 3 credits

550 STATISTICAL COMPUTER APPLICATIONS
Prerequisites: 3450.222 and 216 or equivalent. Study of statistical software packages. Topics may include regression analysis, analysis of variance, and decision theory. 3 credits

550 TOPICS IN STATISTICS
Prerequisite: 470/571. May be repeated for a total of six credits. Topics may include nonparametric methods, Bayesian statistics, and advanced topics in stochastic processes. 3 credits

550 WORKSHOP IN STATISTICS
Prerequisite: 470/571. May be repeated with change of topic. Group studies of special topics in statistics. May not be used to meet undergraduate major requirements in mathematics and statistics. 3 credits

550 STATISTICAL CONSULTING
Prerequisite: 485/585 or equivalent. Students will be assigned to work with an instructor on consulting projects in the Center for Statistics. Projects may be directed toward the needs of a client. 1-3 credits; however, only 2 credits will count toward major requirements. Does not count for elective credit. 1 credit

550 APPLICATIONS OF MATRICES TO STATISTICS
Prerequisites: 485/585 or equivalent. Matrices, introduction to multivariate normal distribution, applications to linear models. 3 credits

550 ADVANCED PROBABILITY AND STOCHASTIC PROCESSES
Prerequisite: 651. Random walk, distributions, limit theorems. 3 credits

550 PROBABILITY AND STATISTICS
Prerequisites: 345/521, 345/522 or 525/526. Introduction to probability. Probability, random variables, continuous and discrete distributions. 3 credits

550 BAYESIAN MODELS
Prerequisites: 461/561 or equivalent. General linear models in matrix notation; general linear hypothesis; regression models; experimental design; analysis of variance; and covariance, variance components. 3 credits
Courses of instruction

663 EXPERIMENTAL DESIGN 3 credits
- Prerequisites: 562 or equivalent. Selected topics in experimental design including randomization and fixed effects, sampling designs, split plot designs, confounding, fractional factorial, Latin squares, and analysis of covariance.

664 STATISTICS FOR THE HEALTH SCIENCES 4 credits
- May not be used to meet degree requirements for mathematical sciences majors. Prerequisite: college-level algebra or equivalent. Descriptive statistics, probability and probability distribution, tests of hypotheses and confidence intervals, nonparametric statistics, regression, and correlation.

665 REGRESSION AND CORRELATIONS 3 credits
- Prerequisites: 560 or 561 or equivalent. Analytical theory: least squares - i.e., regression and correlation, stepwise regression, model building, response surfaces.

666 NONPARAMETRIC STATISTICS-METHODS 2 credits
- Prerequisites: 560 or 561 or equivalent. Theory and practice using techniques requiring non-parametric assumptions. Nonparametric analogues to t- and F tests, ANOVA, regression and correlation, computer applications.

675 FACTOR ANALYSIS 3 credits
- 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.

695 MULTIVARIATE STATISTICAL METHODS 3 credits
- Prerequisites: 562 or equivalent. Multivariate techniques including distance concepts, including multivariate ANOVA, regression and correlation, linear contrasts, factorial experiments, nested and repeated measure designs, Bonferroni’s tests, linear discriminant analysis, canonical correlations, application.

675 RESPONSE SURFACE METHODOLOGY 3 credits
- Prerequisite: 492/592 or equivalent. First and second order response designs, efficient experimental plans, method for the analysis, and optimization of response functions.

689 ADVANCED TOPICS IN STATISTICS 1-3 credits
- May be repeated for a total of 4 credits. Prerequisite: 663. Selected topics in statistics including concepts in order statistics, advanced inference, sequential analysis, stochastic processes, reliability theory, Bayesian statistics and regression.

682 SEMINAR IN STATISTICS 3 credits
- May be repeated. Prerequisite: permission of advisor. Seminar-type discussion on topics in statistics leading to supervised research project. No more than 5 credits apply to major requirements.

895 PRACTICUM IN STATISTICS AND MATHEMATICS 1-3 credits
- Prerequisite: graduate teaching assistant or permission. Training and experience in a large teaching of statistics. May not be used to meet degree requirements. May be taken only on a credit/non-credit basis.

897 INDIVIDUAL READING 1-2 credits
- May be repeated for a total of four credits. Prerequisites: graduate standing and permission. Directed studies in statistics under guidance of selected faculty member.

898 MASTER’S RESEARCH 1-15 credits
- May be repeated. Prerequisite: permission of advisor. Research suitable topics in statistics culminating in a research paper. No more than 2 credits applicable to major requirements.

899 MASTER’S THESIS 1-4 credits
- May be repeated for a total of 4 credits. Prerequisite: Permission. Properly qualified candidates for master’s degree may obtain 24 credits for research experience which culminates in presentation of faculty-supervised thesis.

ENGINEERING APPLIED MATHEMATICS

3490:

701 INTERDISCIPLINARY RESEARCH SEMINAR 3 credits each
- Prerequisite: Permission. For students seeking graduate degrees in Applied Mathematics. An introduction to applied mathematics research in the mathematical sciences, physical sciences, and engineering.

790 ADVANCED SEMINAR IN APPLIED MATHEMATICS 14 credits
- Prerequisite: Permission. May be repeated for a total of 12 credits. For students seeking graduate degrees in Applied Mathematics. Advanced topics and studies in various areas of applied mathematics.

898 PRELIMINARY RESEARCH 1-15 credits
- Prerequisite: Permission. (May be repeated.) Completion of qualifying examination and approval of Student Advisory Committee. Preliminary investigation of Ph.D. dissertation topic.

DOCTORAL DISQUALIFICATION 1-15 credits
- Prerequisite: Permission. (May be repeated.) Completion of Candidacy examination and approval of Student Advisory Committee. Oral research for a Ph.D. candidate.

MODERN LANGUAGES

3500:

500 WORKSHOP 2 credits
- (May be repeated.) Group studies of special topics in modern languages.

FRENCH

3520:

502 ADVANCED FRENCH GRAMMA 3 credits
- Prerequisite: 302 or equivalent. Advanced study of normative French grammar with emphasis on syntax, morphology, grammatical structure and phonetics.

507 FRENCH LITERATURE OF THE MIDDLE AGES AND THE RENAISSANCE 4 credits
- Prerequisite: 205 or 306 or equivalent. Reading and discussion of selected Medieval and Renaissance literary works. Conducted in French.

511 17TH CENTURY FRENCH LITERATURE 4 credits
- Prerequisite: 305 or 306 or equivalent. Reading and discussion of selected works in poetry, drama and novels. Conducted in French.

515 18TH CENTURY FRENCH LITERATURE 4 credits
- Prerequisite: 305 or 306 or equivalent. Reading and discussion of selected authors, emphasis on the Philosophes. Conducted in French.

519 19TH CENTURY FRENCH LITERATURE 4 credits
- Prerequisite: 305 or 306 or equivalent. Reading and discussion of selected works pertaining to romantic, realist and naturalistic movements. Conducted in French.

522 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS OR CULTURE OR LITERATURE 1-4 credits
- Prerequisite: 202 or equivalent. (May be repeated.) Development of specialized language skills or reading of significant works of literature or culture not studied in other courses.

527 20TH CENTURY FRENCH LITERATURE 4 credits
- Prerequisite: 305 or 306 or equivalent. Reading and discussion of the most representative works of period. Conducted in French.

529 FRANCOPHONE CARIBBEAN LITERATURE 4 credits
- Prerequisite: 305 or 306 or equivalent. Analysis of selected literary works from Haiti, Guadeloupe, and Martinique in light of their geographical, sociocultural and cultural determinants.

560 SELECTED THEMES IN FRENCH LITERATURE 3 credits
- (May be repeated.) Conducted in French. Prerequisite: 305 and 306 or equivalent. Reading and discussion of literary works selected according to an important theme.

571 FRENCH LANGUAGE READING PROFICIENCY 4 credits
- Designed to develop proficiency in reading comprehension. Prepares students for graduate reading examination. Does not count toward French major.

403 A ROMANCE AND APPLIED LINGUISTICS 4 credits each
- History of French language from 842 to present. Second semester deals with application of linguistic research to teaching of French.

507 SELECTED TOPICS IN THE MOVEMENT OF IDEAS IN FRENCH LITERATURE 4 credits each
- Study of ideas instrumental in shaping French thought and culture.

507 SPECIAL TOPICS IN THE MOVEMENT OF IDEAS IN FRENCH LITERATURE 4 credits each
- Anthropological approach emphasizing social and cultural institutions, education, music and arts, value systems and national characteristics.

602 SEMINAR: SHAKESPEARE’S DRAMA 2 credits
- Study of various aspects of English drama and literature of French expression outside of France.

602 SEMINAR: THE IMAGE OF THE WOMAN IN FRENCH LITERATURE 2 credits
- Study of the woman as characterized in French literature from Middle Ages to present.

602 SEMINAR: TEACHING PRACTICUM 2 credits
- Prerequisite: teaching assistantship or permission. Orientation and practice of particular aspects of teaching language and culture. Periodical review and evaluation. Credits may not be applied toward degree requirement.

697 INDIVIDUAL READING AND RESEARCH SEMINAR 1-4 credits each
- Prerequisite: permission. Independent study and research in specific areas. Considerable reading and writing required.

GERMAN

3530:

519 THE AGE OF GOETHE I 2 credits
- Prerequisite: 302 or 306 or permission. Enlightenment and generation of Schiller and Daring, including works of Weimar, Lessing, Klopstock, Herder, the young Goethe and others. Conducted in German.

520 THE AGE OF GOETHE II 3 credits
- Prerequisite: 302, 306 or permission. Focus, selection from parts I and II. Ballads of Goethe and Schiller. Conducted in German.

531 200 YEARS OF GERMAN DRAMA 3 credits
- Prerequisite: 302 or 306 or permission. Representative works of major classical dramatist including Lessing, Goethe, Schiller. Conducted in German.

532 200 YEARS OF GERMAN DRAMA 3 credits
- Prerequisite: 302 or 306 or permission. Representative works of the major dramatists, Buehner, Hebbel, Hauptmann and Wedekind. Conducted in German.

535 GERMAN SHORT STORY 2 credits
- Prerequisite: 302 or 306 or permission. Reading and discussion of representative works of German short story, including those of Teic, Krass, E. T. A. Hoffman, Brentano, Eichendorff, Conducted in German.

539 GERMAN SHORT STORY 2 credits
- Prerequisite: 302 or 306 or permission. Reading and discussion of representative works of the German short story, including those of Dostoevsky, Hofmann, Keller, Gumper, Meyer, Storm. Conducted in German.

590 CENTURY LITERATURE I 3 credits
- Prerequisite: 302 or 306 or permission. Clash of old and new at the turn of the century. Works of T. Mann, Hauptmann, Keller, Hofmannsthal, Hilde, Wedekind and others. Conducted in German.

590 CENTURY LITERATURE II 3 credits
- Prerequisite: 302 or 306 or permission. Impact of modernity. Reading and discussion of writings of Hesse, Kafka, Thomas Mann, Ephraim. Conducted in German.

571 GERMAN LANGUAGE READING PROFICIENCY 4 credits
- Designed to develop proficiency in reading comprehension.

SPANISH

3580:

505 SPANISH LINGUISTICS, PHONOLOGY 4 credits
- 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.
Spanish Seminar on Medieval Spanish Literature

Pre-requisite: 407 or 408. Reading and discussion of representative works that mark beginnings of Spanish literature in poetry, prose, and drama, with emphasis given to the major works of Miguel de Cervantes, dramas, poetry and essays of 16th and 17th centuries. Conducted in Spanish.

Spanish Literature of the Golden Age

Pre-requisite: 407 or 408 or permission. Reading and discussion of representative works and short stories with special emphasis on works of Miguel de Cervantes, drama, poetry and essays of 16th and 17th centuries. Conducted in Spanish.

Cervantes: Don Quijote

Pre-requisite: 412 or 407 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.

16th and 17th Century Spanish Drama and Poetry

Pre-requisite: 407 or 408. Reading, discussion and lectures. Study of Spanish neo-realism and Romanticismo. Conducted in Spanish.

16th Century Spanish Prose

Pre-requisite: 410 or 408 or permission. Reading, discussion and lectures. Study of Spanish Renaissance, Naturalismo and La Generacion de 98. Conducted in Spanish.

20th Century Spanish Prose

Pre-requisite: 407 or 408 or permission of the instructor. Reading and analysis of representative writers of this fiction with a selection of works that illustrates the major developments and themes. Conducted in Spanish.

20th Century Spanish Drama/Poetry

Pre-requisite: 305 or permission of the instructor. Reading and analysis of representative writers of drama and poetry with a selection of works that illustrates the major developments and themes in both genres. Conducted in Spanish.

Special Topics in Specialized Language Skills or Culture or Literature

Pre-requisite: 412 or permission. May be repeated. Development of specialized language skills or reading of significant works of literature or culture not studied in other courses.

Spanish-American Literature Before 1900

Pre-requisite: 407 or 408 or permission. Reading of representative Spanish-American literature from the discovery to 1900. Oral and written reports. Conducted in Spanish.

25th Century Spanish-American Literature

Pre-requisite: 407 or 408. Reading and analysis of selected dramas, essays, poems and short fiction written by outstanding Spanish-American authors of this century. Conducted in Spanish.

20th Century Spanish-American Novel

Pre-requisite: 305 or permission. Reading and discussion of representative contemporary Latin American novels. Conducted in Spanish.

Spanish and Spanish-American Culture and Civilization

Covers each period. Special emphasis on customs, traditions, literature, trends and ethic tendencies that constitute Latin America's specific contribution to Western civilization. Study of Spanish-speaking world. Conducted in Spanish.

Women in 20th Century Hispanic Literature

Pre-requisite: 407 or 408 or permission. Reading and analysis of selected works by Latin American women in Hispanic countries. Methodologies of feminist criticism will be studied. Conducted in Spanish.

Spanish Language Reading Proficiency

Designed to develop proficiency in reading comprehension.

Spanish on the Mediterranean

Pre-requisite: 307 or permission. Emphasis on customs, traditions, literature, trends and ethic tendencies that constitute Latin America's specific contribution to Western civilization. Study of Spanish-speaking world. Conducted in Spanish.

Women in 20th Century Hispanic Literature

Pre-requisite: 407 or 408 or permission. Reading and analysis of selected works by Latin American women in Hispanic countries. Methodologies of feminist criticism will be studied. Conducted in Spanish.

Spanish Language Reading Proficiency

Pre-requisite: 307 or permission. Emphasis on customs, traditions, literature, trends and ethic tendencies that constitute Latin America's specific contribution to Western civilization. Study of Spanish-speaking world. Conducted in Spanish.

Seminar on Spanish Literature of the Golden Age

Pre-requisite: 414. Reading and discussion of representative works from Renaissance to late Baroque period. Stuies may be repeated. 2 credits.

Seminar on Spanish-American Literature

Pre-requisite: 303. Reading and discussion of contemporary writers pertaining to the "Boom". Reading and discussion of various genres and authors representing significant literary developments. Conducted in Spanish.

Seminar on 20th Century Spanish-American Literature

Pre-requisite: 407 or 408 or permission of the instructor. Reading and discussion of contemporary writers with emphasis on theatre, novel, and short story. Conducted in Spanish.

Seminar on 20th Century Spanish Literature

Pre-requisite: 303. Reading and discussion of representative writers with emphasis on novel, theatre, poetry and short story. Conducted in Spanish.

Seminar on Spanish Teaching Practicum

Pre-requisite: 303. Emphasis on 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.

Individual Readings in Spanish

Pre-requisite: 303. Content of individual reading program to be determined by the student. 1-4 credits each semester.

Master's Thesis

(May be repeated.)
Courses of Instruction

537 ELECTROMAGNETISM II
Prerequisites: 437X. Special relativity, four vectors, Maxwell's equations in covariant form, propagation, reflection and electromagnetic waves, multiple reflection.

604 QUANTUM PHYSICS I
3 credits
Prerequisites: 337X, 565X, 536X. Laboratory course involving measurement techniques and advanced techniques of contemporary research. Required background for laboratory work in quantum mechanics and atomic physics. Lecture and laboratory.

542 QUANTUM PHYSICS II
3 credits
Prerequisites: 541X. Applications of quantum mechanics to atomic, nuclear and solid state physics. Tunneling and alpha decay, atomic potential, hydrogen and helium atoms, interatomic forces, quantum statistics.

551 ADVANCE LABORATORY I AND II
2 credits each
Prerequisites: 337, permission of instructor. Applications of electronic, solid-state devices, techniques, and research projects in contemporary physics. Introduction to research techniques, nuclear magnetic resonance, electron spin resonance, quantum mechanical data. Spectroscopy. Alpha and beta-ray spectroscopy.

568 DIGITAL DATA ACQUISITION
3 credits
Prerequisites: 230X, 232X. Designed to introduce science and mathematics students to use of digital technique of interfacing electronics to microprocessors. Physical measurements and device control emphasized.

570 INTRODUCTION TO SOLIDS-STATE PHYSICS
3 credits
Prerequisites: 441X in permission of instructor. Account of basic physical processes occurring in solids, with emphasis on fundamental relation between these processes and periodicity of crystal lattice.

571 NMR SPECTROSCOPY I AND II
2 credits each
Prerequisites: 192X, in permission of instructor. Theoretical and experimental techniques of NMR spectroscopy. Classical concepts and quantum mechanical treatments of NMR: Bloch equations, spin-spin and spin-lattice relaxation times, steady state and transient phenomena. General features of broadband and high-resolution NMR spectra. NMR instrumentation and operating principles. Theory and analysis of high-resolution NMR spectra. Qualitative applications of broad-line and high-resolution NMR spectra and detection of physical and chemical structures.

581 METHODS OF MATHEMATICAL PHYSICS I AND II
3 credits each

588 SELECTED TOPICS: PHYSICS
1-4 credits
(May be repeated) Prerequisites in permission of instructor. Consideration of selected topics, procedures, techniques and materials appropriate of current interest in physics.

590 WORKSHOP
1-4 credits
(May be repeated) Prerequisites in permission of instructor. Further investigation of various selected topics in physics, under guidance of faculty member.

597 INDEPENDENT STUDY
1-4 credits
(May be repeated) Prerequisites in permission of instructor. Further investigation of various selected topics in physics, under guidance of faculty member.

598 PHYSICS COLLOQUIUM
1-3 credits
Lectures on current research topics in physics by invited speakers. May be repeated, but only one credit counts toward M.S. degree.

600 COMPUTER PHYSICS: NUMERICAL SOLUTIONS TO PHYSICS PROBLEMS
3 credits
Prerequisites: 605 or permission. Computer utilization, data reduction, computer graphics, comparison of theoretical models with data, linear and non-linear least squares curve fitting, may accommodate specific problems of individual interest.

615 ELECTROMAGNETIC THEORY I
3 credits
Prerequisites: 437X or permission of instructor. Electromagnetics and magnetostatics at advanced level for graduate students. Boundary value problems, divergence, Green's functions, multipole expansions, time varying fields, Maxwell's equations and electromagnetic waves, reflection, refraction, waveguides and causality.

616 ELECTROMAGNETIC THEORY II
3 credits
Prerequisites: 615. Scattering and diffraction, dislocation physics, special theory of relativity, dynamics of relativistic particles, angular momentum, conditions of charged particles, radiation from moving charges, bremsstrahlung, multipole fields.

625 QUANTUM MECHANICS I
3 credits
Prerequisites: 536X or permission of instructor. Basic concepts of quantum mechanics, representation theory, particles in a one-dimensional field, addition of angular momenta and spins, Clebsch-Gordan coefficients, perturbation theory, scattering, transition probabilities.

626 QUANTUM MECHANICS II
3 credits
Prerequisites: 625. Applications of relativistic quantum mechanics. Klein-Gordon and Dirac equations, spin-1/2 particles and spin-1/2 particles in electromagnetic field, second quantization of bosons and fermions, superfluidity and superconductivity.

641 LAGRANGIAN MECHANICS
3 credits
Prerequisites: 432X or permission of instructor. Principles of action and Lagrangian equations of motion, conservation laws, Lagrangian integration of motion, collisions, small oscillations, Hamilton's equations, canonical transformations.

661 STATISTICAL MECHANICS
3 credits
Prerequisites: 442X or permission of instructor. Fundamental principles of statistical mechanics. Gibbs, Fermi and Bose statistics, solids, liquids, gases, phase equilibrium, thermodynamic reactions.

664 ADVANCED NUCLEAR PHYSICS
3 credits
Prerequisites: 660X. Quantum mechanics applied to nuclear physics. Interaction of radiation with nuclei, nuclear scattering, nuclear reactions, energy levels of nuclei.

665 SOLID-STATE PHYSICS I
3 credits
Prerequisites: 340X or permission of instructor. Theory of physics of crystals and isotropic properties of reciprocal lattice and Bloch's theorem. Lattices, wave mechanics and specific heat, Elec­
tron-phonon coupling, band theory, tight-binding method, Greens function method.

666 SOLID-STATE PHYSICS II
3 credits
Prerequisites: 665. Orthogonalized phase and pseudo potentials, Electron-electron interactions, screening by impurities, Thomas Sommer and Fokker relations, Dynamics of electrons, transport properties and Fermi surface.

688 SPECIAL PROBLEMS IN THEORETICAL PHYSICS
1-3 credits
May be repeated. Prerequisites in permission. Extended investigation of particular areas of interest in theoretical physics, study by consultation with faculty member and independent study beyond available course work.

699 SEMINAR IN THEORETICAL PHYSICS
1-3 credits
May be repeated. Prerequisite in permission. May be repeated. May be repeated. May be repeated. May be repeated.

700 GRADUATE RESEARCH
1-3 credits
Prerequisite: permission. Candidates for M.S. degree may apply up to five credits for faculty directed research projects. Grades and credit received at completion of such projects will be assigned by instructor, subject to approval of Graduate Program Committee.

706 SPECIAL TOPICS: PHYSICS
1-4 credits
Prerequisites in permission of the instructor. Enable students to research in special areas, e.g., for fulfillment of S.M. or Ph.D. candidacy. May be repeated up to a maximum of four credits.

699 MASTER'S THESIS
1 credit
Prerequisite: permission. With approval of department, one credit may be earned by candidate for M.S. degree upon satisfactory completion of a master's thesis.

POLITICAL SCIENCE

3700:

502 POLITICS AND THE MEDIA
3 credits
Examination of relationships between the mass media and political decision makers.

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 sociopolitical, 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. An analysis of the United States international defense policy from the end of World War II to the present, stressing the predominant and competing forces of international policy analysis. Major themes: foreign policy decision making, major powers, and international relations.

512 THEORIES OF INTERNATIONAL POLITICAL ECONOMY
3 credits
Prerequisite: 3700. An analysis of the predominant and competing forces of international political economy, including imperialism, world systems analysis, and political economy, theories, development, and introduction.

520 GLOBAL ENVIRONMENTAL POLITICS
3 credits
Prerequisites: 300, 310, or permission of instructor. Examines the general dimensions of the environmental challenge, including the role of politics and technology in the system world.

515 COMPARATIVE FOREIGN POLICY
3 credits
Prerequisites: 301 or 232 or permission. Study of foreign policies of selected nations, with special attention to processes and mechanisms of policy making of the major powers.

522 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 political forces of revolution.

525 LATIN AMERICAN POLITICS
3 credits
Prerequisite: permission of instructor. Examination of patterns of government and politics in Latin America.

540 SURVEY RESEARCH METHODS
3 credits
Prerequisite: 300 or permission. Study of survey research methods as applied to the analysis of public opinion, political behavior and public policy formation.

541 THE POLICY PROCESS
3 credits
Prerequisite: 301. Eight credits in political science or permission. Analysis of the role of policy processes, emphasizing the roles of various political actors in executive and legislative branches as well as private individuals and groups.

542 METHODS OF POLICY ANALYSIS
3 credits

561 THE SUPREME COURT AND CONSTITUTIONAL LAW
3 credits
Prerequisites: 100 or permission. Interpreta­tion of the Constitution by the Supreme Court with emphasis on federal judicial, legislative and executive powers, separation of powers, and federalism.

562 THE SUPREME COURT AND CIVIL LIBERTIES
3 credits
Prerequisites: 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 I
3 credits
Prerequisite: six credits of political science or permission. Reading, research and practice in campaign management.

571 CAMPAIGN MANAGEMENT II
3 credits
Prerequisite: 4700/4701. The second course in campaign management. Focus is on the timing, coalition building, candidate positioning, event planning, internal organization, and other elements of campaign strategy.

572 CAMPAIGN FINANCE
3 credits
Prerequisite: six credits of political science or permission. Reading and research in financial decision making in political campaigns.

