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Application for Graduate School
Application for a Graduate Assistantship
The University of Akron 2000-2001

Calendar 2000-2001

**Fall Semester 2000**
- Fall 2000 Fee Payment Due: Fri., Aug. 11
- Day and Evening Classes Begin: Mon., Aug. 28
- *Labor Day (Day and Evening): Mon., Sept. 4
- Spring Graduation Applications Due: Fri., Sept. 15
- Veterans Day (classes held; staff holiday): Fri., Nov. 10
- **Thanksgiving Break**: Thu.-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 Intersession: Sat.-Sat., Dec. 30-Jan. 1-13

**Spring Semester 2001**
- Spring 2001 Fee Payment Due: Fri., Dec. 22
- *Martin Luther King Day: Mon., Jan. 15
- Day and Evening Classes Begin: Tue., Jan. 16
- Summer Graduation Applications Due: Thu., Feb. 15
- *Presidents’ Day: Tue., Feb. 20
- Sizing Break: Mon.-Sat., Mar. 13-24
- Final Instructional Day: Sat., May 5
- Final Examination Period: Mon.-Sat., May 7-12
- Commencements: Sat.-Sun., May 13-14
- Fall Graduation Applications Due: Tue., May 15
- Summer Intersession: Mon.-Sat., May 14-June 9
- Commencement for Law School: Sun., May 20

**Summer Session I 2001**
- Summer I Fee Payment Due: Fri., May 25
- First 5- and 8-Week Sessions Begin: Mon., June 11
- First 5-Week Session Ends: Sat., July 14

**Summer Session II 2001**
- Summer II Fee Payment Due: Fri., June 29
- Second 5-Week Session Begins: Mon., July 16
- 8-Week Session Ends: Sat., Aug. 4
- Second 5-Week Session Ends: Sat., Aug. 18
- Summer Commencement: Sat., Aug. 18

**Fall Semester 2001**
- Day and Evening Classes Begin: Mon., Aug. 27

*Classes cancelled (day and evening)*
**Classes cancelled from Wednesday at 5 p.m. through Monday at 6:45 a.m.*

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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, OH 44325-2101. (330) 972-7100, or toll-free, (800) 655-4884.

**Inquiries**
Address inquiries concerning:
- Graduate study to the Graduate School, The University of Akron, OH 44325-2101. (330) 972-7663.
- Undergraduate admissions information, campus tours, housing, and transfer of credits to the Office of Admissions, The University of Akron, OH 44325-2001. (330) 972-1100 or toll-free inside Ohio, (800) 955-4884.
- Athletics to the Athletic Director, The University of Akron, OH 44325-5201. (330) 972-7030.
- Registration, scheduling, residency requirements, and veteran’s affairs to the Office of the Registrar, The University of Akron, OH 44325-6208. (330) 972-6300.
- The University switchboard number is (330) 972-7111.

**University Closing Policy**
The president, or designee, upon the recommendation of the Director of Public Safety and Chief of Police, 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 Director of Public Safety and Chief of Police will promptly notify other designated University officials and members of the Department of University Communications, who will contact area media. University colleges/department/schools are encouraged to establish a method for communicating the closing decision to departmental personnel. Closing information will be announced as early as possible in the day and will clearly state the affected campuses. Call 972-SNOW or 972-6238 (TDD/Voicemail for updated information.

**Disclaimer**
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, curricula, courses, programs, activities, 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.
**Important Phone Numbers**

**University Area Code (330)**

All phone numbers are subject to change without notice.

For numbers not listed, call the University Switchboard (330) 972-7111.

General Campus Information Center (330) 972-INFO (4636)

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**Graduate School**

Dean, Graduate School .................................................. 972-7664

Associate Dean, Graduate School

Dr. Lathardus Goggins .................................................. 972-6783

Assistant to the Dean, Graduate School

Ms. Dolly Markovich .................................................... 972-6737

Coordinator, Graduate Financial Assistance

Mrs. Karen Caldwell ..................................................... 972-6310

Senior Administrative Assistant

Ms. Heather Blake ....................................................... 972-7664

Coordinator, Graduate School Admissions

Miss Brenda Henry ....................................................... 972-7665

Coordinator, Graduate Degree Completion

Ms. Cheryl Garcia .......................................................... 972-6169

Office Support Specialist

Mr. Kevin Tondra ........................................................... 972-7663

Graduate Student Government

Mr. Nick Thomarios, 2000-2001 President ................................ 972-5387

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**Graduate School**

**World Wide Web Location**

Graduate School Homepage ................................................. http://www.uakron.edu/gradsch/

Graduate School E-mail .................................................. gradschool@uakron.edu

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**Colleges**

Buchtel College of Arts and Sciences .................................. 972-7880

Community and Technical College ..................................... 972-7220

College of Business Administration ................................... 972-7040

College of Education .................................................... 972-6970

College of Engineering .................................................. 972-7816

College of Fine and Applied Arts ...................................... 972-7564

College of Nursing ........................................................ 972-7551

College of Polymer Science and Polymer Engineering ............... 972-7500

The University of Akron-Wayne College ................................ 1-800-221-8308

NEOUCOM (Northeast Ohio Univ. College of Medicine) .............. 325-2511

University College ....................................................... 972-7066

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**Other Offices**

Accessibility, Office of .................................................. 972-7928

TTY/TDD ................................................................. 972-6769

Buchtelite, The (student newspaper) .................................. 972-7457

Campus Diversity, Office of ............................................ 972-7558

Academic Support Services/Access and Retention ..................... 972-6769

Careers Program, Arts and Sciences ................................... 372-5714

Center for Child Development ........................................... 972-8210

Cooperative Education Programs ........................................ 972-7447

Counseling, Testing, and Career Center

Counseling ............................................................... 972-7082

Testing