573 VOTER CONTACT AND ELECTIONS
3 credits
Prerequisite: six credits of political science or permission. Theoretical and practical approach to voting in all types of political campaigns.

574 POLITICAL OPINION, BEHAVIOR AND ELECTORAL POLITICS
3 credits
Prerequisites: 100 or 232. Examination of psychological and cultural group process of opinion formation and change. Attention given to the effect of opinion change on voter behavior.

575 AMERICAN INTEREST GROUPS
3 credits
Prerequisite: six credits of political science or permission. Reading and research on the development, structure and function of interest groups in the United States.

576 AMERICAN POLITICAL PARTIES
3 credits
Prerequisite: six credits of political science or permission. Reading and research on the development, structure and function of parties in the United States.

580 POLICY PROBLEMS
3 credits
May be repeated for a total of six credits. Prerequisite: 480 or permission. Intensive study of selected problems in public policy.

590 WORKSHOP
1-3 credits
Prerequisite: permission of department. Group studies of special topics in political science. May not be used to meet undergraduate or graduate requirements in political science. Effective credit only.
600 SOME AND THEORIES OF POLITICAL SCIENCE 3 credits
Prerequisite: Six credits in political science or permission of instructor. Emphasis on the nature, scope and content of political theory, theory construction and validation in political science.

601 RESEARCH METHODS IN POLITICAL SCIENCE 2 credits
Prerequisite: Six credits of political science including 490 or a satisfactory equivalent or permission of the instructor. Techniques of quantitative research methodology in political science with 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 the theory and practice of politics and international relations.

620 SEMINAR IN COMPARATIVE POLITICS 3 credits
Prerequisite: Six credits of political science or permission. Residence selected topics in comparative politics. Emphasis on theories of political development.

625 SEMINAR IN POLITICS OF DEVELOPING NATIONS 3 credits
Prerequisite: Six credits of political science or permission. Selected topics in political science, viewed in a political context. Reading and research on selected topics.

630 SEMINAR IN NATIONAL POLITICS 3 credits
Prerequisite: Six credits of political science or permission. Reading and research on formation, development, and implementation of national policy in one or more areas of contemporary significance.

641 SEMINAR IN INTERGOVERNMENTAL RELATIONS 2 credits
Prerequisite: Six credits of political science or permission. Residence selected topics in intergovernmental relations. Emphasis on theories of political development.

650 SEMINAR IN CIVIL LIBERTIES AND THE JUDICIAL PROCESS 3 credits
Prerequisite: Six credits of political science or permission. Civil liberties and judicial process viewed in a political context. Readings and research on selected topics.

668 SEMINAR IN PUBLIC POLICY AGENDAS AND DECISIONS 2 credits
Prerequisite: Six credits of political science or permission. Reading and research on development of public policy issues and modes of decision-making used by policy makers.

670 SEMINAR IN THE ADMINISTRATIVE PROCESS 3 credits
Prerequisite: Six credits of political science or permission. Emphasis on analysis of administrative implementation of public policies. Readings and research on selected topics.

672 SEMINAR: POLITICAL INFLUENCE AND ORGANIZATIONS 2 credits
Prerequisite: Six credits of political science or permission. Identification and analysis of factors influencing decision-making and behavior of political parties, groups, public opinion, media, and voters.

680 SEMINAR IN URBAN AND REGIONAL POLITICS 3 credits
Prerequisite: Six credits of political science or permission. Emphasis on political science and political process. Focus on processes of policy formulation and execution in metropolitan community, with emphasis on structural-functional context.

690 ADVANCED TOPICS IN POLITICAL SCIENCE 1-3 credits
Prerequisite: Six credits of political science or permission. Graduate-level examination of selected topics in American politics, comparative politics, international politics, international law, and diplomatic relations.

695 INTERNSHIP IN GOVERNMENT AND POLITICS 3-6 credits (May be repeated for a total of six credits) Prerequisite: Permission of instructor. Graduate study in government and politics, including practical experience in political offices or departments, government agencies, law firms and other organizations providing professional work.

697 INDEPENDENT RESEARCH AND READINGS (May be repeated for a total of six credits) 1-4 credits
Prerequisite: Permission of instructor. Professional seminar required of new graduate students. May be repeated toward degree requirements. Covers discovery, secondary reading, research practice, career tracks and program selection. Graded credit/credit.

699 MASTER'S THESIS 2 credits
Prerequisite: Permission of instructor and instructor's permission. Research and writing required.

PSYCHOLOGY

3750:

500 PERSONALITY 4 credits
Prerequisite: Admission to the Graduate School. Consideration of current conceptualizations of the normal personality with emphasis on methods of measurement, experimental findings and research techniques.

510 PSYCHOLOGICAL TESTS AND MEASUREMENTS 4 credits
Prerequisite: Admission to the Graduate School. Consideration of the history, construction and use of tests and measurement in industry, government and education. Includes aptitude and achievement tests, rating scales, attitudes and opinion analysis.

520 ABNORMAL PSYCHOLOGY 4 credits
Prerequisite: Admission to the Graduate School. Survey of abnormalities, etiology, diagnosis and treatment of major psychological disorders ranging from transient involvements to personality disorders.

530 PSYCHOLOGICAL DISORDERS OF CHILDREN 4 credits
Prerequisite: Admission to the Graduate School. Survey of abnormalities, etiology, diagnosis and treatment of behavior disorders in children from the standpoint of developmental psychology. Behavioral data and treatment approaches emphasized.

543 HUMAN RESOURCE MANAGEMENT 4 credits
Prerequisite: Admission to the Graduate School. The application of psychological theory to the effect of management styles on individual performance. Includes recruitment, selection, training and retention of personnel.

544 ORGANIZATIONAL THEORY 4 credits
Prerequisite: Admission to the Graduate School. The application of psychological theory to -level processes in organizations including leadership, motivation, task performance, organizational, group and work research.

545 PSYCHOLOGY OF SMALL GROUP BEHAVIOR 4 credits
Prerequisite: Admission to the Graduate School. Intensive investigation of the behavior of small groups, including effects of personality, social structures, task, situation and social-cognitive variables.

550 COGNITIVE DEVELOPMENT 4 credits
Prerequisite: Admission to the Graduate School. Theory and research on lifespan changes in cognitive processes including concept formation/categorization, information processing and Piagetian assessment issues.

560 HISTORY OF PSYCHOLOGY 3 credits
Prerequisite: Admission to the Graduate School. Psychology in prescientific period and the development of psychology as a discipline. Research in modern period.

570 WORKSHOP IN PSYCHOLOGY 1-3 credits
Prerequisite: Admission to the Graduate School. May be repeated. May not be used to meet undergraduate or graduate major requirements in psychology. Group studies of special topics in psychology.

601 PSYCHOLOGICAL RESEARCH USING QUANTITATIVE AND COMPUTER METHODS I AND II 4 credits
Prerequisite: Permission of instructor. Graduate standing in psychology or joint doctoral program in counseling psychology or permission based on a psychology undergraduate major or an appropriate background for the course as determined by the instructor. Survey of statistical techniques and use of computers in behavioral research, group processes, systems theory and motivation, application of industrial/organizational psychology to industry. Business and government including organizational theory, differential psychology, personnel selection and training. Consumer behavior and experimental psychology, research methodology, applied psychometrics, professional and definitional issues. Topics are considered in an historical perspective.

620 PSYCHOLOGY CORE II: DEVELOPMENTAL, PERCEPTUAL AND COGNITIVE 4 credits
Prerequisite: Graduate standing in psychology or the joint doctoral program in counseling psychology or permission based on a psychology undergraduate major or an appropriate background for the course as determined by the instructor. Survey of the biological foundations of behavior, sensory psychology, perception, motivation and emotion, cognitive development, individual differences, personality theories, adaptive and maladaptive behaviors, counseling theories, research methods and professional issues within an historical perspective.

640 PSYCHOLOGY CORE IV: SENSORY, BIOPSYCHOLOGICAL AND EXPERIMENTAL 4 credits
Prerequisite: Graduate standing in psychology or the joint doctoral program in counseling psychology or permission based on a psychology undergraduate major or an appropriate background for the course as determined by the instructor. Survey of the biological foundations of behavior, sensory psychology, perception, motivation and emotion, cognitive development, individual differences, personality theories, adaptive and maladaptive behaviors, counseling theories, research methods and professional issues within an historical perspective.

650 GROUP COUNSELING 4 credits
Prerequisites: 610, 710 or 560/563/465 or permission of instructor. Emphasis is placed on the knowledge and understanding of theory, research and techniques necessary for conducting group counseling sessions.

661 PRACTICUM IN COUNSELING PSYCHOLOGY 3 credits
Prerequisite: 610, 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.

722 COUNSELING PRACTICUM 4 credits
Prerequisites: 550, 671, graduate standing in psychology and permission of instructor. Emphasis is placed on the knowledge and understanding of theory, research and techniques necessary for conducting group counseling sessions.

723 COUNSELING PRACTICUM II 4 credits
Prerequisites: 610, 671, 672, graduate standing in psychology and instructor's permission. Supervised experience with clients in the psychology department Counseling Clinic. Training consists of observation, assessment and case management skills.

741 PERSONNEL PRACTICUM 4 credits
May be repeated. Prerequisites: 610, graduate standing in psychology, 4 credits of graduate psychology and departmental permission. Supervised field experience in industrial/organizational settings including business, government, and educational organizations. Practical experience requires the application of industrial/organizational psychological theories and techniques.

765 APPLIED COGNITIVE AGING PRACTICUM 4 credits
May be repeated. Prerequisites: 610, graduate standing in psychology, 4 credits of graduate psychology and departmental permission. Supervised field experience in applied cognitive aging psychology to provide the student with the opportunity to apply skills and knowledge in the academic setting to obtain knowledge about community programs and agencies which focus on developmental processes.

695 MASTER'S THESIS 1-4 credits
Prerequisite: Graduate departmental permission. Research analysis of data and presentation of thesis for master's degree.

700 SURVEY OF PROJECTIVE TECHNIQUES 3 credits
Prerequisites: 610 or instructor's permission. Introduction to rationale, assumptions and techniques of projective testing. Elementary administration, scoring and interpretation of projective test results.

720 PSYCHODIAGNOSTICS 4 credits
Prerequisite: 500. Application of psychological testing to problems of diagnosis and evaluation. Practical experience in administration, scoring and interpretation. Integration of projective techniques with other methods of assessment.

746 CURRENT ISSUES IN COUNSELING 3 credits
Prerequisite: 610. Advanced study of the background, theoretical foundations, techniques, research and applications of career and vocational psychology in a science and professional context.

747 SUPERVISION IN COUNSELING PSYCHOLOGY I 3 credits
Prerequisite: doctoral standing or permission of instructor. Instruction and experience in supervising a graduate student in counseling psychology or in another related field.

748 THEORIES OF COUNSELING AND PSYCHOTHERAPY 3 credits
Prerequisite: 610 or departmental permission. Major theories of individual psychotherapy explored in a philosophy of science framework, Freudian, behavioral, Rogerian, cognitive, and other. Includes research, contemporary problems and ethics.
711 VOCATIONAL BEHAVIOR
Prerequisites: 120 or departmental permission. Emphasis on classification and vocational counseling. Topics include: major theories of vocational behavior, empirical research on these theories, applied work in vocational counseling and related areas. Lecture. 4 credits

712 PRINCIPLES AND PRACTICE IN PERSONALITY TESTING
Prerequisite: 640 or departmental permission. Principles and methodology of intelligence testing. Supervised practice in administration, scoring, and interpretation of intelligence tests for children and adults. 4 credits

713 ADVANCED SEMINAR IN COUNSELING PSYCHOLOGY
Prerequisite: 620 or departmental permission. Examination of major issues in the counseling process and supervision of counseling. 4 credits

714 OBJECTIVE PERSONALITY EVALUATION
Prerequisite: 620 or equivalent. Examination of the process of personality evaluation. Prerequisites: 620 or departmental permission. 4 credits

715 RESEARCH DESIGN IN COUNSELING
Prerequisites: 620 or departmental permission. Study of research design. Evaluation procedures and review of current research. 4 credits

716 CHILD PSYCHOLOGY
Prerequisite: 620 or departmental permission. Current research in child psychology, with some emphasis on cognitive development. Topics include language, memory, intelligence, hyperactivity, and related educational and social issues. 4 credits

717 PSYCHOLOGY OF ADULTHOOD AND AGING
Prerequisite: 620 or departmental permission. Contemporary review of research and theory in language and memory. Process-oriented approach adapted with emphasis on development issues. 4 credits

718 APPLIED COGNITIVE AGING: INFORMATION PROCESSING
Prerequisite: 620, 721, and graduate standing in psychology or departmental permission. Perce- 4 credits

719 APPLIED COGNITIVE AGING: HIGHER PROCESSES
Prerequisite: 620, 727, and graduate standing in psychology or departmental permission. Memory, consciousness, decision-making, and problem-solving. Analysis of the effects on areas such as environmental design, mobility, independence, and cultural effects. 4 credits

720 APPLIED OBJECTIVE AGING RESEARCH
Interdisciplinary analysis in gerontological area. Design and execution of a complete research study. May be repeated. 4 credits

721 THE PSYCHOLOGY OF MENTAL RETARDATION
Prerequisite: 620 or graduate standing in psychology or permission of instructor. Current knowledge about the changes and development of retarded individual is examined. The first half of the course is a broad survey of theoretical approaches to retardation and retardation-effects on behavior. Topics include: the biological, psychological, and social aspects of retardation and retardation-effects on behavior. 4 credits

722 APPLIED DEVELOPMENTAL PSYCHOLOGY
Prerequisites: 620 and graduate standing in psychology or departmental permission. Examination of the theoretical and empirical aspects of child development. Lecture and seminar. 4 credits

723 SURVEY OF COUNSELING METHODS
Prerequisites: 620 and 623. Graduate standing in psychology or permission of instructor. An examination of the counseling process through a survey of the major theoretical orientations. Lecture and seminar. 4 credits

726 ORGANIZATIONAL PSYCHOLOGY
Prerequisite: 620 or departmental permission. Study of the organizational setting with emphasis on individual behavior in organizations. Topics include: motivation, learning, and stress. 4 credits

727 COMPUTER APPLICATIONS IN PSYCHOLOGICAL RESEARCH
Prerequisite: 620 and graduate standing in psychology of permission of instructor. 4 credits

728 ROLE OF ATTITUDES AND VALUES IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY
Prerequisite: 620 and graduate standing in psychology or departmental permission for other students who have completed 620. Survey of theories of motivation specifying both the intrinsical and extrinsic determinant of individual behavior in the workplace. 4 credits

729 ORGANIZATIONAL MOTIVATION AND LEADERSHIP
Prerequisites: 620 and graduate standing in psychology or departmental permission for other students who have completed 620. Study of theories of motivation specifying both the intrinsical and extrinsic determinant of individual behavior in the workplace. 4 credits

730 JOB EVALUATION AND SALARIES
Prerequisites: 620 and graduate standing in psychology or permission for other students who have completed 620. Survey of methods of salary determination. 4 credits

731 INFORMATION PROCESSING AND INTEGRAL/PSYCHOLOGICAL PSYCHOLOGY
Prerequisites: 620, 630, and 640. Coverage of current theories in cognitive psychology applied to educational and psychological settings such as classroom instruction. 4 credits

732 GRADUATE SEMINAR IN PSYCHOLOGY
May be repeated. Prerequisites: graduate standing in psychology or departmental permission. Special topics such as personality, motivation, and cognition. 4 credits

733 ADVANCED COUNSELING PRACTICUM
May be repeated. Prerequisites: 671, 672, 673 and permission of instructor. This course provides graduate students in counseling with actual client contacts and supervision experiences under faculty supervision. 4 credits

734 COUNSELING PSYCHOLOGY PRACTICUM
May be repeated. Prerequisites: 751 or 755. Internship experience. 4 credits

735 INDEPENDENT READING AND/OR RESEARCH
May be repeated. Prerequisites: permission of instructor. Independent reading and/or research in topic determined by the instructor. 3 credits

736 DOCTORAL DISSERTATION
May be repeated. Prerequisites: permission of instructor. Independent reading and/or research in topic determined by the dissertation committee. 3 credits

SOCIOLGY 3850:

593 HISTORY OF SOCIOLOGICAL THOUGHT
Prerequisite: 100 or permission. Examination of major thinkers in the classical sociological tradition. Lecture. 3 credits

594 CONTEMPORARY SOCIOLOGICAL THEORIES
Prerequisite: 200 or permission. Examination of contemporary theories in the sociological tradition. 3 credits

595 SOCIAL STRUCTURES AND PERSONALITY
Prerequisite: 100 or permission. Interrelationships between position in society, personality characteristics, and social status. 3 credits

596 SOCIAL INTERACTION
Prerequisite: 100 or permission. Theory and research on social interaction. Lecture. 3 credits

597 SOCIALIZATION CHILD TO ADULT
Prerequisites: 200 or permission. Theoretical and empirical analysis of the socialization process from birth to adulthood. Lecture. 3 credits

598 SOCIAL AND ETHNIC RELATIONS
Prerequisite: 100. Prerequisites: 100 or permission. Analysis of social structure and dynamics of ethnic relations from a variety of perspectives emphasizing both individual and social influences. 3 credits

599 THE SOCIALIZATION OF WOMEN
Prerequisites: 100 or permission of instructor. Examination of research and theory relating to women’s status in society, including economic conditions, the relationship between social change and social policy, and other relevant issues. 3 credits

590 SOCIOLOGY OF URBAN LIFE
Prerequisite: 100 or permission. Management and development of urban society. Examination of the way in which social structure and social processes influence urban issues. 3 credits

591 THE VICTIM IN SOCIETY
Prerequisite: 100 or permission of instructor. Study of the nature, causes, and consequences of victimization with special focus on crime victimization. 3 credits

COURSES OF INSTRUCTION 83
ANTHROPOLOGY

3870:

505 HISTORY AND THEORY IN ANTHROPOLOGY
3 credits
Prerequisite: 150 or permission. Survey of theories and problems in social and cultural anthropology, with emphasis on development, methods of inquiry, and contemporary theoretical perspectives.

555 CULTURE AND PERSONALITY
3 credits
Prerequisite: 150 or permission. Examination of functional and causal relationships between culture and individual cognition and behavior. Lecture.

557 CULTURE AND MEDICINE
3 credits
Prerequisite: 150 or permission. Analysis of various aspects of Western and non-Western medical systems from an anthropological perspective. Crosslists with several medical schools.

561 LANGUAGE AND CULTURE
3 credits
Prerequisite: 150 or permission. Examination of language structure and interaction of language, cognition, and culture. Lecture and discussion.

563 SOCIAL ANTHROPOLOGY
3 credits
Prerequisite: 150 or permission. Comparative structural analysis of non-Western systems of kinship and social organization; analysis of status roles, nested relationships, nuclear and extended households, and other kinds of groupings. Lecture.

572 SPECIAL TOPICS: ANTHROPOLOGY
1-3 credits
May be repeated. Prerequisites: 150 or permission. Designed to meet needs of students with interests in selected topics in anthropology. Offered irregularly when resources and opportunities permit. May include anthropological field school, laboratory research, or advanced course work not presently offered by department on a regular basis.

594 WORKSHOP IN ANTHROPOLOGY
1-3 credits
May be repeated. Group studies of special topics in anthropology. Not to be used to meet departmental undergraduate or graduate major requirements. May be used for elective credit only.

595 SEMINAR IN ANTHROPOLOGICAL THEORIES AND METHODS
3 credits
Major theoretical viewpoints in cultural anthropology: nature, scope of research problems, and methods in field work. Seminar.

597 INDIVIDUAL INVESTIGATION
1-3 credits
Prerequisites: permission of instructor and head of department. Independent study in area of interest, with permission of instructor and head of department. May be repeated.

PUBLIC ADMINISTRATION AND GOVERNMENTAL STUDIES

3980:

590 WORKSHOP
3 credits
May be repeated. Group studies of special topics in public administration. Not to be used to meet major requirements in urban studies. May be used for elective credit only.

591 BASIC ANALYTICAL RESEARCH
3 credits
Prerequisite: permission. Emphasizes basic framework of social science research methodology, including research design and statistical techniques useful in urban studies.

593 ADVANCED RESEARCH AND STATISTICAL METHODS
3 credits
Prerequisite: 150 or equivalent. Advanced study in the scientific knowledge base of major research designs and multivariate statistical techniques.

594 AMERICAN URBAN DEVELOPMENT
3 credits
Examination of major trends in processes of urbanization in the United States and selected states of urban institutional development.

595 LEGAL FOUNDATIONS OF PUBLIC ADMINISTRATION
3 credits
Prerequisite: permission. Examination of the legal foundations and concepts of public administration, including the interaction of the course public organizations, public administration, and the public.

596 INTRODUCTION TO THE PROFESSION OF PUBLIC ADMINISTRATION
3 credits
Prerequisite: permission. Introduction to the theory and practice of the field of public administration. Foundation course for later MPA study.

597 NATIONAL URBAN POLICY
3 credits
Prerequisite: permission. Major federal policies that relate to urban problems examined in regard to policy-making processes, implementation, and impact.

598 INTERGOVERNMENTAL MANAGEMENT
3 credits
Prerequisite: permission. Emphasis on the field of intergovernmental relations as it applies to urban administration and management.

599 ETHICS AND PUBLIC SERVICE
3 credits
Prerequisite: permission. Examination of the ethical problems and implications of decisions and policies made by those whose actions influence the public. Course studies of decision making in both the public government and private business (and the professionals) spheres, with a focus on practical ethics and the development and understanding of ethical values.

599 PUBLIC ORGANIZATION THEORY
3 credits
Prerequisites: 591 and 600 or equivalent. Examines the development of public organizational theory and the current status of theoretical developments in the public administration field.

601 PERSONNEL MANAGEMENT IN THE PUBLIC SECTOR
3 credits
Prerequisites: 600 or equivalent. Study of personnel and administration, including recruitment, selection, training, motivation, evaluation, labor relations, and affirmative action.

602 LEADERSHIP AND DECISION-MAKING
3 credits
Examination of the concepts of public administrative management including relevant organizational theories, strategic management and planning, and public sector management.

603 CITIZEN PARTICIPATION
3 credits
Prerequisite: permission. Emphasizes the nature, function, and impact of citizen participation in urban planning.

604 SOCIAL SERVICES PLANNING
3 credits
Prerequisite: permission. In-depth analysis of social services requirements and various ways in which social services planning function is carried out in urban communities.
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

623 PUBLIC WORKS ADMINISTRATION
Prerequisite: permission. Examines the building, maintenance and management of public works. 3 credits

635 PARKS AND RECREATION
Prerequisite: permission. Deals with theory, policy, evaluation of recreational administration, parks planning. 3 credits

640 FISCAL ANALYSIS
Prerequisite: permission. Study of revenue and expenditure patterns of the city's government. 3 credits

641 URBAN ECONOMIC GROWTH AND DEVELOPMENT
Prerequisite: permission. Examination of urban economic unit and its susceptibility to social, economic, political and physical change. 3 credits

642 PUBLIC BUDGETING
Prerequisite: permission. Current professional practice and theoretical issues in public budgeting and management of capital and operating budgets. 3 credits

653 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

655 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

670 RESEARCH FOR FUTURES PLANNING
Prerequisites: 600 and 691 and completion of eight credits of core curriculum in urban studies. An overview of the techniques associated with the field of futures research and their application to long-term urban planning. 3 credits

671 PROGRAM EVALUATION IN URBAN STUDIES
Prerequisite 600 or equivalent. Considerations appropriate for conducting evaluations of a wide variety of urban and human service programs and policies affecting urban and metropolitan areas. 3 credits

672 ALTERNATIVE URBAN FEATURES
Overview of topics and issues associated with alternative urban futures and their implications for planning and public policy in urban communities. 3 credits

673 COMPUTER APPLICATIONS IN PUBLIC ORGANIZATIONS
Prerequisite: 600 and 691. Introduction to microcomputer applications in the public sector, including data entry, statistical analysis, report writing, graphic representation, and spreadsheets. 3 credits

674 ANALYTICAL TECHNIQUES FOR PUBLIC ADMINISTRATORS
Prerequisite: 600. Public sector applications of quantitative methods, including decision analysis, queuing theory, mathematical programming, and simulation. 3 credits

680 SELECTED TOPICS IN URBAN STUDIES
Prerequisite: permission. Selected topics in specific areas of urban planning, in various developmental processes of cities, and in various urban policy and administrative issues. (A maximum of 27 credits may be claimed in 680 and 681.) 3-9 credits each

690 URBAN STUDIES SEMINAR
Prerequisites: 16 credits of urban studies core plus quantitative methods. Urban research methods applied to specific urban research area. Comprehensive paper required. 3 credits

695 INTERNSHIP
(Prerequisite: permission. Faculty-supervised work experience in which student participates in public service and administrative operations in selected urban, state and federal governments and urban agencies. 3 credits

697 INDIVIDUAL STUDIES
May be repeated for a total of four credits. Directed individual readings or research on specific area or topic. 1-3 credits

699 MASTER'S THESIS
Prerequisite: permission. Supervised thesis writing. (May be repeated for a total of nine credits.) 1-9 credits

706 ADVANCED RESEARCH METHODS I
Prerequisite: permission. Master's level statistics or permission. Introduction to statistical techniques and methodologies in doctoral and postdoctoral research. Emphasis on conceptually and mathematically sophisticated applications. 3 credits

707 ADVANCED RESEARCH METHODS II
Prerequisite: 600 or equivalent. Continuation of 700. Emphasis placed upon conceptual and mathematical development of various statistical techniques as well as application of these techniques through computer analysis of urban data sets. 3 credits

708 URBAN THEORY I
Prerequisite: permission. Review of major theoretical tradition examining urban problems, for students entering the doctoral program in urban studies first time course sequence. 3 credits

709 URBAN THEORY II
Prerequisite: 708. Review of major professional disciplines dealing with urban problems, for students entering the doctoral program in urban studies second time course sequence. 3 credits

716 PUBLIC BUREAUCRACY
Prerequisite: permission. Analysis of bureaucratic operations in the implementation of public policy, including special entities of human service organizations and the democratic theory debate. 3 credits

717 ECONOMICS OF URBAN POLICY
Prerequisite: satisfactory level knowledge of macroeconomics and microeconomics or special permission. Use of research tools of economic analysis to examine options available to urban policymakers in the generation of public services and economic development of cities. 3 credits

718 PROGRAM EVALUATION
Prerequisite: permission. Advanced treatment of topics in program evaluation. 3 credits

719 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

720 URBAN POLICY: THE HISTORICAL PERSPECTIVE
Prerequisite: permission. Critical examination of major ideas about the city from Aristotle to the 20th Century and the impact on urbanization in society and public policy. 3 credits

721 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
4200:

**CHEMICAL ENGINEERING**

561 **SOILS PROCESSING**
3 credits
Prerequisites: 321 and 353 or permission. Comprehensive problems in soil adduction, dewatering, dewatering and other operations involving mechanics of particulate solids in liquid and gas continua.

563 **POLLUTION CONTROL**
3 credits
Prerequisite: 353 or permission. Air and water pollution sources and problems. Engineering aspects and methodology.

566 **DIGITIZED DATA AND SIMULATION**
2 credits
Prerequisite: permission. Data acquisition and analysis by digital devices, digital control applications, and design.

570 **ELECTROCHEMICAL ENGINEERING**
3 credits
Prerequisites: 321, 324. Chemical engineering principles as applied to the study of electrochemical processes and to the design of electrochemical reactors. Topics include electrochemical thermodynamics, cell polarizations, Faraday’s laws, electrode kinetics, transport processes in electrochemical systems, cell design, reactor design, experimental methods, commercial processes, and battery applications.

572 **SEPARATION PROCESSES IN BIOCHEMICAL ENGINEERING**
3 credits
Prerequisite: 323. Introduction to the separation and purification techniques pertinent to biochemical processes, emphasized on the engineering considerations for large-scale operations.

600 **TRANSPORT PHENOMENA**
3 credits
Prerequisite: 227. Discussion of general theories of thermodynamics and their application. Prediction and correlation of thermodynamic data. Phase and reaction equilibria, and analogies.

605 **CLASSICAL THERMODYNAMICS**
3 credits
Prerequisite: 105B. Discussion of laws of thermodynamics and their application. Prediction and correlation of thermodynamic data. Phase and reaction equilibria, and analogies.

622 **BIOPHYSICAL ENGINEERING**
2 credits
Application of chemical engineering principles to biological processes which produce desirable compounds or destroy unwanted or hazardous substances.

630 **CHEMICAL ENGINEERING**
3 credits
Prerequisite: 320. Development and solutions of mathematical models for chemical processes including models based on transport phenomena principles, population balance methods, and systems analysis.

631 **CHEMICAL ENGINEERING ANALYSIS**
3 credits
Prerequisites: 321, 225, 326. Mathematical analysis of problems in transport processes, chemical engineering control systems, fluid mechanics, and chemical engineering systems. Solution techniques for these problems and their practical significance will be given for necessary theory development.

632 **NONLINEAR DYNAMICS AND CHAOS**
3 credits
Prerequisite: 34502B. Description and analysis of complex behavior exhibited by nonlinear dynamical systems. Emphasis is on the numerical methods to quantify chaos.

633 **APPLIED SURFACIENT SCIENCE**
3 credits
Prerequisite: 610. The basics of surfactant science, the chemical engineering appreciation of surfactants, and their role in polymerization, media separations, emulsions, micelle formation, and a mechanical model.

635 **ADVANCED POLYMER ENGINEERING**
3 credits
Prerequisite: 322 or permission. Reactors for polymerization, polymer characterization and processing, polymer rheology, polymer fabrication.

640 **ADVANCED PLANT DESIGN**
3 credits
Prerequisite: 325. Permission. Typical treatment of process and equipment design. Scale-up, optimization, process synthesis, process economics, case problems.

670 **HETEROGENOUS CATALYSIS**
3 credits
Prerequisite: 220. Kinetics and mechanisms of heterogeneous and homogeneous catalytic reactions, characterization and design of heterogeneous catalysts.

696 **TOPICS IN CHEMICAL ENGINEERING**
1-3 credits (May be repeated for a total of six credits).
Prerequisite: permission. Topics selected from new and developing areas of chemical engineering, such as electrochemical engineering, catalytic, chemical analysis, and material science processes. 500-level non-credit Project.

698 **MASTER’S RESEARCH**
1-3 credits (May be repeated for a total of six credits).
Prerequisite: Permission of advisor. (May be repeated.) Research on a suitable topic in chemical engineering culminating in a master’s thesis.

699 **MASTER’S THESIS**
1-3 credits (May be repeated for a total of six credits).
Prerequisite: permission of advisor. (May be repeated.) Research on a suitable topic in chemical engineering culminating in a master’s thesis.

701 **ADVANCED TRANSPORT PHENOMENA**
3 credits
Prerequisite: 600. Advanced theory of transport phenomena such as aerosol, liquid, and solid reactions. Emphasis is on transport phenomena. 600-level non-credit Project.

702 **MULTIPHASE TRANSPORT PHENOMENA**
3 credits
Prerequisite: 320. General transport theorem, kinematics, Cough’s lemmas, and the cap buoyancy conditions are derived. Characterized by the theory of volume averaging. The governing equations are then volume averaged to obtain the multiphase equations of change. The technique for using these equations and their practical significance is also covered.

704 **ADVANCED REACTION ENGINEERING**
3 credits
Prerequisite: 600. Kinetics of heterogeneous reactions, steady and unsteady-state mathematical modeling of chemical reactors, fuel design, and additional topics drawn from current literature.

111 **ADVANCED CHEMICAL ENGINEERING THERMODYNAMICS**
3 credits
Prerequisite: 700. Advanced topics in thermodynamics, including phase and reaction equilibria, at high pressures, phase equilibrium for multicomponent systems, reaction equilibrium in multicomponent systems, thermodynamics of surfaces under stress, nonequilibrium thermodynamics and current topics from literature.

115 **MOMENTUM TRANSPORT**
3 credits
Prerequisite: 700. Discussions of potential flow, boundary layer flow and turbulent flow phenomena for Newtonian fluids.

116 **NON-NEWTONIAN FLUID MECHANICS**
3 credits
Prerequisite: 700. Topics in and coupled coordinate Newtonian viscometry. Development of non-Newtonian constitutive equations. Special and general flows of various constitutive models.

720 **ENERGY TRANSPORT**
3 credits
Prerequisite: 700. Conduction, natural forced convection, and radiation heat transfer starting with equations of continuity, motion, and energy.

721 **TOPICS IN ENERGY TRANSPORT**
3 credits
Prerequisite: 700. Advanced experimental and graphical methods for solving complex heat transfer problems found in chemical engineering.

125 **MASS TRANSFER**
3 credits
Prerequisite: 600. Theory of mass transfer with applications to absorption, adsorption, distillation, and heterogeneous multiphase systems.

711 **PROCESS CONTROL**
3 credits
Prerequisite: 620. Introduction to modern control theory of chemical processes including cascade control, multivariable control and data-sampled control.

786 **POLYMER ENGINEERING TOPICS**
3 credits
Prerequisite: permission. Selected topics of current interest in polymer engineering, such as modeling of polymer processes, multiple step processes, and fiber spinning.

788 **ADVANCED SIMULATION**
3 credits
Prerequisite: 620. Advanced simulation of the design and production of chemical processes, analysis of process control, and data-sampled control.

794 **PRELIMINARY RESEARCH**
1-15 credits
Prerequisite: 788. Preliminary research in a selected research area for one semester.

898 **DOCTORAL DISSERTATION**
1-30 credits
Prerequisite: 788. Preliminary research in a selected research area for one semester.

4300:

**CIVIL ENGINEERING**

514 **DESIGN OF EARTH STRUCTURES**
3 credits (2 lecture – 1 lab)
Prerequisite: Course 343. Basic principles of structural analysis. Cross sections of earth structures, stress analysis, design of structural elements, soil-structure interaction, and analysis of construction equipment.

515 **SOIL AND ROCK EXPLORATION**
3 credits
Prerequisite: 344 or permission. Site exploration criteria and planning. Conventional boring, sampling, and soil testing methods. Theory and application of geophysical methods including seismic, sonic, electrical, seismic, gravity, magnetic, and radiometric measurements. Air photo interpretation.

523 **CHEMISTRY FOR ENVIRONMENTAL ENGINEERS**
3 credits (2 lecture – 1 lab)
Prerequisite: Course 343. Basic principles of structural analysis. Cross sections of earth structures, stress analysis, design of structural elements, soil-structure interaction, and analysis of construction equipment.

526 **ENVIRONMENTAL ENGINEERING DESIGN**
3 credits
Prerequisite: 323. An introduction to the physical and chemical processes utilized in the treatment of water and wastewater, with design parameters emphasized.

527 **WATER QUALITY MODELING AND MANAGEMENT**
3 credits
Prerequisite: 323. An introduction to the physical and chemical processes utilized in the treatment of water and wastewater, with design parameters emphasized.

528 **Hazardous and Solid Wastes**
3 credits
Prerequisite: 323. An introduction to the physical and chemical processes utilized in the treatment of water and wastewater, with design parameters emphasized.

534 **APPLIED HYDRAULICS**
3 credits
Prerequisite: 324. Review of design principles, urban hydraulics, steam channel mechanics, sedimentation, coastal engineering.

561 **COMPUTER METHODS OF STRUCTURAL ANALYSIS**
3 credits
Prerequisite: 324. Review of design principles, urban hydraulics, steam channel mechanics, sedimentation, coastal engineering.

565 **OPTIMUM STRUCTURAL DESIGN**
3 credits
Prerequisite: 324. Review of design principles, urban hydraulics, steam channel mechanics, sedimentation, coastal engineering.
688 DYNAMICS OF ELECTRIC MACHINES 3 credits
Prerequisites: graduate status in Electrical Engineering. Voltage and mechanical differential equations of electric machines and analytical and numerical methods for solution of a system of nonlinear differential equations.

687 POWER ELECTRONICS II 3 credits
Prerequisites: 4390 or equivalent. Effects of the nonlinearities of the power circuit components of direct current systems. Modulation, inverters and rectifiers, chopper circuits, converters, and the design of advanced power electronic circuits.

604 CONTROL OF ELECTRIC MACHINES 3 credits
Prerequisites: graduate status in Electrical Engineering. Elements of control circuits for electric machines. Computer-aided control of electric machines.

608 POWER SEMICONDUCTOR DEVICES 3 credits
Prerequisites: graduate status in Electrical Engineering. Structure and physics of power semiconductor devices. Bipolar transistor junctions, MOSFET, Thyristors. Power MOS bipolar (BETC) design. Fundamentals on the issues that characterize these devices from the lower power to the power devices.

693 SPECIAL PROBLEMS 1-3 credits
May be taken more than once. Prerequisite: permission of department head. For a qualified graduate student. Supervised research or investigation in student major field. Credit depends upon nature and extent of project.

698 MASTER'S RESEARCH 1-6 credits
Prerequisite: Permission of advisor. May be repeated. Research on a suitable topic in electrical engineering culminating in a master's thesis.

699 MASTER'S THESIS 1-6 credits
Prerequisites: permission of department head. Research and thesis on some suitable topic in electrical engineering.

749 FUNCTIONAL ANALYTIC METHODS IN SYSTEM THEORY 3 credits
Prerequisites: 610 and 611. Introduction to advanced techniques in control theory. Topics include application of functional analytic tools to functional analytic and optimization problems.

753 TOPICS IN ELECTROMAGNETICS 3 credits
Prerequisites: 611, 612. Introduction to advanced topics in electromagnetics. Topics include functional analytic tools to functional analytic and optimization problems.

702 MODEL REDUCTION TECHNIQUES FOR CONTROL SYSTEMS 3 credits
Prerequisite: 617 or permission of the instructor. Classical, modern, and control techniques for general systems. Reduced order system design.

744 ADVANCED LINEAR CONTROL SYSTEMS 3 credits
Prerequisites: 617, 618 or equivalent. Covers topics related to the design of robust control systems. The synthesis of controllers which yield stable closed-loop systems will be considered. Special emphasis will be given to the design of robust control systems.

705 ROBUST CONTROL 3 credits
Prerequisite: 617, 619. Input-output and state-space characteristics of robust control systems, and design techniques based on the algebraic Riccati equation. Deterministic and reliable control design methodologies.

706 OPTIMAL CONTROL II 3 credits
Prerequisites: 617, 619. Advanced state-feedback optimal control. Output-feedback issues, closed-loop transfer recovery, optimal observer design, reduced-order controllers, frequency weighting, and decentralized control.

714 ADAPTIVE CONTROL 3 credits
Prerequisite: 617, 619. Adaptive state-feedback optimal control. Output-feedback issues, closed-loop transfer recovery, optimal observer design, reduced-order controllers, frequency weighting, and decentralized control.

779 ADVANCED TOPICS IN CONTROL 3 credits
Prerequisite: 777. Distributions of recent advances in control systems.

784 ADVANCED SEMINAR 1-3 credits
Prerequisite: 617, 619. Lectures on recent advances in control systems.

898 PRELIMINARY RESEARCH 1-6 credits
May be repeated. Prerequisite: approval of dissertation director. Preliminary research prior to submission of a dissertation proposal to the Interdisciplinary Doctoral Committee.

899 DOCTORAL DISSERTATION 1-6 credits
May be repeated. Prerequisite: acceptance of research proposal by the Interdisciplinary Doctoral Committee and approval of the dissertation director. Original research by the doctoral student.

1010 COMPUTER ALGORITHMS I 3 credits
Prerequisites: 4000 and 4250. Clustering of scientific and engineering problems for computer solutions. Analysis of error and convergence properties of algorithms.

611 COMPUTER ALGORITHMS II 3 credits
Prerequisites: 610 or permission. Data structures and algorithm design for minimum execution time and memory requirements.

620 FLOAT-TO-TOLERANT COMPUTING 3 credits
Prerequisite: 333 or equivalent. This course emphasizes the many aspects of fault-tolerant computing and covers reliability, fault-tolerance, fault-tolerant design techniques, quantitative evaluation methods, testing, and design for reliability.

642 ADVANCED KNOWLEDGE ENGINEERING 3 credits
Prerequisite: 661 or equivalent. Advanced study of knowledge acquisition and expert system development based on neural networks.

661 COMPUTER ALGORITHMS II 3 credits
Prerequisites: 610 or permission. Data structures and algorithm design for minimum execution time and memory requirements.

662 FRAME-BASED EXPERT SYSTEM DESIGN 3 credits
Prerequisites: 481, 541 or equivalent. Introduction to the design and development of frame-based expert systems.

681 SPECIAL PROBLEMS 1-3 credits
May be taken more than once. Prerequisite: permission of department head. For a qualified graduate student. Supervised research or investigation in student major field. Credit depends upon nature and extent of project.

794 ADVANCED SEMINAR 1-3 credits
May be taken more than once. Prerequisite: permission of department head. Advanced level coverage of various topics. Interdisciplinary for student seeking Ph.D. in engineering.

MECHANICAL ENGINEERING 4450:

500 THERMAL SYSTEM COMPONENTS 3 credits
Prerequisites: 304, 310, 375. Analysis and design of basic components of thermal energy exchange and conversion systems. Includes heat exchangers, pumps, compressors, turbines and expansion engines.

510 HEATING AND AIR CONDITIONING 3 credits
Prerequisites: 310, 315. Thermodynamics of gas mixtures. Design and selection of air conditioning systems. Control of gas mixtures, heating, cooling, and humidification.

511 COMPRRESSIBLE FLUID MECHANICS 3 credits
Prerequisites: 301, 310. Supersonic and hypersonic flows. Application of the Euler and Navier-Stokes equations to heat transfer and aerodynamics. Design considerations are emphasized.

512 FUNDAMENTALS OF FLIGHT 3 credits
Prerequisites: 301 and 310. Introduction to the design of aircraft. Theories of flight, lift, drag, and stability. Modern aerodynamic and propulsion design concepts are emphasized.

513 INTRODUCTION TO AERODYNAMICS 3 credits
Prerequisites: 301 and 310. Introduction to the design of aircraft. Theories of flight, lift, drag, and stability. Modern aerodynamic and propulsion design concepts are emphasized.

514 INTRODUCTION TO AEROSPACE PROPULSION 3 credits
Prerequisites: 301 and 310. Introduction to propulsion systems currently used in the aerospace field. Propulsion principles for turboshaft, turbojet, ramjet, chemical rockets, and electrical rocket propulsion.

515 ENERGY CONVERSION 3 credits
Prerequisites: 301, 310. Topics from fields of internal combustion engines, cycle analysis, modern conversion devices.

516 ENERGY TRANSFER PROCESSES 3 credits
Prerequisites: 335. Analysis of exergy of systems. Convective, conductive, and radiation heat transfer. Heat transfer in magnetohydrodynamic systems.

522 EXPERIMENTAL STRESS ANALYSIS I 3 credits

530 MACHINE DESIGN 3 credits
Prerequisite: 321. Static and dynamic forces in machines, products of inertia, dynamic equilibrium of forces. Analysis of stress concentration, stress and strain gauges, photoelasticity.

533 FUNDAMENTALS OF MECHANICAL VIBRATIONS 3 credits
Prerequisites: 304 and 4250.235. Undamped and forced vibrations of systems having one or two degrees of freedom.

565 MECHANICAL SYSTEMS DESIGN AND CONTROL 3 credits
Prerequisite: 431 or permission. Application of dynamic system analysis techniques to mechanical systems. Determination of dynamic behavior and stability of mechanical systems.

566 ELECTROMECHANICAL SYSTEMS DESIGN AND CONTROL 3 credits
Prerequisite: 431. Design and analysis of electromechanical systems. Design of control systems for mechanical systems.

570 INDUSTRIAL AUTOMATIC CONTROL 3 credits
Prerequisite: 440 or equivalent. Design and analysis of control systems for mechanical systems. Design of control systems for mechanical systems.

571 OPTIMIZATION METHODS IN MECHANICAL ENGINEERING 3 credits
Prerequisite: 300. Development and methodology of optimization problems in mechanical engineering. Use of dynamic programming and optimization methods for mechanical engineering problems.

574 ROBOT DESIGN, CONTROL, AND APPLICATION 3 credits
Prerequisites: 321, 440 or equivalent. Design and control of robotic systems. Kinematic transformations, velocities and accelerations, sensors, control systems and design considerations.

590 COMPUTER ARCHITECTURE 3 credits
Prerequisites: 4000 and 4250. Clustering of scientific and engineering problems for computer solutions. Analysis of error and convergence properties of algorithms.
BIOMEDICAL ENGINEERING

4800:

601 BIOMEDICAL INSTRUMENTATION I
Prequisites: 300 561, 562, and 4400 232 or 4400 320. Clinical instrumentation in surgery and physiology and instrument analysis. Physical parameters experienced through the use of biomedical instruments.

611 BIOMEDICAL INSTRUMENTATION II
Prequisites: 4400 232 or equivalent. Clinical and experimental design for the biological and biomedical instrumentation.

612 PHYSICAL MEASUREMENTS
Prequisites: 4400 232 or equivalent. Clinical and experimental design for the biological and biomedical instrumentation.

621 SENSORY SYSTEMS ANALYSIS
Prequisites: 4400 232 or equivalent, or by permission. Study of sensory systems and techniques. Sensory systems and techniques. Sensory systems and techniques.

630 Cryoanaesthesia
Prequisites: 4400 232 or equivalent. Clinical and experimental design for the biological and biomedical instrumentation.

631 PHYSICAL CONTROL SYSTEMS
Prequisites: 4400 232 or equivalent. Clinical and experimental design for the biological and biomedical instrumentation.

632 PROCESSING OF BIOMEDICAL SIGNALS
Prequisites: 4400 232 or equivalent. Clinical and experimental design for the biological and biomedical instrumentation.

633 MEDICAL IMAGING DEVICES
Prequisites: 4400 232 or equivalent. Clinical and experimental design for the biological and biomedical instrumentation.

634 PHYSIOLOGICAL CONTROL SYSTEMS
Prequisites: 4400 232 or equivalent. Clinical and experimental design for the biological and biomedical instrumentation.

635 PHYSIOLOGICAL CONTROL SYSTEMS
Prequisites: 4400 232 or equivalent. Clinical and experimental design for the biological and biomedical instrumentation.

636 IMAGING PROCESSING FOR MEDICAL DATA
Prequisites: 4400 232 or equivalent. Clinical and experimental design for the biological and biomedical instrumentation.

640 SPINE MECHANICS
Prequisites: 300 561 or equivalent, 4400 232 or equivalent. Clinical and experimental design for the biological and biomedical instrumentation.

641 SOFT CONNECTIVE TISSUE BIOMECHANICS
Prequisites: 300 561 or equivalent, 4400 232 or equivalent. Clinical and experimental design for the biological and biomedical instrumentation.
### College of Education

#### EDUCATIONAL FOUNDATIONS 5100:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites/Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>521</td>
<td>DESIGN AND PREPARATION OF INSTRUCTIONAL MATERIALS</td>
<td>2 credits</td>
<td>20 clinical hours, Design, adaptation and preparation of instructional materials for teaching, classroom organization, and materials development.</td>
</tr>
<tr>
<td>516</td>
<td>ORGANIZING AND SUPERVISING EDUCATIONAL MEDIA PRODUCTIONS</td>
<td>3 credits</td>
<td>Prerequisite: Permission of instructor. Procedures for planning, organizing, and evaluating educational media programs, including media facilities and services.</td>
</tr>
<tr>
<td>520</td>
<td>INTRODUCTION TO INSTRUCTIONAL COMPUTING</td>
<td>3 credits</td>
<td>Examine the use of word processing, slide shows, databases, graphics, telecommunication systems, and software and hardware in educational settings.</td>
</tr>
<tr>
<td>500</td>
<td>EDUCATIONAL INSTITUTES</td>
<td>1-4 credits</td>
<td>Special course designed as an instance upgrading program.</td>
</tr>
<tr>
<td>504</td>
<td>PHILOSOPHY OF EDUCATION</td>
<td>2 credits</td>
<td>Examination of basic philosophical problems underlying educational questions.</td>
</tr>
<tr>
<td>522</td>
<td>COMPARATIVE AND INTERNATIONAL EDUCATION</td>
<td>3 credits</td>
<td>Comparative study of selected national school systems with reference to forces that shape their characteristics.</td>
</tr>
<tr>
<td>604</td>
<td>TOPICAL SEMINAR IN THE CULTURAL FOUNDATIONS OF EDUCATION</td>
<td>3 credits</td>
<td>(May be repeated for a total of six credits.) Prerequisite: Permission of instructor. In-depth study of topics in the field.</td>
</tr>
<tr>
<td>616</td>
<td>ADULT EDUCATION</td>
<td>3 credits</td>
<td>Survey courses for teachers and administrators. Historical background and influences related to development of the field.</td>
</tr>
<tr>
<td>620</td>
<td>BEHAVIORAL Bases of EDUCATION</td>
<td>3 credits</td>
<td>Prerequisite: ED 230 or equivalent. Introduction to scientific study of learning and development.</td>
</tr>
<tr>
<td>625</td>
<td>SEMINAR: EDUCATIONAL PSYCHOLOGY</td>
<td>3 credits</td>
<td>Prerequisite: ED 250 or equivalent. In-depth study of research in selected areas of learning, development, evaluation, and motivation.</td>
</tr>
<tr>
<td>630</td>
<td>TOPICAL SEMINAR IN COMPUTER-BASED EDUCATION</td>
<td>3 credits</td>
<td>Prerequisite: AD 306. Advanced topics relating to development, implementation, and evaluation in C.B.E. Student enrollment depends on availability of topics.</td>
</tr>
<tr>
<td>636</td>
<td>TOPICAL SEMINAR IN EDUCATIONAL TECHNOLOGY</td>
<td>3 credits</td>
<td>(Repeatable for up to six credits.) Current trends and practices in educational technology. Paper and presentation.</td>
</tr>
<tr>
<td>640</td>
<td>TECHNIQUES OF RESEARCH</td>
<td>3 credits</td>
<td>Research methods and techniques commonly used in the field of educational technology.</td>
</tr>
<tr>
<td>642</td>
<td>TOPOCAL SEMINAR IN MEASUREMENT AND EVALUATION</td>
<td>3 credits</td>
<td>(May be repeated for a total of six credits. Prerequisite: ED 336. Development of measurement and evaluation techniques.)</td>
</tr>
<tr>
<td>646</td>
<td>MULTICULTURAL COUNSELING</td>
<td>3 credits</td>
<td>Prerequisite: ED 600 or permission of instructor. An examination of multicultural counseling theory and research necessary to work with culturally diverse people.</td>
</tr>
<tr>
<td>648</td>
<td>INDIVIDUAL AND FAMILY DEVELOPMENT ACROSS THE LIFESPAN</td>
<td>2 credits</td>
<td>A course in the role of the family in individual and family development.</td>
</tr>
<tr>
<td>653</td>
<td>FIELD EXPERIENCE: MASTERS</td>
<td>13 credits</td>
<td>Prerequisite: Permission of department head and instructor. Area determined in accordance with student's program and professional goals.</td>
</tr>
<tr>
<td>697</td>
<td>INDEPENDENT STUDY</td>
<td>1.5 credits</td>
<td>Prerequisite: Permission of department head and instructor. Specific area of study determined in accordance with student's program and professional goals.</td>
</tr>
<tr>
<td>700</td>
<td>SPECIAL PROBLEM</td>
<td>2 credits</td>
<td>Prerequisite: Permission of advisor. In-depth study of a problem in the field.</td>
</tr>
<tr>
<td>701</td>
<td>HISTORY OF EDUCATION IN AMERICAN SOCIETY</td>
<td>2 credits</td>
<td>Historical development of education in American society.</td>
</tr>
<tr>
<td>702</td>
<td>SEMINAR: HISTORY AND PHILOSOPHY OF HIGHER EDUCATION</td>
<td>3 credits</td>
<td>Prerequisite: ED 600 or equivalent. History and philosophy related to the development of higher education in the United States.</td>
</tr>
</tbody>
</table>

### ELEMENTARY EDUCATION 5200:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites/Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>511</td>
<td>CREATIVE TECHNIQUES FOR EXPLORING CHILDREN'S LITERATURE</td>
<td>2 credits</td>
<td>Prerequisite: ED 288. Examination of techniques for interpretation of children's literature including storytelling, creative dramatics, theater, and music.</td>
</tr>
<tr>
<td>535</td>
<td>ACTIVITIES TO INDIVIDUAlize SOCIAL STUDIES</td>
<td>2 credits</td>
<td>Prerequisite: ED 336. Development of materials and activities for teaching special education, communication, developmental disabilities, and cultural diversity.</td>
</tr>
<tr>
<td>536</td>
<td>GEOMETRY AND MEASUREMENT IN ELEMENTARY SCHOOL MATHEMATICS</td>
<td>3 credits</td>
<td>Prerequisite: ED 336. Trends in geometry and measurement instruction in elementary school.</td>
</tr>
<tr>
<td>538</td>
<td>MATERIALS AND LABORATORY TECHNIQUES IN ELEMENTARY SCHOOL MATHEMATICS</td>
<td>3 credits</td>
<td>Prerequisite: ED 336. Applied mathematics. Construction and application of mathematical models.</td>
</tr>
<tr>
<td>539</td>
<td>PROPERTIES OF NUMBERS IN ELEMENTARY SCHOOL MATHEMATICS</td>
<td>3 credits</td>
<td>Prerequisite: ED 336. Investigation of those properties of numerals that help children learn arithmetic concepts.</td>
</tr>
<tr>
<td>540</td>
<td>CONTEMPORARY ELEMENTARY SCHOOL SCIENCE PROGRAMS</td>
<td>2 credits</td>
<td>Prerequisite: ED 332. Contemporary elementary school science programs critically analyzed and their potential for curriculum development and implementation.</td>
</tr>
<tr>
<td>500, 501, 523</td>
<td>WORKSHOP</td>
<td>3 credits</td>
<td>Elective workshop for elementary education majors who would pursue further refinement of teaching skills.</td>
</tr>
<tr>
<td>594</td>
<td>EDUCATIONAL INSTITUTES</td>
<td>1-4 credits</td>
<td>Special courses designed as service upgrading programs.</td>
</tr>
<tr>
<td>602</td>
<td>LITERATURE FOR YOUNG CHILDREN</td>
<td>2 credits</td>
<td>Literature for children ages two through six examined in depth in terms of value and purpose, methods and techniques for presenting it, pedagogy, and quality of book available.</td>
</tr>
<tr>
<td>603</td>
<td>CURRICULUM, CURRICULAR AND INSTRUCTION</td>
<td>2 credits</td>
<td>Application of findings of recent research on curriculum, instruction, and methodology.</td>
</tr>
<tr>
<td>604</td>
<td>ELEMENTARY EDUCATION</td>
<td>2 credits</td>
<td>Prerequisite: ED 402. Integration of materials and activities for teaching special education, communication, developmental disabilities, and cultural diversity.</td>
</tr>
<tr>
<td>605</td>
<td>THEORY AND PRACTICE IN ELEMENTARY SCHOOL MATHEMATICS</td>
<td>2 credits</td>
<td>Prerequisite: ED 336. Trends in geometry and measurement instruction in elementary school.</td>
</tr>
<tr>
<td>606</td>
<td>DIAGNOSIS AND TREATMENT OF PERFORMANCE DIFFICULTIES IN ELEMENTARY SCHOOL MATHEMATICS</td>
<td>2 credits</td>
<td>Prerequisite: ED 336. Examination of implications of contemporary mathematics learning theory on diagnostic and instructional models.</td>
</tr>
<tr>
<td>607</td>
<td>PROBLEMS IN ELEMENTARY SCHOOL EDUCATION</td>
<td>2 credits</td>
<td>Examination of influences of new curricula designs on elementary science.</td>
</tr>
<tr>
<td>610</td>
<td>EDUCATION AND THE YOUNG CHILD</td>
<td>2 credits</td>
<td>Content centered on educational settings of young children from birth through five years.</td>
</tr>
</tbody>
</table>
READING

5250:

517 MATERIALS AND ORGANIZATIONS FOR READING INSTRUCTION
3 credits
Prerequisite: 5200.325. Professional problems of selection and evaluation of reading materials and classroom organization for elementary, middle, and secondary schools.

540 DEVELOPMENTAL READING IN THE CONTENT AREAS - ELEMENTARY
2 credits
Prerequisite: 517. Skills for reading in the content areas of the elementary classroom.

541 LANGUAGE AND ITS RELATIONSHIP TO READING IN THE ELEMENTARY SCHOOL
3 credits
Prerequisite: 5200.307. An introduction to the linguistic process of reading in the elementary school. The nature of language and reading as processes and the role of the teacher.

547 TEACHING READING TO DIFFERENTLY ABLE LEARNERS
3 credits
Prerequisite: 5200.325. A study of how to teach reading to students with special needs. This course is designed for persons who work with students with disabilities.

580 TRENDS IN READING INSTRUCTION
2 credits
Prerequisite: 5200.325 or 5200.425. Survey course designed to update reading background of students who have not had a recent course in reading.

581 DIAGNOSIS AND CORRECTION OF READING PROBLEMS
2 credits
Prerequisite: 517. The identification and correction of reading problems in the classroom setting.

582 CLINICAL PRACTICES IN READING
5 credits
Prerequisite: 517. Clinical practicum in reading in the classroom setting.

583 READING DIAGNOSIS FOR SCHOOL PSYCHOLOGISTS AND SUPPORT PERSONNEL
3 credits
Prerequisite: 5200.325. A course for school psychologists and other support personnel on the diagnosis of reading disorders.

592 ADVANCED STUDY AND RESEARCH IN READING INSTRUCTION
2 credits
Survey of research and evaluation of programs, design, and development of projects in reading through individual study.

595 SUPERVISION AND CURRICULUM DEVELOPMENT IN READING INSTRUCTION
2 credits
Supervision of reading classes and programs by university personnel.

SECONDARY EDUCATION

5300:

525 ADVANCED MICROCOMPUTER APPLICATIONS IN THE SECONDARY SCHOOLS
3 credits
Prerequisite: 5250.20. This course will cover the use of microcomputer applications in the secondary schools. Emphasis will be placed on the integration of computer technology into the instructional process.

530 INSTRUCTIONAL AND MANAGEMENT PRACTICES
3 credits
Prerequisite: 5200.325. A continuation of the study of the instructional process and the management of secondary schools.

535 CONCEPTS AND CURRICULUM DESIGNS IN ECONOMIC EDUCATION
3 credits
Prerequisite: 530. An examination of the concepts and designs of economic education in the secondary schools.

570 CORPORATE BUSINESS EDUCATION
2 credits
Prerequisite: 5200.325. A study of the principles and techniques of business education.

590, 591, 592 WORKSHOP
1-3 credits
Prerequisite: 5200.325. Workshops related to secondary education.

594 EDUCATIONAL INSTITUTES
1-6 credits
Prerequisite: 5200.325. Workshops related to secondary education.

599 SECONDARY SCHOOL CURRICULUM AND INSTRUCTION
2 credits
Prerequisite: 5200.325. A study of the development and implementation of curriculum and instruction in the secondary schools.

625 READING PROGRAMS IN SECONDARY SCHOOLS
3 credits
Prerequisite: 5200.325. An examination of the development and implementation of reading programs in the secondary schools.

630 ADVANCED INSTRUCTIONAL TECHNIQUES IN BOOKKEEPING - ACCOUNTING AND BASIC BUSINESS SUBJECTS
3 credits
Prerequisite: 5200.325. An examination of the advanced instructional techniques in bookkeeping and basic business subjects.

631 INTENSIVE EXPERIENCE IN SPECIAL AREAS
2 credits
Prerequisite: 5200.325. An intensive experience in the special areas of the secondary schools.

632 ADVANCED INSTRUCTIONAL TECHNIQUES IN TYPOGRAPHY AND TYPENETWORKING
3 credits
Prerequisite: 5200.325. An examination of the advanced instructional techniques in typography and typenetworking.

633 ADVANCED INSTRUCTIONAL TECHNIQUES IN THE COMPUTER AGE
3 credits
Prerequisite: 5200.325. An examination of the advanced instructional techniques in the computer age.

650 FIELD EXPERIENCE: MASTERS
10 credits
Prerequisite: 5200.325. Field experience in the secondary schools.

651 INDEPENDENT STUDY
1-3 credits
Prerequisite: 5200.325. Independent study in the secondary schools.

657 MASTER'S PROGRAM
3 credits
Prerequisite: 5200.325. A study of the masters program in secondary education.

671 SUPERVISION OF INSTRUCTION IN THE ELEMENTARY SCHOOL
2 credits
Prerequisite: 5200.325. A study of the supervision of instruction in the elementary school.

672 SUPERVISION OF TEACHERS IN THE SECONDARY SCHOOLS
2 credits
Prerequisite: 5200.325. A study of the supervision of teachers in the secondary schools.

673 PROJECT IN SECONDARY SCHOOLS
2 credits
Prerequisite: 5200.325. A project in secondary schools.

674 RESIDENCY SEMINAR
1 credit
Prerequisite: 5200.325. A seminar for secondary school teachers.

696 FIELD EXPERIENCE: DOCTORAL
2 credits
Prerequisite: 5200.325. Field experience in the secondary schools.

697 INDEPENDENT STUDY
1-3 credits
Prerequisite: 5200.325. Independent study in the secondary schools.

698 DOCTORAL DISSERTATION
1-6 credits
Prerequisite: 5200.325. A study of the doctoral dissertation in the secondary schools.

699, 700, 701, 702 WORKSHOP
1-3 credits
Prerequisite: 5200.325. Workshops related to secondary education.

TECHNICAL AND VOCATIONAL EDUCATION

5400:

500 THE POSTSECONDARY LEARNER
3 credits
Prerequisite: 5200.325. A study of the characteristics of the postsecondary learner and the factors that influence his or her decision to enter postsecondary education.

501 THE TECHNICAL SCHOOL LEARNER
3 credits
Prerequisite: 5200.325. A study of the characteristics of the technical school learner and the factors that influence his or her decision to enter technical school education.

502 THE VOCATIONAL SCHOOL LEARNER
3 credits
Prerequisite: 5200.325. A study of the characteristics of the vocational school learner and the factors that influence his or her decision to enter vocational school education.

503 THE VOCATIONAL SCHOOL ADMINISTRATOR
3 credits
Prerequisite: 5200.325. A study of the role of the vocational school administrator in the management of vocational schools.

504 THE VOCATIONAL SCHOOL INSTRUCTOR
3 credits
Prerequisite: 5200.325. A study of the role of the vocational school instructor in the management of vocational schools.

505 THE VOCATIONAL SCHOOL CURRICULUM DEVELOPMENT
3 credits
Prerequisite: 5200.325. A study of the role of the vocational school curriculum developer in the management of vocational schools.

506 THE VOCATIONAL SCHOOL ASSESSMENT AND EVALUATION
3 credits
Prerequisite: 5200.325. A study of the role of the vocational school assessor and evaluator in the management of vocational schools.

507 THE VOCATIONAL SCHOOL RESEARCH AND DEVELOPMENT
3 credits
Prerequisite: 5200.325. A study of the role of the vocational school researcher and developer in the management of vocational schools.

508 THE VOCATIONAL SCHOOL MANAGEMENT
3 credits
Prerequisite: 5200.325. A study of the role of the vocational school manager in the management of vocational schools.

509 DOCTORAL DISSERTATION
1-6 credits
Prerequisite: 5200.325. A study of the doctoral dissertation in technical and vocational education.

510, 511, 512 WORKSHOP
1-3 credits
Prerequisite: 5200.325. Workshops related to technical and vocational education.
505 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 all major 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 impact of the training function in the modern industrial setting. Provides a foundation for students planning to become an industrial training supervisor or training manager.

531 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 and on field tests, measurements, various communication methods.

532 CURRICULUM DEVELOPMENT IN TECHNICAL EDUCATION
2 credits
Procedure of developing an occupational curriculum. Emphasis on the importance of career development in technical education.

533 MASTER'S DEVELOPMENT TECHNICAL EDUCATION LAB
1 credit
Prerequisite: permission of Technical Education Program or permission of instructor. Cooperative 530. The development of a curriculum for a technical postsecondary program.

535 INSTRUCTIONAL TECHNIQUES IN TECHNICAL EDUCATION
4 credits
Prerequisite: 530. Selected topics in instructional techniques appropriate to post-secondary 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 preparing in teaching and preparing for a specialization in educational gerontology, including person responsible for development and implementation of course, seminars, educational training programs and workshops for older people.

551 HOME ECONOMICS JOB TRAINING
3 credits
Prerequisite: senior standing or permission of instructor. Selects, designs, develops, program development, operational procedures, skill and knowledge identification, training profiles, job description and analysis. Individualized study guide. Field work and job observation.

590, 591 WORKSHOP: OUTDOOR EDUCATION
3 credits each
Individual work under staff guidance on curriculum problems, utilization of community resources, field study, etc.

594 EDUCATIONAL INSTITUTES
1-14 credits
Special courses designed as credit or non-credit, problems, help provided with the support of individual faculty.

610 COMMUNICATION WITH BUSINESS AND INDUSTRY
2 credits
Techniques of establishing better communications between education and business and industry. Emphasis on the various functions and cooperation in the community.

620 CURRENT ISSUES IN HIGHER EDUCATION
2 credits
May be repeated with change in topic. Examination of many current problems and issues in the higher education field. Emphasis on the filters and tools of the problems. (This course counts as one of the Perspectives.)

630 EDUCATIONAL LEADERSHIP
2 credits
Prerequisites: permission of advisor. In-depth study of a research problem in education. Individualized study guide. Field work and job observation. May be repeated with change in topic.

632 MASTER'S PROBLEM SEMINAR
2 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 a professional manner.

639 MASTER'S THESIS
4 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 a professional manner.

OUTDOOR EDUCATION 5560:

5560 APPLICATION OF OUTDOOR EDUCATION TO THE SCHOOL CURRICULUM
4 credits
Provides knowledge, skills and techniques useful in application of outdoor education to school curriculum.

572 ADVANCED EXPERIENCES AND RESOURCE MANAGEMENT FOR THE TEACHING OF OUTDOOR EDUCATION
4 credits
Resources and instructional techniques which are applicable to outdoor education, and important studies and methods, and their role in teaching.

5566 OUTDOOR Pursuits
4 credits
Investigation and participation in practical experiences in outdoor pursuits.

5569 WORKSHOP: OUTDOOR EDUCATION
2-4 credits
Prerequisite: permission of instructor or related professional experience in outdoor education. Emphasis on the role and importance of outdoor education in personal development.

5574 EDUCATIONAL INSTITUTES: OUTDOOR EDUCATION
2 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 a professional manner.

OUTDOOR EDUCATION 5550:

5580 FOUNDATIONS AND ELEMENTS OF ADAPTED PHYSICAL EDUCATION
3 credits
Principles, components and strategies relative to identifying needs and providing motor activities for handicapped students. Application taught to meet the needs of the adults. Three hour lecture.

5591 ADVANCED ATHLETIC INJURY MANAGEMENT
4 credits (3-clinical, 1 laboratory)
Prerequisites: 200-218-228. Advanced athletic training techniques for the student desiring to become a certified athlete. Rewarding the regulations of the National Athletic Trainers Association.

5592 THERAPEUTIC MODALITIES AND EQUIPMENT IN SPORTS MEDICINE
3 credits (3-clinical, 1 laboratory)
Prerequisites: 300-209-208. Purpose is to develop therapeutic techniques and skills among athletes and trains in their selection and implementation of therapeutic modalities and equipment used in the rehabilitation of injuries to athletes.

5591 ASSESSMENT AND EVALUATION OF ADAPTED PHYSICAL EDUCATION
3 credits (1-clinical, 2-laboratory)
Prerequisite: permission of instructor. Assessment and evaluation of adapted physical education for handicapped students. Three hour lecture.

5594 MOTOR DEVELOPMENT OF SPECIAL POPULATIONS
3 credits
Prerequisite: permission of advisor. Task analysis essential to structuring activity sequences for motor skills and lifetime fitness activities for handicapped children. Three hour lecture.
EDUCATIONAL GUIDANCE AND COUNSELING

CAREER EDUCATION 1, 2 credits
Excellent junior, senior, or graduate training. Examination of career education models and programs with emphasis on union of career education activities, in-service, and secondary curricula.

COUNSELING PROBLEMS RELATED TO LIFE-THREATENING ILLNESS AND DEATH 3 credits
Prerequisite: permission. Consideration of the global issues, current research, coping behavior, and support systems and family and individual needs in regard to life-threatening situations.

COUNSELING PROBLEMS RELATED TO LIFE-THREATENING ILLNESS AND DEATH 3 credits
Prerequisite: permission. Consideration of the global issues, current research, coping behavior, and support systems and family and individual needs in regard to life-threatening situations.

TOPICAL SEMINAR 3 credits
Prerequisite: permission. Seminar on a topic of current interest in the profession. A maximum of 8 credits may be applied to a degree.

INTRODUCTION TO COUNSELING 3 credits
Understanding guidance and counseling principles including organization, operation and evaluation of guidance programs (designed for non-counseling majors).

COUNSELING SKILLS FOR TEACHERS 3 credits
Prerequisite: 630 or 460 or permission. The study and practice of selected counseling techniques that can be applied to teachers in working with students, parents, and colleagues.

COUNSELING SKILLS FOR TEACHERS 3 credits
Prerequisite: 630 or 460 or permission. The study and practice of selected counseling techniques that can be applied to teachers in working with students, parents, and colleagues.

COMMUNITY COUNSELING 3 credits
Overview of community and college counseling services; their evaluation, philosophy, organization, and administration.

COUNSELING THEORY AND PHILOSOPHY 3 credits
Examination of major counseling theories including client-centered, behavioral and existential theories. Philosophical and theoretical dimension stressed.

TESTS AND APPRAISAL IN COUNSELING 3 credits
Prerequisite: 630 or 460 or permission. A course in descriptive statistics and permission of the instructor. Study of the nature of tests and appraisal in counseling including reliability, validity, test construction and selection, administration, scoring, and basic interpretation of selected measures.

MULTICULTURAL COUNSELING 3 credits
Prerequisite: 642 or permission of instructor. An examination of multicultural counseling theory and research necessary to work with culturally diverse people.

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 career choice, and implementation are discussed.

INDIVIDUAL AND FAMILY DEVELOPMENT ACROSS THE LIFE SPAN 3 credits
An exploration of individual and family development. Emphasis will be placed on understanding the relationship between the individual and the family.

COUNSELING PERSONNEL SERVICES IN HIGHER EDUCATION 3 credits
Prerequisite: 630 or permission. An examination of the role of counselor in the counseling process as related to psychological needs and problems of the college student.

TECHNIQUES OF COUNSELING 3 credits
Prerequisite: 642 or permission. A study and practice of selected counseling techniques and skills with emphasis on structuring, listening, leading, and establishing a counseling relationship.

GROUP COUNSELING 3 credits
Prerequisite: 630 or permission. A course in group counseling for college students as related to psychological needs and problems of the college student.

MARRIAGE AND FAMILY COUNSELING THEOLOGY AND TECHNIQUES 3 credits
An overview of the role of families and marital therapy. Emphasis will be placed on providing the student with the knowledge and understanding of theory, research and techniques necessary for conducting group counseling sessions.

CONSULTANT: COUNSELING 3 credits
Prerequisite: 630 or permission. An examination of consultation models with focus on process and product.

ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES 3 credits
Prerequisite: 630 or permission. Development of an organizational and consultation guidance and counseling program.

SEMINAR IN GUIDANCE 2 credits
Prerequisite: 642, 643, 645, and 657. Primary models for understanding and modifying children's behavior in classrooms including technique development and review of guidance materials and programs.

SEMINAR IN SCHOOL COUNSELING 2 credits
Prerequisite: 630, 643, 645, and 646. Study of specific guidance techniques and materials useful to counselors working with the secondary school student, teacher and parents.

SEMINAR IN COUNSELING PRACTICE 3 credits
Prerequisite: 630 or permission. Study of topics of concern to a student specializing in community and college counseling. Topics may differ each semester according to student needs.

MARTIAL THERAPY 3 credits
Prerequisite: 630. In-depth study of marital and intervention when focus on the nature and quality of marital relationships.

SYSTEMS THEORY IN FAMILY THERAPY 3 credits
Prerequisite: 630. In-depth exploration of systems theory in family therapy. May be repeated and the implications for interventions will be extended.

PRACTICUM IN COUNSELING I 3 credits
Prerequisite: 630. Supervised counseling experience with individuals and small groups.

PRACTICUM IN COUNSELING II 2 credits
Prerequisite: 630. Supervised counseling experience with groups.

INTERNSHIP IN COUNSELING 4 credits
Prerequisite: 630. Supervised counseling experience with groups.

FIELD EXPERIENCE 3 credits
Prerequisite: permission of adviser and department head. Placement in selected setting for practice of acquiring experiences and demonstrating skills related to student's counseling program.

INDEPENDENT STUDY 1-3 credits
Prerequisite: permission of instructor. May be repeated for a total of 4 credits. May be repeated for credit if the student needs have changed.

Masters PROGRAM 3 credits
Prerequisite: permission of adviser in-depth study of a research problem in counseling. Students must have at least 3 credits in counseling or related field.

The University of Akron
SPECIAL EDUCATION

5610:

540 DEVELOPMENTAL CHARACTERISTICS OF EXCEPTIONAL INDIVIDUALS
Identification, development, and treatment procedures for atypical children and youth in both regular and special education facilities.

541 DEVELOPMENTAL CHARACTERISTICS OF THE MENTALLY RETARDED
A survey of the etiology, prognosis, classification, and developmental characteristics of individuals with mental retardation and developmental disabilities. This course will include individuals classified at all levels of mental retardation, mild, moderate, severe, and profound.

542 DEVELOPMENTAL CHARACTERISTICS OF THE SPECIFIC LEARNING DISABLED
3 credits
Prerequisite: 440/540. Survey of etiology, diagnosis, classification and developmental characteristics of learning disabled individuals.

543 DEVELOPMENTAL CHARACTERISTICS OF INTELLECTUALLY GIFTED INDIVIDUALS
2 credits

545 DEVELOPMENTAL CHARACTERISTICS OF ORTHOPAEDICALLY HANDICAPPED INDIVIDUALS
2 credits
Prerequisite: 440/540. Ecology, diagnosis, classification, developmental characteristics of the orthopedically handicapped individual.

546 DEVELOPMENTAL CHARACTERISTICS OF THE SEVERE BEHAVIORALLY HANDICAPPED
3 credits
Ecology, identification, developmental characteristics of the severely and emotionally disturbed individual.

560 SPECIAL EDUCATION PROGRAMMING: EARLY CHILDHOOD
3 credits
Typical and special developmental characteristics of children aged 0-3. Assessment and implementation of individualized educational plans aligning with the Children's Developmental Needs Survey and individualized education programs.

561 SPECIAL EDUCATION PROGRAMMING: ELEMENTARY LEVEL
3 credits
Prerequisite: 440/540. Educator's Guide in regard to age-appropriate teaching strategies, assessment, and evaluation, including how to meet the needs of elementary level exceptional children.

565 SPECIAL EDUCATION PROGRAMMING: SECONDARY/VOCATIONAL
3 credits
Prerequisite: 440/540. Specialized content for teaching individuals with special needs in secondary and vocational settings.

566 SPECIAL EDUCATION PROGRAMMING: SEVERE BEHAVIORALLY HANDICAPPED
3 credits
Prerequisites: 440/540. This course will provide guidance in teaching severely behaviorally handicapped individuals with severe and profound disabilities.

567 SPECIAL EDUCATION PROGRAMMING: ORTHOPAEDICALLY HANDICAPPED
3 credits
Prerequisite: 440/540. Study of programs, services, and educational experiences designed to accommodate developmental patterns of orthopedically handicapped individuals.

568 DISCIPULINARY PROGRAMMING IN SPECIAL EDUCATION
3 credits
Prerequisite: permission of instructor. A study of the interdisciplinary models used to accommodate the needs of exceptional individuals.

550 COMMUNICATION AND CONSULTATION WITH PARENTS AND PROFESSIONALS
3 credits
Prerequisite: 440/540. Provides the prospective special education teacher with skills in communication and consultation with parents of exceptional individuals and other professionals.

561 TECHNOLOGY AND MATERIALS APPLICATION IN SPECIAL EDUCATION
3 credits
Prerequisite: 510/610. Focus on the integration of technology and materials within the special education curriculum.

562 EDUCATING EXCEPTIONAL CHILDREN IN THE REGULAR CLASSROOM
3 credits
For non-special education majors, teaching and administrative personnel in the field. This course focuses on the skills and competencies needed by regular educators in working successfully with exceptional children.

563 ASSESSMENT IN SPECIAL EDUCATION
3 credits
Prerequisite: 440/540. Focuses on the student's need to select, administer, and interpret formal and informal assessment procedures and use data to develop an educational program for exceptional children.

565 NEUROMUSCULAR ASPECTS OF PHYSICAL DISABILITIES
3 credits
Prerequisite: 440/540. Provides the student with a basic knowledge of the neuro-musculoskeletal system and its impact on the functioning of movement and behavior.

566 SPECIAL PROGRAMMING FOR EXCEPTIONAL INDIVIDUALS
3 credits
Prerequisite: 440/540. This course will familiarize the student with the processes of special education programming for exceptional children.

567 CLASSROOM BEHAVIOR MANAGEMENT
3 credits
Prerequisite: 440/540. Focuses on the implementation of behavior management strategies in the classroom.

569 ADVANCED BEHAVIOR MANAGEMENT
3 credits
Prerequisite: 440/540. This course provides techniques for remediating problem behaviors and implementing effective interventions.

570 CLINICAL PRACTICUM IN SPECIAL EDUCATION
3 credits
Prerequisite: Permission of instructor. This course provides a supervised, clinical practicum opportunity in a special education setting.

575 SEMINAR: INVITATIONAL STUDIES IN SPECIAL EDUCATION
1-2 credits
May be repeated for a total of four credits. Topical study with a varied array of discipline-related topics. Staffing will be selected from the areas of special education.

SCHOOL PSYCHOLOGY

5620:

590 WORKSHOP
1-2 credits
Prerequisite: permission of instructor. Topics vary. Specific topical experience provided periodically as resources become available.

591 WORKSHOP
1-2 credits
Prerequisite: permission of instructor. Topics vary. Specific topical experience provided periodically as resources become available.

594 SCHOOL PSYCHOLOGY INSTITUTES
3 credits
Undergraduate credit. Specialized training in a single area.

580 COGNITIVE FUNCTION MODELS FOR DESCRIPTIVE EDUCATIONAL PLANNING
3 credits
Prerequisite: permission of instructor. Consideration of cognitive development theories and their application for educational programming.

582 BEHAVIORAL ASSESSMENT
3 credits
Prerequisite: permission of instructor. Overview of behavioral theory and its application focusing upon the role of the school psychologist as an agent of behavior change.

583 STUDENT TRAINING PRACTICE IN SCHOOL PSYCHOLOGY
3 credits
Prerequisite: permission of instructor. Observation and participation of consultant roles in the practice of school psychology as related to consultation process and with school and agency personnel, parents and children.

584 EDUCATIONAL DIAGNOSIS FOR SCHOOL PSYCHOLOGISTS
3 credits
Prerequisite: permission of instructor. Focus on the assessment process and its application to educational programming.

585 PRACTICUM IN SCHOOL PSYCHOLOGY
3 credits
Prerequisite: permission of instructor. Observation and participation in educational experiences in psycho-educational evaluation of individual children who have learning problems in school. (Repeatable)

600 SEMINAR SPECIAL EDUCATION CURRICULUM PLANNING
3 credits
Prerequisite: certification in an area of special education. Study of curriculum planning practices and procedures in special education settings.

602 SUPERVISION OF INSTRUCTION
3 credits
Prerequisite: certification in an area of special education. Study of administration and supervision techniques in special education classrooms.

603 ASSESSMENT AND EDUCATIONAL PROGRAMMING
3 credits
Prerequisite: certification in an area of special education. Study of educational programming based on formal and informal assessment procedures.

604 EDUCATION AND MANAGEMENT STRATEGIES FOR PARENTS OF EXCEPTIONAL INDIVIDUALS
3 credits
Prerequisite: certification in special education and/or permission of instructor. Study of working with parents to facilitate effective programs for handicapped individuals.

605 PROGRAM DEVELOPMENT AND SERVICE DELIVERY SYSTEMS
3 credits
Prerequisite: certification in special education and/or permission of instructor. Study of community services and development of program strategies and service delivery systems to serve the handicapped.

606 RESEARCH DESIGN AND PRACTICE IN SPECIAL EDUCATION
3 credits
Prerequisite: 590/690. An in-depth practice of qualitative research, single subject design, and methodology in the design of research and its application to special populations.

610 SEMINAR ISSUES IN SPECIAL EDUCATION
3 credits
Prerequisite: 25 hours of graduate study in special education and/or permission of instructor. Seminar for graduate students in special education to study and reflect upon current trends, issues, and practices.

611 WORKSHOP: TEACHING SEMINAR
1 credit
Taken concurrently with Student Teaching. Review and discussion of issues raised during teaching experience.

612 STUDENT TEACHING: SCHOOL ACOLOGY
6 credits
Prerequisite: Permission of advisor. Directed teaching under supervision of a special teacher and a University supervisor.

613 STUDENT TEACHING: SPEECH PATHOLOGY
6 credits
Prerequisite: Permission of advisor. Directed teaching under supervision of a special teacher and a University supervisor.

614 RESEARCH PROJECT IN SPECIAL AREA (SCHOLARLY PAPER)
3 credits
May be repeated for a total of 12 credits. Designed to provide the opportunity for a special education program on an individual basis.

615 INDEPENDENT STUDY
1-3 credits
May be repeated for a total of nine credits. Prerequisites: permission of advisor and supervision of a special teacher and a University supervisor. Area of investigation determined in accordance with student's needs.

616 MASTER'S THESIS
2 credits
Prerequisite: Permission of advisor. Directed study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in selected area.

617 MASTER'S THESIS
2 credits
Prerequisite: Permission of advisor. Directed study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in selected area.

618 MASTER'S THESIS
2 credits
Prerequisite: Permission of advisor. Directed study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in selected area.

619 MASTER'S THESIS
2 credits
Prerequisite: Permission of advisor. Directed study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in selected area.

620 SEMINAR: ROLE AND FUNCTION OF THE SCHOOL PSYCHOLOGIST
3 credits
Prerequisite: permission of instructor. Seminar in role and function of school psychologist. The course, tailored to meet individual needs of students, is a consideration of professional standards of school psychology practice.

622 COGNITIVE FUNCTION MODELS FOR DESCRIPTIVE EDUCATIONAL PLANNING
3 credits
Prerequisite: permission of instructor. Consideration of cognitive development theories and their application to educational programming.

624 BEHAVIORAL ASSESSMENT
3 credits
Prerequisite: permission of instructor. Overview of behavioral theory and its application focusing upon the role of the school psychologist as an agent of change.

626 CONSULTATION STRATEGIES IN SCHOOL PSYCHOLOGY
3 credits
Prerequisite: permission of instructor. Consideration of consultant roles in the practice of school psychology as related to consultation process and with school and agency personnel, parents and children.

629 PRACTICUM IN SCHOOL PSYCHOLOGY
3 credits
Prerequisite: permission of instructor. Consideration of cognitive development theories and their application to educational programming.
MULTICULTURAL EDUCATION

5630:

581 MULTICULTURAL EDUCATION IN UNITED STATES
3 credits

582 CHARACTERISTICS OF CULTURALLY DIFFERENT YOUTH
3 credits
A study of the characteristics and needs of culturally different youth, including those from low-income, minority, and rural backgrounds. This course will examine the role of multicultural education in the development of these students.

583 PREPARATION FOR TEACHING CULTURALLY DIFFERENT YOUTH
3 credits
A course designed to prepare educators to teach culturally different youth from low-income backgrounds. This course will cover strategies for teaching these students.

584 PRINCIPLES OF BILINGUAL/MULTICULTURAL EDUCATION
3 credits
An introduction to the theoretical, cultural, sociopolitical bases of bilingual/multicultural education. Emphasis on the role of multicultural education in the development of these students.

585 TEACHING READING AND LANGUAGE ARTS TO BILINGUAL STUDENTS
4 credits
Prerequisites: permission of instructor. This course provides methods for teaching reading and language arts to bilingual students.

586 TEACHING MATHEMATICS, SOCIAL SCIENCES AND SCIENCE TO BILINGUAL STUDENTS
3 credits
Prerequisites: education majors, 5200:333, 339, 338, for secondary education majors, 5200:311. Focus on the role of multicultural education in the development of these students.

587 TECHNIQUES FOR TEACHING ENGLISH AS A SECOND LANGUAGE IN THE BILINGUAL/MLTICULTURAL CLASSROOM
4 credits
Prerequisite: permission of instructor. This course provides techniques for teaching English as a second language in the bilingual/multicultural classroom.

588 WORKSHOP: BILINGUAL/MULTICULTURAL
1-6 credits
This workshop focuses on the development of teaching materials and curriculum units for bilingual/multicultural classrooms.

589 SEMINAR: EDUCATION OF THE CULTURALLY DIFFERENT
2 credits
Surveys educational considerations for schools populated by low-income culturally different youth. It examines the impact of these students on the school system.

EDUCATIONAL ADMINISTRATION

5700:

590,1,2,3 WORKSHOP
3 credits
A workshop on educational leadership. This course emphasizes the role of the educational administrator in the development of educational programs.

594 EDUCATIONAL INSTITUTES
2 credits
A study of the role of educational institutions in the development of educational programs.

591 PRINCIPLES OF EDUCATIONAL ADMINISTRATION
3 credits
A study of the role of educational administration in the development of educational programs.

592 SCHOOL BUSINESS ADMINISTRATION
2 credits
A course on the management of the business operations of the educational institution.

593 ADMINISTRATION OF EDUCATIONAL PERSONNEL
2 credits
A course on the management of human resources in educational institutions.

604 SCHOOL-COMMUNITY RELATIONS
3 credits
A study of the role of educational institutions in the development of community relations.

605 EVALUATION IN EDUCATIONAL ORGANIZATIONS
2 credits
A study of the role of educational administrators in the development of evaluation systems.

607 SCHOOL LAW
2 credits
A study of the role of educational administrators in the development of legal frameworks.

608 SCHOOL FINANCE AND ECONOMICS
3 credits
A study of the role of educational administrators in the development of financial and economic frameworks.

609 PRINCIPLES OF CURRICULUM DEVELOPMENT
3 credits
A study of the role of educational administrators in the development of curriculum frameworks.

610 PRINCIPLES OF EDUCATIONAL SUPERVISION
2 credits
A study of the role of educational administrators in the development of educational supervision frameworks.

611 SUPERVISION OF STUDENT TEACHING
2 credits
A study of the role of educational administrators in the development of student teaching frameworks.

612 ADMINISTRATION OF EDUCATIONAL FACILITIES
2 credits
A study of the role of educational administrators in the development of educational facilities.

613 ADMINISTRATION OF PUPIL SERVICES
2 credits
A study of the role of educational administrators in the development of pupil services.

615 COMPUTER APPLICATIONS IN EDUCATIONAL ADMINISTRATION
3 credits
A study of the role of educational administrators in the development of computer applications.

620 SECONDARY SCHOOL ADMINISTRATION
3 credits
A study of the role of educational administrators in the development of secondary school administration.

631 ELEMENTARY SCHOOL ADMINISTRATION
3 credits
A study of the role of educational administrators in the development of elementary school administration.

639 FIELD EXPERIENCE I ELEMENTARY ADMINISTRATION
3 credits
A study of the role of educational administrators in the development of field experience in elementary administration.

654 ADVANCED PRINCIPLES OF EDUCATIONAL ADMINISTRATION
3 credits
A study of the role of educational administrators in the development of advanced principles of educational administration.
Courses of Instruction

**THE EDUCATIONAL ADMINISTRATOR AND PLANNED CHANGE**
Prerequisites: 601 and 704. Relationship between technological and social change and needed changes in education. Theories, principles, and mechanisms in planned educational change.

**THEORIES OF EDUCATIONAL SUPERVISION**
Prerequisites: 60, 5200. Extension of 5300. Extends 5300. Principles of supervision, staff development, and the organizational environment's impact on the climate for effective supervision.

**PRACTICUM IN EDUCATIONAL ADMINISTRATION: URBAN SETTING**
Prerequisite: completion of six hours of doctoral program courses. Analysis of uniqueness of urban setting, e.g., multicultural and pluralistic urban populations. Stress on administrator's personal relationships.

**POLITICS, POWER AND THE SCHOOL ADMINISTRATOR**
Prerequisites: 12 credits. Realities of formal and informal community power structures and political power in educational planning and decision making. Administrator as an influence on the power structure for educational benefit.

**PRACTICUM COMPETING AND COMPLEMENTARY SOCIAL SYSTEMS**
Prerequisites: 12 credits. Designed to bring educational administrators into direct contact with individuals responsible for other community service delivery systems, e.g., city government. Methods of improving cooperation to provide client services.

**INTERNSHIP IN EDUCATIONAL ADMINISTRATION**
May be repeated for a total of six credits. Work under a practicing administrator overseeing a school district in which student performs assignments in administrative task areas.

**FIELD EXPERIENCE: THE SUPERINTENDENCY**
Prerequisites: permission of instructor. Cooperative, field-based experience in central office of a school district in which student performs assignments in administrative task areas.

**FIELD EXPERIENCE IN SCHOOL PLANT PLANNING**
Prerequisites: permission of instructor. Selected field experiences. Emphasis on analysis of school enrollments, evaluation of school plants and financial aspects of plant planning.

**INDEPENDENT STUDY**
May be repeated for a total of six credits. Prerequisites: 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.

**RESEARCH PROJECT IN SPECIAL AREAS**
Prerequisites: permission of advisor. Critical and in-depth study of a specific problem in educational administration.

**DOCTORAL DISSERTATION**
Prerequisites: permission of advisor. Specific research problem that requires student to apply research skills to a problem being studied.

**SPECIAL EDUCATIONAL PROGRAMS**

**WORKSHOP IN ECONOMIC EDUCATION OR IN SOCIAL STUDIES**
Individual work under staff guidance on curriculum problems. Utilization of community resources. Planning of curriculum units.

**WORKSHOP IN ARITHMETIC OR IN PHYSICAL SCIENCE**
Individual work under staff guidance on curriculum problems. Utilization of community resources. Planning of curriculum units.

**WORKSHOP IN READING**
Individual work under staff guidance on curriculum problems. Utilization of community resources. Planning of curriculum units.

**WORKSHOP ON EXCEPTIONAL CHILDREN**
Individual work under staff guidance on curriculum problems. Utilization of community resources. Planning of curriculum units.

**INTERNATIONAL SCHOOL STUDY**
On-the-scene study of education in foreign countries, usually by concentrating on the study of schools in one restricted geographic area.

**HIGHER EDUCATION ADMINISTRATION**

**INTRODUCTORY ADMINISTRATIVE COLLOQUIUM IN HIGHER EDUCATION**
1 credit
Introductory examination of issues, trends, topics and activities in institutions of higher education.

**SEMINAR IN HIGHER EDUCATION: ADMINISTRATION IN HIGHER EDUCATION**
3 credits
Prerequisite: 5702.040 or permission. In-depth study of problems, procedures, and principles of administration in institutions of higher education. Emphasis is placed on the administrative process and major administrative task areas.

**FINANCE AND HIGHER EDUCATION**
3 credits
Prerequisite: permission of the instructor. Facilitates student's understanding of how American higher education is financed; identifies various methodologies used, and political and economic impacts of processes involved.

**LAW AND HIGHER EDUCATION**
3 credits
Prerequisites: permission of the instructor. Legal aspects of higher education; sources of law and authority presented. Impact on, relationship with, and implications for the administration of higher education discussed.

**SEMINAR IN HIGHER EDUCATION: STUDENT SERVICES**
3 credits
Prerequisite: permission. Specials of concern to student specializing in student personnel services in higher education. Topics may differ each semester depending upon student needs and interests.

**HIGHER EDUCATION CURRICULUM AND PROGRAM PLANNING**
3 credits
Study of strategies for implementing and monitoring the curricular change process. Goals and aspects of higher education program planning shall be examined.

**INSTRUCTIONAL STRATEGIES AND TECHNIQUES FOR THE COLLEGE INSTRUCTOR**
2 credits
Selected topics in instructional theory, techniques, and strategies which are appropriate to instructional planning and development of college-level courses. Scheduling, techniques emphasizing student achievement testing and evaluation.

**INDEPENDENT STUDY IN HIGHER EDUCATION**
1-3 credits
May be repeated for a total of six credits. Prerequisite: permission. Selected area of independent study in an area of higher education as determined by advisor and student in relation to student's academic needs and career goals.

**ADVANCED ADMINISTRATIVE COLLOQUIUM IN HIGHER EDUCATION**
1 credit
May be repeated for a total of three credits. Prerequisites: 602. Intensive work experience in operations of an institution of higher education related to student's own program of studies and professional goals.

**INTERNSHIP IN HIGHER EDUCATION**
1-2 credits
May be repeated for a total of three credits. Prerequisite: permission. Cooperative work experience in operations of an institution of higher education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in higher education.

**INTERNSHIP IN HIGHER EDUCATION SEMINAR**
1 credit
May be repeated for a total of three credits. Prerequisites: permission. Cooperative work experience in operations of an institution of higher education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in higher education.
ACCOUNTANCY

6200:

520 ADVANCED ACCOUNTING
3 credits
Prerequisite: 522. Examination of accounting theory emphasizing accounting for business combinations, partnerships, foreign operations, nonprofit entities and consolidated statements.

530 TAXATION I
3 credits
Prerequisite: 220. Federal tax law related to individuals, partnerships, and corporations. Master of Taxation students will not be able to take this course to satisfy tax electives in the Master of Taxation program.

531 TAXATION II
3 credits
Prerequisite: 420. Additional aspects of individual taxation, federal tax law, related to proper transfer and reorganization and family tax planning.

540 AUDITING
3 credits
Prerequisites: 321, 255 or 600:221 must be taken prior to or concurrently. Examination auditing terminology and procedures used by independent auditors in determining whether an entity has fairly represented its financial position.

570 GOVERNMENTAL AND INSTITUTIONAL ACCOUNTING
3 credits
Prerequisites: 200 or Theory and procedures involved in application of governmental and quasi-governmental accounting systems. An examination of governmental activities, governmental financial statements, governmental financial management and nonprofit institutions.

580 ACCOUNTING PROBLEMS
2 credits
Prerequisite: 222. Independent research on an advanced accounting problem in student's specific area of interest.

588 CPA PROBLEMS: AUDITING
2 credits
Prerequisite: 328 or permission of instructor. Preparation for auditing section of CPA examination, focusing on auditing principles, standards and ethics and situations encountered by independent auditor.

589 CPA PROBLEMS: THEORY
2 credits
Prerequisite: permission of instructor. Examination of theory section of CPA examination, focusing on current developments and use of basic accounting theory to solve advanced accounting problems.

590 SPECIAL TOPICS IN ACCOUNTING
1-3 credits
Prerequisite: Permission of instructor. Opportunity to study special topics and current issues in accounting. May be repeated with a change of subject but not to exceed 6 credits.

599 WORKSHOP IN ACCOUNTING
2 credits
May be repeated. Prerequisite: permission of instructor. Group study of accounting and faculty guidance. May not be used for elective credit (with permission of instructor or department). May be repeated. Prerequisite: permission of instructor. Group study of accounting and faculty guidance. May not be used for elective credit (with permission of instructor or department).

601 FINANCIAL ACCOUNTING
3 credits
Prerequisite: 201 or equivalent. Examination of financial accounting principles and their applications to appraisal of financial statements.

602 BUSINESS SYSTEMS WITH PROCESSING APPLICATIONS
3 credits
Prerequisite: 201. Introduction to basic concepts in accounting systems and system development and the applications of accounting systems by using a business-oriented language or related software.

610 ACCOUNTING MANAGERS AND CONTROLS
3 credits
Prerequisite: 201 or equivalent. Investigation of role of accounting as management function in areas of production, marketing, internal control and capital budgeting with focus on management planning.

627 SURVEY OF FEDERAL TAXATION
2 credits
Prerequisites: 601 or equivalent. Introduction to federal taxation for students who have not completed more than one undergraduate or graduate tax course. Emphasis on individual and basic federal taxation. Completion of this course will not count towards fulfilling the requirements of the Master of Taxation degree.

628 BASIC TAX RESEARCH
1 credit
Prerequisite: 430 or equivalent. Designed to develop basic research competence involving federal income, estate, and gift tax laws.

631 CORPORATE TAXATION I
2 credits
Prerequisite: 530. Examination of tax problems of corporations and their shareholders. Formation distribution, retention, liquidation and partial liquidation.

632 TAXATION OF TRANSACTIONS IN PROPERTY
2 credits
Prerequisite: 530. Examination of the federal income and gift tax laws and their consequences of testamentary and inter vivos transfers.

633 ESTATE AND GIFT TAXATION
3 credits
Prerequisite: 430. Analysis of federal estate and gift tax law and its consequences of testamentary and inter vivos transfers.

637 ADVANCED ACCOUNTING THEORY
3 credits
Prerequisite: 318. Examination of accounting concepts and standards through critical analysis of articles on current topics in profession. Discussion and outside research studies.

640 ADVANCED AUDITING
3 credits
Prerequisite: 440/540. Conceptual foundations and current research on professional and financial auditing. Includes government audit and litigation, statistics, computer systems as well as current and prospective developments in auditing.

641 TAXATION OF PARTNERSHIPS AND CORPORATIONS
3 credits
Prerequisite: 530. Examination of intercompany provisions of sections 701 and 8 of Internal Revenue Code and uses of partnerships and Subchapter S corporations for tax planning.

642 CORPORATE TAXATION II
3 credits
Prerequisite: 531. Continuation of 531. Concludes study of subchapter C of Internal Revenue Code with major focus on corporate reorganizations.

643 TAX ACCOUNTING
2 credits
Prerequisite: 430. Attention focused on timing of income and expenses for individual taxpayers and on tax planning in relation to taxation of non-taxable events.

644 INCOME TAXATION OF DECEDENTS, ESTATES AND TRUSTS
2 credits
Prerequisite: 633. An in-depth examination of the decedent's last income tax return along with the analysis of income taxation of trusts and estates and their creators, fiduciaries and beneficiaries.

645 ADVANCED INDIVIDUAL TAXATION
3 credits
Prerequisite: 430. In-depth study of some of the more involved areas of individual income taxation.

646 CONSOLIDATED TAX RETURNS
1 credit
Prerequisite: 430. Intensive study of tax provisions determining use of consolidated tax returns.

647 QUALIFIED PENSIONS AND PROFIT SHARING
2 credits
Prerequisite: 430. Nature, purpose and operation of various forms of deferred compensation examined with much emphasis on pension and profit-sharing plans.

648 TAX PRACTICE AND PROCEDURE
2 credits
Prerequisite: 430. In-depth study of administration and procedures of Internal Revenue Service and responsibilities of tax practitioners.

649 STATE AND LOCAL TAXATION
2 credits
Prerequisite: 651. Examination common types of taxes imposed by state and local governments and includes taxation of businesses.

650 ESTATE PLANNING
2 credits
Prerequisite: 633. Continuation of the estate planning course with emphasis on the planning for personal and business income tax purposes, trusts, gifts and asset appreciation.

651 UNITED STATES TAXATION AND TRANSNATIONAL OPERATIONS
2 credits
Prerequisite: 430. Examination of the impact of foreign income of domestic corporations and individuals, as well as United States income of foreign investors and foreign corporations.

652 TAX EXEMPT ORGANIZATIONS
2 credits
Prerequisites: 430. Analysis of tax aspects of tax-exempt organizations, including purposes and limitations of their exemption.

653 BUSINESS PLANNING
2 credits
Prerequisite: 601. Uses computer assisted complex problems to permit student to integrate knowledge of taxation with business planning.

654 INDEPENDENT STUDY IN TAXATION
1-3 credits
Prerequisite: Permission of instructor. Intensive study of particular topics or limited number of topics not otherwise offered in the curriculun. May be repeated for a total of six credits.

655 ADVANCED INFORMATION SYSTEMS
3 credits
Prerequisites: 355 and 610. Advanced study of information system development, information systems, design and implementation. Practical data processing and networks to control flow of information.

656 NON-QUALIFIED EXECUTIVE COMPENSATION
2 credits
Prerequisite: 640:650. Various non-qualified executive compensation items are analyzed. The effects to both the recipients and payees are determined and discussed.

657 ADVANCED TAX RESEARCH AND POLICY
3 credits
Prerequisite: 650 and completion of three other tax courses in Phase II. Extensive research involving federal income, estate, trust and gift taxes and tax policy.

658 RESEARCH AND QUANTITATIVE METHODS IN ACCOUNTING
3 credits
Prerequisites: 201, 210, 650:410 or equivalent. Survey of research techniques, statistical methods, and data bases with applications to accounting and business-functional areas.

659 COST CONCEPTS AND CONTROL
3 credits
Prerequisites: 201 or equivalent. Examination of managerial and cost accounting concepts with emphasis on cost analysis and decision making. Determination of cost and efficiency of decision making.

660 INTERNATIONAL ACCOUNTING
3 credits
Prerequisites: 614. Examination of international tax practice and procedure from international perspective with emphasis on multilateral transaction, multinational investment, business and auditing activities and financing problems.

661 SEMINAR IN TAXATION
1-3 credits
May be repeated. Prerequisite: permission of instructor. Conference for tax professionals. May be repeated for a total of six credits. Prerequisite: permission of instructor. Prerequisite for student with no accounting background. May not be used for elective credit (with permission of instructor or department).

665 SELECTED TOPICS IN TAXATION
1-3 credits
May be repeated. Prerequisite: 530 or equivalent. May be used for elective credit (with permission of instructor). Prerequisite: 650 or equivalent. May be taken for a total of six credits. Prerequisite: permission of instructor. May be repeated for a total of six credits. Prerequisite: permission of instructor. May be repeated for a total of six credits. Prerequisite: permission of instructor.

666 INDEPENDENT STUDY IN ACCOUNTING
1-3 credits
May be repeated. Prerequisite: permission of instructor. May be repeated for a total of six credits. Focus on special topics of study and research in accounting on an independent basis.

FINANCE

6400:

581 WORKSHOP IN FINANCE
1-3 credits
May be repeated. Group studies of special topics. May not be used to meet undergraduate major requirements in finance. May be used for elective credit only with permission of instructor or department.

682 MANAGERIAL FINANCE
3 credits
Prerequisites: 6200:201, 202 or 600 and 2550:201, 202 or 600. Emphasis on financial decision making related to goal of firm specifically, the investment decision, the financial decision and the dividend decision.

683 LEGAL ASPECTS OF BUSINESS TRANSACTIONS
3 credits
Not open to students with six credits of undergraduate business law. Study of the fundamental legal factors that apply to business transactions and the administration of business affairs.

685 INTERNATIONAL MARKETS AND INSTITUTIONS
3 credits
Prerequisite: 602 or equivalent. A study of major financial markets and financial institutions with an emphasis on the decision-making processes within a rapidly changing, but regulated operating environment.

686 MANAGEMENT OF DEPOSITORY FINANCIAL INSTITUTIONS
2 credits
Prerequisites: 602 and 600:420. Policy determination, administrative decision making in banks, savings and loans using computer simulation games.
Courses of Instruction

101

645 INVESTMENT ANALYSIS 3 credits
Prerequisites: 602 and 6500-652 and 602. Study of the economic and market forces that influence security prices. Techniques of analysis used in evaluating individual and equity securities.

647 OPTIONS, FUTURES AND SPECULATIVE MARKETS 3 credits
Prerequisites: 645, 6500-652. A study of the applications and practice of options, futures and other speculative markets.

649 PORTFOLIO MANAGEMENT 3 credits
Prerequisites: 645 or permission of instructor. Advanced techniques used by sophisticated individual and institutional investors.

650 ADMINISTERING COSTS AND PRICES 3 credits
Prerequisites: 3200-600 and 6500-652. Provides an understanding of managerial economics. Short- and long-run decisions of firms analyzed. Analysis includes impact of costs and prices on business profitability.

655 GOVERNMENT AND BUSINESS 3 credits
Prerequisites: 1500-600 and 6500-652. Public policy with regard to business institutions and practices is considered from an economic, legal, ethical, and political framework.

674 FINANCIAL MANAGEMENT AND POLICY 3 credits
Prerequisites: 602 and 6500-652. Working capital management, controlling inventory, investments, administration costs and funds, managing investment in plant and equipment, analyzing business income and forecasting for financial management.

675 MANAGEMENT OF FINANCIAL STRUCTURE 3 credits
Prerequisite: 674. Emphasis on determination of volume and composition of sources of funds. Primary attention directed to cost of capital for specific sources of financing.

678 CAPITAL BUDGETING 3 credits
Prerequisite: 674. Attempt to integrate various theories of capital budgeting into a comprehensive conceptual framework. Theoretical content and practical applications intended to provide a better understanding of capital problems.

681 MULTINATIONAL CORPORATE FINANCE 3 credits
Prerequisites: 652 or equivalent. Financial policies and practices of companies involved in international operations. Considers management of working capital and foreign assets. Return on investment and capital budgeting for the global firm.

690 SELECTED TOPICS IN FINANCE 3 credits (Ibby repeated for a total of six credits). Prerequisite: 674. Provides study of contemporary issues not covered in existing courses.

691 INTERNATIONAL MARKETS AND INVESTMENTS 3 credits
Prerequisites: 652 or equivalent. A study of international financial markets with an emphasis on international investments and risks in a slowly changing global economy.

697 INDEPENDENT STUDY IN FINANCE 1-2 credits (Ibby repeated for a total of six credits). Focus on special topics of study and research in finance on an independent basis.

698 INDEPENDENT STUDY: BUSINESS LAW 1-2 credits (Ibby repeated for a total of six credits). Focus on special topics of study and research in the legal aspects of business administration.

MANAGEMENT

6500:

508 ENTREPRENEURSHIP 3 credits
Prerequisites: upper college or graduate standing and 301 or 600 or equivalent. Emphasizes the behavior and environment for entrepreneurship, focuses on concepts and contemporary entrepreneur's perspectives and the importance of personal values and strategies. Case studies. Field projects.

510 SELECTED TOPICS IN ENTREPRENEURSHIP 1-2 credits
Prerequisites: upper college or graduate standing and 301 or 600 or equivalent. Facilitates comparative international study of entrepreneurship, introduction of entrepreneurship to large organizations, or replication of student's entrepreneurial skills. Six hour limit.

512 DEVELOPMENT OF MANAGEMENT THINK 3 credits
Prerequisites: upper college or graduate standing and 301 or 600 or equivalent. Emphasis on development of managerial thought from 1500 B.C. to present with consideration of their implications for present organizations.

555 MANAGEMENT OF ARBITRATION: COMMERCIAL, INTERNATIONAL AND HUMAN RESOURCES 3 credits
Prerequisite: upper college or graduate standing and 301 or 600 or equivalent. A comprehensive study of managerial strategies for commercial, international, and human resource areas. Graduate research paper required.

571 MANAGEMENT PROJECT 3 credits
Prerequisite: 674. Student applies modern management principles, practices, theory to an actual problem in industry.

580 INTRODUCTION TO HEALTH-CARE MANAGEMENT 3 credits
Prerequisites: upper college or graduate standing and 701 or 400, or graduate standing and 500 or 600 or permission of instructor. Students who have completed 331 are ineligible to take this course for credit. Introduction to course for graduate nursing students with an emphasis on the role of management applied to health services organizations. For those interested in graduate credit, a major research paper is required.

582 HEALTH SERVICES OPERATIONS MANAGEMENT 3 credits
Prerequisites: upper college or graduate standing and 701 or 400, or graduate standing and 500 or 600 or permission of instructor. Students who have completed 331 are ineligible to take this course for credit. Application of operations and systems analysis to health services organizations.

585 SPECIAL TOPICS IN HEALTH SERVICES ADMINISTRATION 1-3 credits
Prerequisite: permission of instructor. Special topics in health services administration. A special problem such as health care organizations or health care systems. Depending topics may be repeated for a maximum of six credits. For those registered for graduate credit, a major research paper is required.

600 MANAGEMENT AND ORGANIZATIONAL BEHAVIOR 3 credits
Prerequisite: 674. Formulates the relationship among management and organizational behavior in organizations.

601 QUANTITATIVE DECISION MAKING 2 credits
Prerequisite: finite mathematics. Applies quantitative techniques to business decision making. Topics covered include probability estimation and hypothesis testing, correlation, and regression analysis, analysis of variance, and nonparametric statistics.

602 COMPUTER TECHNIQUES FOR MANAGEMENT 3 credits
Introduction to the use of integrated spreadsheet software, database management software and design and analysis 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.

641 DATA MANAGEMENT AND COMMUNICATION 3 credits
Prerequisite: 602. The effective management of the total resources of the firm are examined as well as how data communications are changing the way businesses operate.

645 SYSTEMS SIMULATION 3 credits
Prerequisites: 600, 602. Manufacturing or service sector systems are analyzed and modeled on a computer. Experimental designs, statistical significance of results, model verification and validation will be discussed.

646 ANALYSIS AND DESIGN OF BUSINESS SYSTEMS 3 credits
Prerequisite: 602. A hands-on treatment of the methods used to develop different types of business information systems.

647 MANAGERIAL DECISION SUPPORT AND EXPERT SYSTEMS 3 credits
Prerequisites: 6500-652. Examines decision support systems and the application of artificial intelligence based systems in today's business environment.

648 ADVANCED MANAGEMENT INFORMATION SYSTEMS 3 credits
Prerequisite: 666. A concentrated course which examines the problems of managing the Corporate Information Systems activity as regarded by users, general management and IS management.

651 PRODUCTIVITY AND QUALITY OF WORKTIME ISSUES 3 credits
Prerequisites: 652 or permission of instructor. A comprehensive study of innovations in organizations designed to increase human satisfaction and productivity through changes in human management.

652 ORGANIZATIONAL BEHAVIOR 3 credits
Prerequisite: 652 or equivalent. Study of factors which influence human behavior in business organizations. Emphasis on theories of individual and group behavior, motivation, leadership and coordination in organizations.

653 ORGANIZATIONAL THEORY 3 credits
Prerequisite: 666. Examines the structure, design and overall effectiveness of a business organization from a macro perspective.

654 INDUSTRIAL RELATIONS 3 credits
Prerequisite: 666. Study of rights and duties of management in dealing with labor and economic consequences of union and management policies and practices.

655 COMPENSATION ADMINISTRATION 3 credits
Prerequisite: 666. A comprehensive approach toward the identification and resolution of pay and benefits problems facing business organization in their internal and external labor markets.

656 MANAGEMENT OF INTERNATIONAL OPERATIONS 3 credits
Prerequisites: 652 or equivalent. Deals with institutional environments of international business, policies of 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 or equivalent. Survey of leadership theory and thought. Identification of leadership in both formal and informal organizations. Training and development methods of leaders. Individual and small group field study assignments.

658 STRATEGIC HUMAN RESOURCES MANAGEMENT 3 credits
Prerequisites: 600, 652, 654. The formulation, design and implementation of strategic human resource practices and systems for business organizations. Emphasis on competitive cost advantages and productivity gains.

660 EMPLOYMENT REGULATION 3 credits
Prerequisite: 652 or equivalent. A broad overview of the federal legislation regulating the business firm's human resource management function.

662 APPLIED OPERATIONS RESEARCH 3 credits
Prerequisite: 652 or equivalent. Survey of basic techniques of operations research. Stress on applications to functional area of business.

663 APPLIED INDUSTRIAL STATISTICS I 3 credits
Prerequisite: 652 or equivalent. Designs for survey sampling and estimation. Simple linear regression analysis, including functions, either of the model and percent confidence intervals.

664 APPLIED INDUSTRIAL STATISTICS II 3 credits
Prerequisite: 663. Applications of multiple regression including determining "best" set of independent variables, correlation matrices, analysis of variance models including multifactor models. Experimental designs including randomized block and Latin square designs.

670 OPERATIONS MANAGEMENT 3 credits
Prerequisites: 660, 601 or equivalent. An overview of the strategic, tactical and operational issues directly related to the creation of goods and services.

671 ADVANCED OPERATIONS RESEARCH 3 credits
Prerequisite: 662. Designed to present in more depth and breadth the topics covered in 662, with emphasis on application of these techniques to student's own business situations.

673 QUALITY AND PRODUCTIVITY TECHNIQUES 3 credits
Prerequisite: 661. Introduction to tools and techniques for improving productivity and quality, including identification of work content, process improvements, requirements planning (MRP), just-in-time (JIT) inventory control and management of the production line.

674 ADVANCED QUALITY AND PRODUCTIVITY TECHNIQUES 3 credits
Prerequisite: 667. Explores advanced techniques in statistical process control, experimental design, determination of customer quality needs, customer service, product reliability/availability and management of quality systems.

675 MATERIALS MANAGEMENT 3 credits
Prerequisites: 660, 602. Surveys functions and explores opportunities for profit improvement and cost reduction in those functions, integrated under the organizational concept of materials management.

676 MANAGEMENT OF PRODUCTION AND OPERATIONS 3 credits
Prerequisite: 660, 652, 667. Surveys the management of resources required to transform inputs into products or services. Addresses issues related to services, materials, people and equipment utilized to production.

678 PROJECT MANAGEMENT 3 credits
Prerequisites: 660, 601, 602. Provides working knowledge of tools and methods available to project managers including computer-aided analysis of network models to aid in the planning and control functions.
MARKETING 6600:

540 PRODUCT PLANNING

3 credits
Prerequisites: 660 or permission of instructor. Examines the creation of new products and the management of existing products through the life cycle. Graduate credit requires additional research paper.

550 STRATEGIC RETAIL MANAGEMENT

3 credits
Prerequisites: 660 or permission of instructor. Investigation of strategic and tactical retail decisions and issues through the use of case analysis, computer applications, experimental games, and field projects. Graduate credit requires additional research paper.

570 BUSINESS TO BUSINESS MARKETING

3 credits
Prerequisite: 660 or permission of instructor: Studies industrial and organizational buyer behavior. The topics include: marketing management and control, organizational buying behavior, and control of a sales force. Graduate credit requires additional research paper.

580 SALES MANAGEMENT

3 credits
Prerequisites: 660 or permission of instructor. Develops analytical and managerial skills through case studies and other learning activities relating to the organization, selection, training, motivation, and control of sales force. Graduate credit requires additional research paper.

600 MARKETING CONCEPTS

3 credits
Introductory course examining buyer behavior, environmental influences, target marketing, product development, distribution, promotion, and pricing for business, industrial and nonprofit organizations within a global context.

605 STRATEGIC MARKETING MANAGEMENT

3 credits
Prerequisite: 660 or equivalent. Managerial assessments of opportunities, threats, and control as they relate to single business firms or corporate strategic issues are examined.

630 MARKETING OF SERVICES

3 credits
Prerequisite: 660 or permission of instructor. Examines marketing strategies within the service industry, focusing on the application of the marketing concept in the service industry: marketing research, sales management, pricing, and distribution.

640 BUSINESS RESEARCH METHODS

3 credits
Prerequisites: 660 and 652. Covers the scientific methods as well as the gathering and analysis of information to identify opportunities and solve problems within a business organization.

650 CONSUMER BEHAVIOR

3 credits
Prerequisite: 600. Examines the marketplace behavior of individuals, households, and organizations. Focus is placed on integrating theoretical models with managerial applications.

655 MARKETING COMMUNICATIONS

3 credits
Prerequisite: 600. The total range of marketing communication tools are examined individually and in the context of planning, developing, and implementing a systematic and integrated communications program.

670 COMPETITIVE BUSINESS STRATEGY

3 credits
Prerequisites: 660/601, 650/602, 680/682, and 660/662. Investigation of competitive business strategy from an industry perspective. The course presents a framework which can be used to understand and develop competitive strategies.

680 APPLICATIONS OF MARKETING THEORY

3 credits
Prerequisites: 600. Examines marketing theories and their application to business problem solving and decision making. Selected readings and field projects are used to enhance the student's management skills.

697 INDEPENDENT STUDY IN MARKETING

1-3 credits
(1-3 credits) May be repeated for a total of 12 credits. Focus on special topics of study and research in marketing on an individual basis.

INTERNATIONAL BUSINESS 6800:

605 INTERNATIONAL BUSINESS ENVIRONMENTS

3 credits
An introductory course designed to develop a broad understanding of global business environments.

630 INTERNATIONAL MARKETING POLICIES

3 credits
Prerequisites: 605 and 650/652 or permission of instructor. Explores the problems of formulating and implementing marketing strategies and tactics within complex and changing multinational organizations and international markets. A planning framework is emphasized.

655 MULTINATIONAL CORPORATIONS

3 credits
Prerequisites: 605. An advanced course designed to develop an in-depth understanding of global business environments, structures, and strategies.

680 SEMINAR IN INTERNATIONAL BUSINESS

3 credits
Prerequisite: 650 and at least 15 Phase III graduate credits or permission of instructor. 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 12 credits. Focus on special topics of study and research in international business on an independent basis.

PROFESSIONAL 6700:

690 PROFESSIONAL RESPONSIBILITY

1 credit
Prerequisites: Nine graduate credits. Seminar on the professional responsibilities of business men and women to make them and the business organization in which they work more responsible decision makers.

692 INTERNATIONAL BUSINESS

1 credit
Prerequisites: Nine graduate credits. Enhances understanding of global business issues; present relevant trends and updates, facilitates cross-cultural interaction, and explores applied principles of international business.

694 APPLIED BUSINESS DOCUMENTATION AND CONTACT

1 credit
Prerequisite: Successful completion of course. This course is designed to offer a practicum approach to the skills and strategies for handling standardized documents, contact protocols, and business presentations.

696 SPECIAL TOPICS IN PROFESSIONAL DEVELOPMENT

1 credit
May be repeated for a total of 6 credits. Focus on special topics and current issues in the MBA Program Professional Core. May be repeated with a change of subject, not to exceed 4 credits.

698 COLLOQUIUM IN BUSINESS

1 credit
Prerequisites: Permission of graduate director. Study of business administration through a seminar of special lectures in business research and practice. A broad range of topics in business research and issues will be discussed by guests, faculty and graduate students. May be repeated, but will not satisfy degree requirements (Graduate credit).

INTERNATIONAL BUSINESS 6800:

605 INTERNATIONAL BUSINESS ENVIRONMENTS

3 credits
An introductory course designed to develop a broad understanding of global business environments.

630 INTERNATIONAL MARKETING POLICIES

3 credits
Prerequisites: 605 and 650/652 or permission of instructor. Explores the problems of formulating and implementing marketing strategies and tactics within complex and changing multinational organizations and international markets. A planning framework is emphasized.

655 MULTINATIONAL CORPORATIONS

3 credits
Prerequisites: 605. An advanced course designed to develop an in-depth understanding of global business environments, structures, and strategies.

680 SEMINAR IN INTERNATIONAL BUSINESS

3 credits
Prerequisite: 650 and at least 15 Phase III graduate credits or permission of instructor. 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 12 credits. Focus on special topics of study and research in international business on an independent basis.

PROFESSIONAL 6700:

690 PROFESSIONAL RESPONSIBILITY

1 credit
Prerequisites: Nine graduate credits. Seminar on the professional responsibilities of business men and women to make them and the business organization in which they work more responsible decision makers.

692 INTERNATIONAL BUSINESS

1 credit
Prerequisites: Nine graduate credits. Enhances understanding of global business issues; present relevant trends and updates, facilitates cross-cultural interaction, and explores applied principles of international business.

694 APPLIED BUSINESS DOCUMENTATION AND CONTACT

1 credit
Prerequisite: Successful completion of course. This course is designed to offer a practicum approach to the skills and strategies for handling standardized documents, contact protocols, and business presentations.

696 SPECIAL TOPICS IN PROFESSIONAL DEVELOPMENT

1 credit
May be repeated for a total of 6 credits. Focus on special topics and current issues in the MBA Program Professional Core. May be repeated with a change of subject, not to exceed 4 credits.

698 COLLOQUIUM IN BUSINESS

1 credit
Prerequisites: Permission of graduate director. Study of business administration through a seminar of special lectures in business research and practice. A broad range of topics in business research and issues will be discussed by guests, faculty and graduate students. May be repeated, but will not satisfy degree requirements (Graduate credit).
ART 7100:

500 ART IN THE UNITED STATES BEFORE WORLD WAR II 3 credits
Prerequisite 611. Permission of instructor. Consideration of development of art in the United States from earliest evidences to approximately World War II.

581 SPECIAL TOPICS IN ART HISTORY 3 credits
Prerequisite 221 or permission. Actual course focusing on a particular movement, period, artist, or medium. (May be repeated when a different subject or level of investigation is selected.)

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 501 or permission of instructor. Lecture, individual research and evaluation, group discussion related to a specific time period or an artistic period.

590 WORKSHOP IN ART 1-4 credits
May be repeated for credit when a different subject or level of investigation is indicated. 490 to maximum of 8 credits, 590 to maximum of 12 credits. Prerequisite: advanced standing in art or permission of instructor. Group investigation of a particular phase of art not offered by other courses in curriculum.

591 ARCHITECTURAL PRESENTATIONS I 3 credits
Prerequisite 1500:205 or permission of instructor. Study of the basic methods and presentation techniques of architectural drawings. Emphasis on the variety of rendering mediums.

592 ARCHITECTURAL PRESENTATIONS II 3 credits
Prerequisites: 4910:519, completion of concepts covered in Architectural Presentations I with an aptitude work in computer-aided rendering techniques. Emphasis on a variety of rendering mediums.

597 INDEPENDENT STUDIES 1-3 credits
May be repeated for credit when a different subject or level of investigation is indicated. Prerequisite: 1500:205 or permission of instructor. Independent research and development, group discussion related to a specific time period or an artistic period.

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: 1500:205 or permission of instructor. Group investigation of a particular phase of art not offered by other courses in curriculum.

510 FAMILY LIFE PATTERNS IN THE ECONOMICALLY DEPRIVED HOME 3 credits
Study of the family life cycle. The interplay among economically deprived with emphasis on impact of socio-economic and psychological deprivation on family member throughout family life span.

502 ADVANCED FOOD PREPARATION 3 credits
Prerequisite: 141 or 246 or permission of instructor. Study of advanced techniques of food preparation, instruction in the selection and preparation of quality foods. Emphasis on individualized experience, soil development, and evaluation of procedures and results.

504 ADOLESCENCE IN THE FAMILY CONTEXT 3 credits
Prerequisite: 220 or 265 or permission of instructor. The influence 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 solutions, decision-making patterns and financial practices adopted. Credit, money, money, and personal and consumer analysis.

518 HISTORY OF INTERIOR DESIGN I 4 credits
The study of furnishings, materials and architecture from antiquity through the eighteenth century, with emphasis on the social and cultural influences shaping their development.

519 HISTORY OF INTERIOR DESIGN II 4 credits
The study of furniture and twentith-century furnishings and interiors, with emphasis on the social-cultural influences shaping their development.

520 EXPERIMENTAL FOODS 3 credits
Prerequisite: 141 and 2520:130. Theory and methods used in the experimental study of foods. Analytical procedures in analytical and preparative food quality. Individual research emphasis. Lecture/Laboratory.

523 PROFESSIONAL IMAGE ANALYSIS 3 credits
Prerequisite: 141. Comparison of theories associated with existing and maximizing an appropriate professional image consistent with career goals and objectives.

524 NUTRITION IN THE LATE CYCLE 3 credits
Prerequisite: 220 or permission of instructor. Study of the chemical and biological factors for nutritional requirements, interfacial factors which affect growth, development, maturation and nutritional status from conception to middle adulthood.

525 ADVANCED TEXTILES 3 credits
Prerequisite: 121. Study of evaluation of aesthetic, comfort and durability properties of various textiles and setting standards to determine quality for desired end use.

527 TEXTILE APPRAISERS AND APPRAISERS 3 credits
Prerequisite: 223. Study of the textile structure and scope of the textile and apparel industry emphasizing an economic perspective.

531 INTERIOR TEXTILES AND PRODUCT ANALYSIS 3 credits
Prerequisite: 150, examination, evaluation, and analysis of products for interiors with emphasis on trade classifications, selection criteria, economic factors, and legislative controls.

532 ARCHITECTURAL DESIGN 3 credits
Prerequisite: 150, 252, 333, 334. 7100:491. A comprehensive study of residential design with emphasis on design, analytical, and graphic skills.

534 COMMERCIAL DESIGN 3 credits
Prerequisite: 150, 252, 333, 334. 7100:491. A comprehensive study of nonresidential design with emphasis on design, analytical, and graphic skills.

535 PRINCIPLES AND PRACTICES OF INTERIOR DESIGN 3 credits
Prerequisites: 252, 333 or 433, 334. Study of the business aspects of interior design practice, procedures, manufacturing of home furnishings and principles and psychology of marketing home furnishings.

536 TEXTILE CONSERVATION 3 credits
Prerequisites: 121, 233, 317, Principles and practices of textile conservation with emphasis on procedures appropriate for collectors and small historical agencies.

537 FURNITURE HISTORY TO 1800 3 credits
Study of costume and art from antiquity through the eighteenth century, with emphasis on the socio-cultural influences.

538 HISTORY OF FASHION SINCE 1780 3 credits
Prerequisite: 317. Study of nineteenth and twentieth-century Western fashions, textiles, and designers with emphasis on the socio-cultural influences.

540 FAMILY CRISIS 3 credits
Study of family stress and crisis including independent and external variables and their influence on the degree of disorder, coping, and recovery. Includes theory, research and application.

542 HUMAN SEXUALITY 2 credits
Prerequisite: 210 or permission of instructor. Introduction to sexuality and values. Emphasis is on the role of values in intimate relationships, the diverse dimensions of sexual responsibility. Throughout the course the student will develop a personal view of human sexuality.

547 POLITICAL AND ECONOMIC INSTITUTIONS 3 credits
Prerequisite: 150, 313, 319. Study of political institutions. How legislation in such areas as housing, clothing, consumer affairs, family formation and dissolution, resource conservation, child development, and health care affects. In some cases determines the nature, status, and quality of the family as a social institution.

548 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.

549 BEFORE AND AFTER SCHOOL CHILD CARE 3 credits
Study of the development, implementation and evaluation of school-age child care programs for before and after school and vacation periods.

551 CHILD IN THE HOSPITAL 4 credits
Prerequisite: 265, comparable course or permission of instructor. Seminar dealing with special needs and problems of hospitalized ill and family. Literature related to effects, separation, illness and stress. Examination of strategies for coping.

555 PRACTICE ESTABLISHING AND SUPERVISING A CHILD-LIFE PROGRAM 3 credits
Prerequisite: 4510:519. Experiments for implementing and setting up child-life programs; critical analysis of currently functioning program.

558 RESEARCH AND SUPERVISION OF CHILD-CARE CENTERS 3 credits
Theory, principles and procedures involved in establishing and operating centers for infants, toddlers, preschool and school age children.

560 THE FOOD INDUSTRY: ANALSIS AND FIELD STUDY 3 credits
Prerequisite: 245 or permission. Role of technology in extending the food supply, physical, and biochemical effects of processing and storage, on-site tours of processing plants.

574 CULTURAL DIMENSIONS OF FOOD 3 credits
Prerequisite: 133. Corecruite 2510 or permission of instructor. Emphasis on the effect of culture, ethnic, and cultural, social, political and economic factors on dietary behavior and individual food habits. Emphasis on evolution of food use, nutrition, and food habits.

575 NUTRITION FOR THE HEALTH PROFESSIONAL 3 credits
Prerequisite: 2590 or 3590. General chemistry or equivalent. Emphasis on the biological and psychological factors in nutrition. Emphasis on the role of nutrition as a health factor, nutrition and health care delivery. Emphasis on the role of nutrition as a health factor, nutrition and health care delivery.

576 DEVELOPMENTS IN FOOD SCIENCE 3 credits
Prerequisite: 245, advanced study of the chemistry and physics of food components, affecting biochemical and nutritional characteristics of foods. Critical evaluation of current and new approaches in food science.

580 COMMUNITY NUTRITION I-LECTURE 3 credits
Corequisites: 481 for CP student only. Sociocultural aspects of community assessment program, implementation and evaluation, and planning for nutrition service.

581 COMMUNITY NUTRITION CLINICAL CLINICAL 1 credit (credit/noncredit/audit)
Prerequisite: 481 or permission of instructor. Clinical placement in an agency offering nutrition services. Study of the agency's goals, organization, and philosophy of nutrition service.

582 COMMUNITY NUTRITION II-LECTURE 3 credits
Prerequisite: 480/580 or 480/581 for CP student only. Corequisites: 481/581. Field placement in an agency offering nutrition services. Study of the agency's goals, organization, and philosophy of nutrition service.

583 COMMUNITY NUTRITION III-LDICAL 3 credits
Prerequisite: 480/580. Field placement in an agency offering nutrition services. Study of the agency's goals, organization, and philosophy of nutrition service.

584 ORIENTATION TO THE HOSPITAL SETTING 3 credits
Prerequisite: 251, comparable course or permission of instructor. Exploration of the hospital as a major institution. Procedures and functions of the hospital. Hospital practices by various hospital personnel. An overview of the field of medical technology, common childhood diseases, infections and injuries.

585 SEMINAR IN HOME ECONOMICS 1-3 credits
Prerequisite: permission of instructor. Exploration and evaluation of current developments in selected areas.

587 SPORTS NUTRITION 3 credits
Prerequisites: 333, 3100, 202, 3100:130 or 203 or permission of instructor. An in-depth study of energy metabolism and utilization before, during, and after exercise. Factors affecting nutrient needs and peak performance of different athletic populations are emphasized.

589 PRACTICUM IN DIETETICS 1-3 credits
Prerequisite: 481 or permission of instructor. Practice experience in application of the principles of nutrition.
590 WORKSHOP IN HOME ECONOMICS AND FAMILY ECOLOGY 1-3 credits
Preceptorship at least junior standing. Investigation on current issues or topics in selected areas of home economics and family ecology. May be on-off campus study due to an on-campus full-time group meeting.

591 WORKSHOP IN HOME ECONOMICS AND FAMILY ECOLOGY 1,2 credits
Preceptorship at least junior standing. Current issues or topics in selected areas of home economics and family ecology. May be on-off campus study due to an on-campus full-time group meeting.

592 PARENT EDUCATION 3 credits
Prerequesite: 266. Comparable course or permission. Practice application from various parenting situations with major emphasis on the evaluation of the parent education program.

601 FAMILY IN TRANSITION 2 credits
Overview of family life cycle. Social change upon family and emerging relational patterns. Review of theory, research and educational settings.

602 FAMILY IN LIFESPAN PERSPECTIVE 3 credits
Study of individuals and family development across lifespan. Emphasis on development patterns and sequential competencies. Implications for education, research and social policy.

603 FAMILY RELATIONSHIPS IN MIDDLE AND LATER YEARS 2 credits
Study of family relationships and problems during middle and later years of life with emphasis on societal and biological changes and economic and social upheaval. Research and theory in gerontology.

604 ORIENTATION TO GRADUATE STUDIES IN HOME ECONOMICS AND FAMILY ECOLOGY 1 credit
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 3 credits
Prequisutes: 255 or equivalent permission. Study of reciprocal interactions formed between parent and child from birth to adulthood. Consideration of research studies, historical and social influences and varying family characteristics and structures.

606 FAMILY DYNAMICS 3 credits
Development of techniques in home economics programs utilizing role theory, exchange theory and conflict theory and its application through study of the family across the life cycle.

610 CHILD DEVELOPMENT THEORIES 3 credits
A comparative study of developmental theories of the child within the family context. Application of the theoretical in the family will be emphasized.

616 INFANT AND CHILD NUTRITION 3 credits
Emphasizes current research trends in biochemistry of infant and young child in relation to human physiology, feeding practices and health.

624 ADVANCED HUMAN NUTRITION I 3 credits
Prerequisites: undergraduate or graduate level courses in nutrition and biochemistry. In-depth study of human nutrition emphasizing metabolism, physiological functions, and interactions of dynamic and static factors. The functional relationship of human energy requirements.

625 ADVANCED HUMAN NUTRITION II 3 credits
Prerequisite: 624 or equivalent. An in-depth study of human nutrition with emphasis on the use of physiological functions and relationships of human nutrition and human disease as related to nutrition.

631 PROBLEMS IN DESIGN 3 credits
May be repeated, but not more than 3 credits will apply to major. A prerequisite: written permission of instructor. Individual solution of a specific design problem within the student's area of interest and concentration.

632 ADVANCED FOOD THEORY AND APPLICATIONS 3 credits
Prerequisite: 425 or permission. Advanced study of the chemistry and physics of food components, including the characteristics of foods, critical evaluation of current foods and applied research emphasized.

634 MATERIAL CULTURE STUDIES 3 credits
Methods of studying clothing, textiles, and vocations from a cultural and historical perspective.

638 THEORIES OF FASHION 3 credits
In-depth analysis of the theories underlying fashion and evaluation of current research related to the study of fashion.

650 NUTRITION IN DIMINISHED HEALTH 3 credits
Prerequisite 429 or permission. An examination of concepts relevant to nutritional intervention as related with selected fields of psychology and medical nutrition. Emphasis on current medical nutrition.

651 FAMILY AND CONSUMER LAW 3 credits
Study of legal and ethical questions in family and consumer areas. Emphasis on current trends, legal and ethical questions. Course taught by attorney.

652 PROFESSIONAL PRESENTATION IN HOME ECONOMICS 2 credits
Developing effective home economics professional presentation. Emphasis on visual, display, demonstrations, public relations materials, news media, conductive relationships, portfolio development, and learning styles.

656 PROGRAMMING FOR CHILD-CARE CENTERS 3 credits
Prerequisites: possession of a program development experience for child-care center. Examination of current programs available for preschool children. Implications, literary analysis, replication, evaluation.

665 DEVELOPMENT IN INFANCY AND EARLY CHILDHOOD 3 credits
Analysis of theories and research. Emphasis on child development from conception through age five. Implications for guidance and education.

670 SOCIAL PSYCHOLOGY OF DRESS AND THE ENVIRONMENT 3 credits
Study of dress and the environment as they relate to human behavior at leisure and during leisure.

680 HISTORICAL AND CONCEPTUAL BASES OF HOME ECONOMICS AND FAMILY ECOLOGY 3 credits
History of the field of home economics and family ecology with emphasis on the leaders and their contributions to the field.

901 RESEARCH METHODS IN HOME ECONOMICS AND FAMILY ECOLOGY 3 credits
A study of research and family ecology research methods emphasizing content and its relevance to family development, policy application and ethical considerations.

921 MASTER'S PROJECT 3 credits
Prerequisite: permission of advisor. The development, implementation and evaluation of a comprehensive research project which requires a significant contribution to the field and may lead to publication.

950 INTERNSHIP IN HOME ECONOMICS AND FAMILY ECOLOGY 3 credits
Prerequisite: permission of advisor. Community-based experience designed to supplement classroom studies. A student works with agency personnel and specialist in programs designed to meet needs of children and/or families.

690 INDIVIDUAL INVESTIGATION IN HOME ECONOMICS AND FAMILY ECOLOGY 1-3 credits
Prerequisite: permission of advisor. Individual investigation and analysis of a specific topic in areas of specialization of interest under direction of a faculty advisor.

696 INDIVIDUAL INVESTIGATION IN FAMILY DEVELOPMENT 1-3 credits
Prerequisite: permission of graduate advisor. Only individual research and analysis in specific areas of student's interest and design under direction of faculty advisor.

697 INDIVIDUAL INVESTIGATION OF CHILD DEVELOPMENT 1-3 credits
Prerequisite: permission of graduate advisor. Only individual research and analysis in specific areas of student's interest and design under direction of faculty advisor.

699 MASTER'S THESIS 5 credits
Prerequisite: permission of advisor. Preparation of thesis pertaining to a selected research subject in area of family or child development.

MUSIC
7500:

546 GRADUATE MUSIC THEORY REVIEW 2 credits
Prerequisite: Undergraduate music theory equivalent to four semesters of music theory and literature. Credit/no credit grading. May be repeated up to 3 credits.

547 GRADUATE MUSIC HISTORY REVIEW 2 credits
Prerequisite: Undergraduate music history equivalent to four semesters of music theory and literature. Credit/no credit grading. May be repeated up to 3 credits.

551 INTRODUCTION TO MUSICLOGIC 3 credits
Prerequisite: 362, Comparative musicology; acoustics; psychotherapy and physiology of music; American music history. Required of all music majors.

552 MUSIC SOFTWARE SURVEY AND USE 2 credits
Prerequisite: 162 or permission of instructor. This course gives an overview of various software platforms currently available for music editors and programs for music composition.

555 ADVANCED CONDUCTING INSTRUMENTAL 2 credits
(0)Prerequisite: 361 or equivalent. Conducts techniques to the choral ensemble, including rehearsal, vocal production, stylistic analysis and research. Required of all music majors.

556 ADVANCED CONDUCTING CHORAL 2 credits
Prerequisite: 361 or equivalent. Conducts techniques to the choral ensemble, including rehearsal, vocal production, stylistic analysis and research. Required of all music majors.

557 GUITAR PEDAGOGY 2 credits
Prerequisite: permission of instructor. A systematic study of preparing students for guitar pedagogy, sound production psychology, method books and special problems in teaching and research.

559 GUITAR ARRANGING 2 credits
Prerequisite: permission of instructor. A systematic study of preparing students for guitar pedagogy, sound production psychology, method books and special problems in teaching and research.

567 CHORAL LITERATURE 3 credits
Prerequisite: permission of instructor. Study in depth of choral works and problems related to practice, teaching and preparation of scores. Organization and preparation of ensembles. Required of all music majors.

568 HISTORY AND LITERATURE OF THE GUITAR AND LUTE 3 credits
Prerequisite: permission of instructor. Study of guitar literature from 16th to 20th centuries. Required of all music majors.

570 ORCHESTRA 2 credits
Prerequisite: permission of instructor. Study of orchestration and conducting of orchestral masterworks. Required of all music majors.

579 WORKSHOP IN MUSIC 2 credits
Prerequisite: permission of instructor. Investigation of topics not offered in regular curriculum. Graduate student must fulfill all requirements.

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599 WORKSHOP IN MUSIC 2 credits
Prerequisite: permission of instructor. Investigation of topics not offered in regular curriculum. Graduate student must fulfill all requirements.

611 FOUNDATIONS AND PRINCIPLES OF MUSIC EDUCATION 3 credits
Prerequisite: permission of instructor. Study of basic philosophical, historical, sociological and psychological concepts underlying music programs and music education programs.

612 PRACTICES AND TRENDS IN MUSIC EDUCATION 3 credits
Prerequisite: permission of instructor. In-depth exploration of modern and contemporary approaches to music education. Required of all music majors.

613 INSTRUCTIONAL PROGRAMMING IN MUSIC FOR THE MICROCOMPUTER 3 credits
Prerequisite: 4510 or permission. Introduction to programming languages for the microcomputer including BASIC, Pascal and Assembler. Programming will be directed towards music educational concepts.
MUSICAL ORGANIZATIONS

5710:

521 GUITAR CHAMBER MUSIC
1 credit
Prerequisite: Permission of instructor. Study and performance of group and solo repertoire for guitar. Each student will present a recital document in conjunction with the recital. Instruction in research methods and style of Baroque music. Includes aural training in improvisation. One credit.
## Communication 7600:

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<td>Percussion</td>
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### Courses

- **Communication in Organizations**: 3 credits
- **Analyzing Organizational Communication**: 3 credits
- **Training Methods in Communication**: 2 credits
- **Theory of Group Processes**: 3 credits
- **Public Speaking in America**: 3 credits
- **Corporate Video Design**: 3 credits
- **Corporate Video Management**: 2 credits
- **Audio and Video Editing**: 2 credits
- **Directing Video Productions**: 3 credits
- **Writing for Broadcast and Corporate Publications**: 2 credits
- **Advanced Film Production**: 2 credits
- **Documentary Form**: 3 credits
- **Communication Workshop**: 1.3 credits
- **Corporate Video Production**: 2-6 credits
- **Introduction to Graduate Study in Communication**: 6 credits
- **Empirical Research in Communication**: 3 credits
- **Introduction to Quantitative Research in Communication**: 3 credits
- **Communication Problems in the Basic Speech Course**: 1 credit
- **Communication Pedagogy**: 3 credits
- **Women, Minorities and News**: 3 credits
- **Issues in Legal Regulation of the Media**: 3 credits
- **Intercultural Communication Theory**: 3 credits

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**The University of Akron**
COMMUNICATION DISORDERS

7700:

530 ASPECTS OF NORMAL LANGUAGE DEVELOPMENT 3 credits

Survey of phonological, syntactic, semantic, and pragmatic development of language. Focus on child and adult development of language. Emphasis on individual differences.

540 AUGMENTATIVE COMMUNICATION

Prerequisite: 530 or 420/530 or permission of instructor. Overview of augmentative communication systems candidates, symbol systems, development, vocabulary, and conceptual issues. Discussion of interdisciplinary issues in assessment intervention.

580 SPEECH AND HEARING DISORDERS IN THE PRIMARY SCHOOLS 3 credits

Survey of current educational issues, emphasizing speech and language disorders in the primary school setting.

620 ELECTROSTYNOGRAPHY 2 credits

Prerequisite: Permission of instructor. Interpretation of electrostatic and electrical recordings of voice. Analysis of voice samples.

652 LANGUAGE DEVELOPMENT: NORMAL AND DISORDERED 3 credits

Survey of research addressing normal and disordered development of language skills. Emphasis on theory and methodology.

659 THEROIES OF ARGUMENT AND PERSUASION 3 credits

Prerequisite: Undergraduate course in argumentation and persuasion. Cognitive, social, and rhetorical perspectives. Emphasis on application.

665 COMMUNICATION CRITICISM 4 credits

Introduces the basic elements, approaches, and types of critical discourse as it relates to communication and mass media.

670 SEMINAR ON RHETORICAL CRITICISM

(May be repeated for a total of six credits) Considered around special problems and methodological and critical issues in rhetorical criticism.

675 SEMINAR IN RHETORICAL THEORY

(May be repeated for a total of six credits) Focuses on the theoretical foundations of rhetorical criticism.

680 HISTORICAL ELEMENTS SOCIOMOVEMENTS

(May be repeated for a total of six credits) Examine role and function of collective historical discourse in affecting change. Focus on various historical methodologies for understanding social movements and historic events.

690 SEMINAR IN RHETORICAL THEORY

(May be repeated for a total of six credits) Focus on the theoretical foundations of rhetorical criticism.

698 ADVANCED COMMUNICATION STUDIES

May be repeated for a maximum of six credits. Prerequisite: Permission of the instructor. May be repeated for a maximum of six credits. Prerequisite: Permission of the instructor.

790 MASTER'S PROJECT/PRODUCTION

May be repeated for a total of six credits. Prerequisite: Permission of the school director.

799 MASTER'S THESIS

May be repeated for a total of six credits. Prerequisite: Permission of the school director.

COURSES OF INSTRUCTION
530 SOCIA WORK PRACTICE I
2 credits
Prerequisite: 276 or permission of instructor. Basic concepts and methods of social work practice, particularly relating to understanding and working with individuals and families.

532 SOCIA WORK PRACTICE II
2 credits
Prerequisite: 401 or permission of instructor. Concepts and methods of social work practice, particularly relating to understanding and working with groups in various settings in our community.

533 SOCIA WORK PRACTICE III
2 credits
Prerequisite: 401 or permission of instructor. Development of understanding and practice methods for utilization of community organization and social planning as social work process in assessing services and building programs to meet needs.

534 SOCIA WORK PRACTICE IV
3 credits
Prerequisite: 401 or permission of instructor. Professional social work practice with families in society; the assessment of family systems, assessment of family dysfunction, and professional helping processes.

530 MINORITY ISSUES IN SOCIAL WORK
3 credits
Prerequisite: 276 or permission of instructor. The problems of social services designed to help children, and of practice of social work in contemporary society.

532 SOCIAL POLICY ANALYSIS FOR SOCIAL WORKERS
3 credits
Prerequisite: 527 or permission of instructor. Graduate status, currently enrolled in or completed second year coursework. This course focuses on understanding the human behavior and life cycle development of people as individuals and as members of families and other small groups.

533 SOCIAL BEHAVIOR AND SOCIAL ENVIRONMENT I
2 credits
Prerequisite: 427 or permission of instructor. For 527, permission of instructor. Social work perspective on human development across the life cycle. Human diversity, appilability, and the relevance of social work education for practice.

534 SOCIAL BEHAVIOR AND SOCIAL ENVIRONMENT II
2 credits
Prerequisites: 480, 276, 427 or permission of instructor. For 540, permission of instructor. Emphasis on social work practice with individuals and families and groups.

540 SOCIAL WORK RESEARCH I
3 credits
Prerequisite: 446, 276. Prerequisite: 527 or permission of instructor. Social work practice in an institution of scientific method in the context of practice and integration of social work research as found in social work and social science literature for understanding and social work practice.

541 SOCIAL WORK RESEARCH II
3 credits
Prerequisite: 446, 276 or permission of instructor. For 540, graduate status, currently enrolled in or completed second year coursework. This course focuses on understanding the human behavior of people as members of larger social systems including formal and informal organizations, communication and institutions.

542 ADVANCED STANDING INTEGRATIVE SEMINAR
6 credits
Prerequisite: advanced standing. Provides an integrative view of social work practice with an emphasis on values, foundation knowledge and skills, and evaluation of professional relationship development.

543 CONTEMPORARY SOCIAL WORK PRACTICES
3 credits
Contemporary social work concepts and methods learned and applied in various social welfare, community service, and health settings. Particularly useful for professionals in related fields and for advanced practitioners.

544 ADVANCED PRACTICE WITH SMALL SYSTEMS I
3 credits
Prerequisite: second level graduate status or permission of instructor. This course focuses on understanding the dynamics of small social systems.

545 ADVANCED PRACTICE WITH SMALL SYSTEMS II
3 credits
Prerequisite: 704 or permission of instructor. As a continuation of Advanced Practice I, this course focuses on development and implementation of intervention strategies with and on behalf of small systems.

546 SOCIAL WORK RELATIONSHIP I
3 credits
Prerequisite: graduate status, currently enrolled in or completed second year coursework. A 2 semester course consisting of a 600 clock hour, supervised internship in a social work agency, based on the student's concentration and specialization.

547 SOCIAL WORK RELATIONSHIP II
3 credits
Prerequisite: graduate status, currently enrolled in or completed second year coursework. A 2 semester course consisting of a 600 clock hour, supervised internship in a social work agency, based on the student's concentration and specialization.

548 SOCIAL WORK PRACTICE WITH GAYS AND LESBIANS
2 credits
Prerequisite: graduate standing and/or permission of instructor. The course examines gay and lesbian culture, folklore, and social work practice with this population.

549 Single System Design
3 credits
Prerequisite: second level graduate standing and/or permission of instructor. Provides students with advanced knowledge about the methodology of single system design and skill to implement its evaluation strategy in their intervention with clients.
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>765</td>
<td>Supervision and Staff Development 3 credits</td>
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<tr>
<td>771</td>
<td>Social Work Administration 3 credits</td>
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<tr>
<td>780</td>
<td>Strategies of Community Organization 3 credits</td>
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<tr>
<td>785</td>
<td>Introduction to Community Organization and Planning 3 credits</td>
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<tr>
<td>781</td>
<td>Economic Systems and Social Policy Analysis 3 credits</td>
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<tr>
<td>782</td>
<td>Fiscal Management of Social Agencies 3 credits</td>
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<tr>
<td>783</td>
<td>Aging and Social Work Practice 3 credits</td>
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<tr>
<td>784</td>
<td>Aging Policies and Programs 3 credits</td>
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<tr>
<td>785</td>
<td>Social Work Practice: Family and Children 3 credits</td>
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<tr>
<td>786</td>
<td>Social Welfare Policy and Services: Family and Children 3 credits</td>
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<td>787</td>
<td>Advanced Practice and Policy in Substance Abuse 3 credits</td>
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<td>788</td>
<td>Health Care: Planning and Policy Issues 3 credits</td>
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<td>789</td>
<td>Epidemiological Analysis of Health and Social Problems 3 credits</td>
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**Theater Courses 7800:**

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<tr>
<th>Course Code</th>
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<tr>
<td>565</td>
<td>Performance Projects 7 credits</td>
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<tr>
<td>566</td>
<td>Playwriting 2 credits</td>
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<td>567</td>
<td>Contemporary Theater Styles 3 credits</td>
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<td>568</td>
<td>Children's Theatre 3 credits</td>
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<tr>
<td>575</td>
<td>Acting for the Musical Theater 2 credits</td>
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<tr>
<td>650</td>
<td>Workshop in Theater Arts 2 credits</td>
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<td>651</td>
<td>Introduction to Graduate Studies 2 credits</td>
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<td>652</td>
<td>Special Topics in Theater Arts 4 credits</td>
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<td>653</td>
<td>Colloquium on the Arts 2 credits</td>
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<tr>
<td>656</td>
<td>Principles of Modern Scenography 3 credits</td>
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THEATER ORGANIZATIONS
7810:

561 PRODUCTION PRACTICUM DESIGN/TECHNOLOGY 1-2 credits
(May be repeated for a total of four credits. Prerequisite: Permission of instructor. Practice in selected production design/technology operations, applications and techniques as they apply to production projects and major departmental productions.)

565 PERFORMANCE PRACTICUM 1-2 credits
(May be repeated for a total of 12 credits. Prerequisite: Permission of project advisor. Recognition of work undertaken by the student when performing a role in a theater production. Credit assigned and work supervised by faculty project supervisor.)

DANCE
7900:

590 WORKSHOP IN DANCE 1-2 credits
(May be repeated for a total of eight credits. Prerequisite: advanced standing or permission. Group study or group projects investigating particular phases of dance not covered by other courses in curriculum.)

DANCE PERFORMANCE
7920:

590 WORKSHOP IN DANCE 1-2 credits
Prerequisite: Advanced standing or permission. (May be repeated for a total of eight credits. Group study/projects investigating a particular phase of dance not covered by other courses in curriculum.)

College of Nursing

NURSING
8200:

509 INTERNATIONAL NURSING 3 credits
Prerequisite: Admission to M.S.N. program. A comparison of nursing roles and responsibilities in an international environment. The influence of education, ethics, government, demographics, and geography on health care will be considered.

589 SPECIAL TOPICS: NURSING 4 credits
May be repeated as new topics are presented. Group studies of special topics in nursing. May not be used to meet requirements for the major in nursing. May be used for elective credit.

593 WORKSHOPS 1-2 credits
(May be repeated as new topics are presented. Selected topics in nursing. May be used to meet undergraduate/graduate requirements at the discretion of the student.)

614 THEORETICAL BASIS FOR NURSING 2 credits
Prerequisite: Admission to Graduate Program. Overview of extant nursing science. Examination of the relationships of theory, research, and practice.

650 COMPUTER APPLICATIONS IN NURSING 2 credits
Prerequisite: Admission to Graduate Program. Computer systems influencing nursing practice. Data entry, education, and national knowledge exchange in nursing are examined. The complex issues surrounding the use of computer technology in nursing are explored.

667 POLICY ISSUES IN NURSING 2 credits
Prerequisite: Admission to Graduate Program. Analysis of policy issues that impact on nursing and health care delivery (e.g., legislation, examination of methods to identify, evaluate, and influence policies). Special readings may not be used to satisfy requirements for the major.

680 PATHOPHYSIOLOGICAL CONCEPTS OF NURSING CARE 3 credits
Prerequisite: Acceptance into the M.S.N. Program. In-depth study of pathophysiological conditions and related treatment modalities. Selected topics in pathophysiological abnormality will be covered. (May be repeated as new topics are presented.)

613 NURSING INQUIRY I 3 credits
Prerequisite: Admission to Graduate Program. Concepts and ethical issues relating to scientific inquiry are examined. Emphasis is on shaping the research process. Students participate in critical analysis of nursing research.

615 ADVANCED CLINICAL PRACTICE SEMINAR 2 credits
Prerequisite: Admission to Graduate Program. Complex ethical issues related to clinical practice are examined. (May be repeated as new topics are presented.)

618 NURSING INQUIRY II 3 credits
Prerequisite: Admission to Graduate Program. Ethical issues related to scientific inquiry are examined. Through case studies and application, ethical issues are explored. Special readings may not be used to satisfy requirements for the major.

621 GERONTOLOGICAL NURSING I 3 credits
Prerequisite/Corequisite: 603, 308, 670. Physiological, psychological, and sociological theories of aging are analyzed in relation to nursing care and nursing research. Nursing interventions are examined. (May be repeated as new topics are presented.)

622 GERONTOLOGICAL NURSING II 3 credits
Prerequisite: Admission to Graduate Program. Physiological, psychological, and sociological theories of aging are analyzed in relation to nursing care and nursing research. Nursing interventions are examined. (May be repeated as new topics are presented.)

623 GERONTOLOGICAL NURSING III 3 credits
Prerequisite: Admission to Graduate Program. Physiological, psychological, and sociological theories of aging are analyzed in relation to nursing care and nursing research. Nursing interventions are examined. (May be repeated as new topics are presented.)

624 GERONTOLOGICAL NURSING IV 3 credits
Prerequisite: Admission to Graduate Program. Physiological, psychological, and sociological theories of aging are analyzed in relation to nursing care and nursing research. Nursing interventions are examined. (May be repeated as new topics are presented.)

625 PRACTICUM: GERONTOLOGICAL NURSING 3 credits
Prerequisite: 623. Prerequisites/Corequisites: 615, 622. Integration of nursing knowledge and skills with an older population in episodic and long-term care clinical situations.

630 RESOURCE MANAGEMENT IN NURSING SETTINGS 3 credits
Prerequisite: 603, 615, 622, 670. Examination of fiscal and human resources in nursing service settings; analysis of economics and labor relations in health care organizations.

632 FISCAL MANAGEMENT IN NURSING ADMINISTRATION 2 credits
Prerequisite: Admission to M.S.N. program. Examination of management of fiscal resources in nursing service settings.

635 ORGANIZATIONAL BEHAVIOR IN NURSING SETTINGS 3 credits
Prerequisites: 620, 640, 670, 674. Examination of organizational behavior theories and techniques related to systems analysis and assessment of organizational structure in nursing settings.

636 PRACTICUM: NURSING ADMINISTRATION I 5 credits
Prerequisites: 630, 632, 635. Leadership and management theories are utilized to guide study of the role of nurse administrator.

637 PRACTICUM: NURSING ADMINISTRATION II 5 credits
Prerequisite: 636. Leadership and management theories are utilized to guide practice of the role of nurse administrator.

640 SCIENTIFIC COMPONENTS OF NURSE ANESTHESIA 3 credits
Prerequisite: Admission to Nurse Anesthesia Concentration. Course presents current concepts dealing with the chemical and physical components of anesthetic agents.

641 PHARMACOLOGY FOR NURSE ANESTHESIA 3 credits
Prerequisites: 602, 627, 640. Study of pharmaceutical agents, narcotics, and inhalation agents commonly used in the administration of general anesthesia. In-depth study of muscle relaxants.
College of Polymer Science and Polymer Engineering

POLYMER ENGINEERING

501 POLYMER ENGINEERING SEMINAR
1 credit
Presentations of recent research topics in polymer engineering by internal and external speakers.

511 STRUCTURAL CHARACTERIZATION OF POLYMERS WITH ELECTROMAGNETIC RADIATION
2 credits
Applications of X-ray, light, and neutron scattering, analysis and modeling of polymeric materials.

521 RHEOLOGY AND POLYMER PROCESSING
3 credits

522 ANALYSIS AND DESIGN OF POLYMER PROCESSING OPERATIONS
3 credits
Physical principles and engineering design analysis of polymer processing operations including extruder screws, injection molds, dies, fibers, and film formation.

523 ANALYSIS AND DESIGN OF POLYMER PROCESSING OPERATIONS II
3 credits
Physical principles and engineering design analysis of polymer processing operations including extruder screws, injection molds, dies, fibers, and film formation.

531 POLYMERIC MATERIAL ENGINEERING SCIENCES
2 credits
Theoretical concepts and materials behavior of non-stoichiometric polymers, behavior and properties of polymers in complex environments, and processing of polymers.

541 ENGINEERING ASPECTS OF POLYMER COMPOSITES
2 credits
Thermodynamic properties of polymer composites, structure, and properties of polymer composites.

551 INTRODUCTION TO POLYMER ENGINEERING
2 credits
Basic concepts of polymer engineering taught in lecture and laboratory formats intended for introduction to polymer engineering.

561 POLYMER ENGINEERING LABORATORY
2 credits
Laboratory experiments on theoretical characterization of polymer melts, mass transfer engineering, and polymer processing.

571 POLYMERIZATION REACTOR ENGINEERING
3 credits
Polymerization kinetics, classical reactor design, completion of polymerization in batch and continuous stirred tank reactors, flow patterns around agitators, reactor setup, reactor theory.

581 MASTERS THESIS
(2 May be repeated) Supervised original research in specific area of polymer engineering.

711 ADVANCED ELECTROMAGNETIC AND OPTICAL PROPERTIES
2 credits
Maxwell’s equations with applications to anisotropic dielectrics, birefringence and dichroism, and representation of optical, refractive indices, photonic crystals, scattered and diffracted waves, and fiber optics.

712 ADVANCED OPTICS OF POLYMERS
2 credits
Applications of micromechanical methods to the characterization of polymeric systems, techniques and methods of modern microscopy, and the interference behavior of high-resolution optical microscopes.

713 RHEOLOGY AND PROCESSING PHASE POLYMER SYSTEMS
2 credits
Principles of scattering and diffraction theory as applied to polymer crystals, molecules, and multiscale systems. Wave and angle selection, angle-averaging, light and neutron scattering, analysis, and determination of crystal structures.

714 DEVELOPMENT OF POLYMER FLOW
2 credits
Rheology behavior of non-Newtonian fluids, development of fluid constitutive equations, and application to polymer processing.

721 Rheology and Processing Two-Phase Polymer Systems
2 credits
Principles of scattering and diffraction theory as applied to polymer crystals, molecules, and multiscale systems. Wave and angle selection, angle-averaging, light and neutron scattering, analysis, and determination of crystal structures.

722 ADVANCED MODELING OF POLYMER PROCESSING
2 credits
Advanced modeling of polymer processing, including extrusion, molding, fiber, and film processing, computer-aided design.
POLYMER SCIENCE

9871:

511 MOLECULAR STRUCTURE AND PHYSICAL PROPERTIES OF POLYMERS I

Credits: 2

Prerequisite: 396 or 397 or permission. Interdisciplinary course involving the principles of chemistry and physics as brought to bear on relationships between molecular structure and chemical composition of macromolecules and their physical properties.

512 MOLECULAR STRUCTURE AND PHYSICAL PROPERTIES OF POLYMERS II

Credits: 2

Prerequisite: 415/515 or permission. Mechanical characteristics of polymeric materials, the intermolecular superstructure principle and fracture. Experimental techniques involving stress-strain behavior, heat treatment, creep, forced and free vibrations discussed.

515 MOLECULAR STRUCTURE AND PHYSICAL PROPERTIES OF POLYMERS III

Credits: 2

Prerequisite: 415/515 or permission. Mechanical characteristics of polymeric materials, the intermolecular superstructure principle and fracture. Experimental techniques involving stress-strain behavior, heat treatment, creep, forced and free vibrations discussed.

522 WORKSHOP IN POLYMER SCIENCE

Credits: 1.5

May be repeated for credit. Junior and senior level students may present talks on topics involving polymers. Material covered may not be used to meet upper-division major requirements in polymer science. May be used for elective credit only.

601 POLYMER CONCEPTS

Credits: 2

Prerequisite: 350/450 and 310/410 or equivalent courses or permission of instructor. Introductory to basic concepts in polymer science, including polymerization, copolymerization processes and naturally occurring polymers. Polymer nomenclature, definitions and classification. Polymer stereoregularity and structure-property relationships.

602 SYNTHESIS AND CHEMICAL BEHAVIOR OF POLYMERS I

Credits: 2

Prerequisite: 601 or instructor's permission. Introduction to fundamentals of practical aspects of polymer synthesis and reactions of polymers. Knowledge of laboratory entry into polymer science program. Specific examples.

604 SPECIAL PROJECTS IN POLYMER SCIENCE

Credits: 1

Prerequisite: permission. Research projects of limited nature assigned to student entering polymer science program intended to familiarize student with problems and techniques in this field.

605 POLYMER CHEMISTRY LABORATORY

Credits: 2

Prerequisites: knowledge of organic chemistry and 602 or equivalent. The preparation and identification of polymers to illustrate different methods of polymerization, such as free radical, cationic, anionic, and electrophilic addition.

610 POLYMER SCIENCE SEMINAR I

Credits: 1

Prerequisite: admission to the junior and senior level resident graduate students. Participation is required. A 25-minute oral on some aspect of polymer science and to participate in discussions at lectures presented by other participants.

610 INORGANIC POLYMERS

Credits: 2

Prerequisite: 350/450 and 310/450. Emphasis on physical chemistry aspects of inorganic polymers, including rubber elasticity, crystallization, solution behavior, and thermodynamic properties.

611 POLYMER SCIENCE LABORATORY

Credits: 3

Prerequisites: 610 and 615. Laboratory experiments in synthesis, characterization, physical properties and testing of polymers.

615 POLYMER COMPUTER APPLICATIONS IN POLYMER SCIENCE

Credits: 3

Prerequisites: Basic knowledge of computer programming and permission of instructor. Laboratory exercises in computer science research for data acquisition, data analysis, graphics, and presentation of reports and thesis.
Grievance Procedures for Graduate Students

Purpose
The procedures set forth in this document are intended to provide graduate students with a formal channel of appeal and redress of grievances arising out of their academic and/or employment relationship with the University.

Procedures
1. Any graduate student who believes that he or she has valid grounds for a complaint shall attempt to resolve the problem through a conference with the faculty member involved, the department head, and/or the graduate advisor. Following that, the student may attempt to resolve the problem with the assistance of the academic dean. A graduate student presenting a case to the academic dean must provide a full written statement of the grievance together with all appropriate supporting material. When or if the problem has not been adequately solved at that level or if the student wishes to appeal that decision, the student shall prepare a written statement of the complaint setting forth clearly and specifically the allegations and shall hand deliver the written complaint to the Dean of the Graduate School. The Dean of the Graduate School shall notify the complainant confirming the receipt of the complaint and shall request all materials from the Dean of the complainant's college.

2. Within one week of receipt of the complaint, the Dean of the Graduate School shall communicate with all parties in an attempt to informally resolve the problem. This result of this process will be a recommendation by the Dean of the Graduate School which will be communicated in writing to all parties, including the Senior Vice President and Provost.

3. The complaint shall become a grievance to be filed with the Senior Vice President and Provost. If the Dean of the Graduate School wishes to have a Hearing Committee render a recommendation on the grievance, the student wishes to appeal the recommendation of the Dean of the Graduate School. The student must notify the Senior Vice President and Provost in writing within one week of notification of the Dean of the Graduate School's decision on the complaint.

4. Upon receipt of the grievance, the Senior Vice President and Provost shall notify in writing the President of the Graduate Student Government that a Hearing Committee should be constituted. The Hearing Committee shall be organized in no more than two weeks.

5. When the grievance has been filed with the Chairperson of the Hearing Committee, it shall be the responsibility of that Chairperson to notify in writing all parties involved in the grievance within two working days. This notification shall include the following information: that a grievance has been filed; the nature of the grievance; and the parties involved.

6. If the charged party in that grievance admits the validity of the grievance, the Chairperson of the Hearing Committee shall waive the hearing and shall direct an appropriate resolution in consultation with the Hearing Committee.

7. If the party charged in the grievance denies the validity of the grievance, the Hearing Committee shall conduct the hearing.

Hearing Committee
A Hearing Committee shall be established as follows:

1. Chairperson - The Chairperson shall be a member of the graduate faculty with full membership, but not from a department involved in the proceedings. This Chairperson shall be selected by the Senior Vice President and Provost and shall serve for only one grievance proceeding. The Chairperson shall conduct the hearing and shall vote only in the case of a tie.

2. Members - Four members shall be selected as follows:
   a. From the complainant's department - a graduate student not directly involved, selected jointly by the Department Head and the President of the Graduate Student Government. If the grievance is filed against the Department Head, the Academic Dean shall substitute for the Department Head.
   b. From the complainant's department - a faculty member not directly involved, selected jointly by the Department Head and the President of the Graduate Student Government. If the grievance is filed against the Department Head, the Academic Dean shall substitute for the Department Head.
   c. A graduate student not involved with the complainant and not from the complainant's department, selected by the Vice Chairperson of the Graduate Council.
   d. A member of the graduate faculty with full membership not involved in the complaint nor from the complainant's department, selected by the Senior Vice President and Provost.

3. A Hearing Committee shall be organized anew each and every time a grievance is brought forth. A Hearing Committee shall serve through the adjudication and resolution of the complaint.

Hearing Procedure
1. The hearing must take place within two weeks of the Hearing Committee's formation.

2. At least three working days prior to the hearing, the Hearing Committee Chairperson shall provide the Hearing Committee and the parties involved with:
   a. The student's written statement of the grievance.
   b. Written notification of when and where the Hearing Committee shall meet.
   c. A copy of "Grievance Procedures for Graduate Students" and all relevant documents.

3. Each party shall be required to appear in person before the Hearing Committee to present his/her case. Each party may have an advisory colleague present to protect his/her rights if so desired. However, the parties shall speak and act on their own behalf. Witnesses may be called to present evidence on behalf of the complainant or the charged person. The use of tape recorders is prohibited, except as may be required to accommodate persons with disabilities.

4. All parties shall be entitled to an expedited hearing. In urgent cases in which it is alleged that a regulation, administration decision, or action threatens immediate and irreparable harm to any of the parties involved, the Hearing Committee shall expedite the hearing and disposition of the case. The Hearing Committee is empowered to recommend to the Dean of the Graduate School that an individual, detailment, or college discontinue or postpone any action which threatens to cause irreparable harm, pending the final disposition of the case.

5. The burden of proof shall be on the complainant and the standards of justice and fair play shall prevail in the adjudication of violations and grievances.

6. If necessary, the Hearing Committee may consult with the University's Office of General Counsel for advice at any time throughout this process.

Decisions and Actions
1. The Hearing Committee shall decide as follows: there has been a violation of the complainant's rights, or there has been no violation of the complainant's rights.

2. Should the Hearing Committee determine that a violation of the complainant's rights occurred, the Committee shall, if practical, recommend a resolution to the Senior Vice President and Provost.

3. The Senior Vice President and Provost, exercising his/her judgment, shall act on the implementation of the resolution recommended by the Hearing Committee.

Record Keeping
The Chairperson of the Hearing Committee shall be responsible for keeping a summarized written record of all the proceedings.

1. Records of all proceedings shall be prepared by the secretarial personnel of the Graduate School. Copies of all proceedings shall be distributed as follows:
   a. To all parties involved in the proceedings.
   b. To the Hearing Committee members.
   c. To the President of the Graduate Student Government.
   d. To the Dean of the Graduate School.
   e. To the Senior Vice President and Provost.

2. A copy of all proceedings shall be kept in the office of the Dean of the Graduate School pursuant to the University's record retention proposal.

Appeal
An appeal may be made to the President of the University after all of the above procedures have been followed. The President of the University shall assess each case on an individual basis and his/her decision shall be considered final.

Approved by Student Policy Committee, 2/2/93
Approved by Graduate Council, 3/29/93
Approved by Graduate Faculty, 2/2/93
Approved by the Academic Deans, Curriculum and Calendar Committee, 3/5/94
Approved by the Board of Trustees, 6/22/94
Intellectual Property Rights and Obligations

During your graduate study at The University of Akron and your professional career thereafter, you may become involved with at least one of the three main forms of intellectual property matters: copyrights, patents, and proprietary information/trade secrets. It is possible that certain discoveries may have commercial value, and therefore may invoke one or more of the above forms of intellectual property ownership.

Copyright

Copyright, by law, is automatically owned by the author when the work is placed in a fixed form (or medium). The University Board of Trustees automatically waives any claim of the University to copyright in books, texts, or articles authored by faculty or students except when the material is prepared as a sponsored project in which case it is the property of the University. Ownership would then be assigned to the University or its designee as the Board of Trustees directs. Questions of ownership are often best handled informally between potential joint authors.

Patents

All discoveries and inventions in any way related to your research work at The University of Akron must be reported to your faculty advisor, and through your advisor to your department chair, dean, and thereafter to the Office of Research Services and Sponsored Programs using the standard University of Akron invention disclosure form. This form provides a guide to describing and identifying the invention broadly and referencing specific results. Those persons thought to be possible inventors should also be identified on this form.

Patents on inventions made by University faculty, staff, students or anyone using University facilities are automatically owned by The University of Akron, as provided by Ohio Revised Code Section 3345.14. The final decision as to inventorship is a technical legal conclusion and will be made in the course of preparing a patent application by the patent attorney handling the application.

Proprietary Information

Those engaged in sponsored research may also be involved with developing or receiving proprietary information owned by others outside the University (e.g., sponsors such as corporations and individuals seeking certain research from the University). The University and the principal investigator may have agreed to maintain this proprietary information in confidence. In some situations, proprietary information of a sponsor may be provided to you or other project investigators during a research project. The sponsor desires, in these situations, to keep the information confidential (or secret) for as long as possible.

You are free to use the confidential information in the course of the project and discuss it with other students or faculty members engaged in that project. However, you may not use the information on other projects, nor may you discuss it with other individuals not involved with that project. While these commitments could delay public access to your thesis for a specified time, it will not delay acceptance or approval of your thesis/dissertation nor delay your graduation date.

The University and principal investigator must have written personal commitments from anyone working on a project involving and securing proprietary information. Therefore, all research students are required to execute the Confidentiality Agreement (sample form attached to this page). Prior to the start of your research, it is the responsibility of the research director to inform you in writing of any restrictions on the research with a copy also sent to the Office of Research Services and Sponsored Programs, if your research is subject to confidentiality provisions. You are also to be informed by the research director about the scope of the research that is covered by any confidentiality provisions.

If you have any questions as to what information is proprietary, seek guidance from your project's principal investigator or your faculty research advisor.

Questions of Authorship and Inventorship

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College of Fine and Applied Arts


College of Nursing


Wayne College


College of Polymer Science and Polymer Engineering

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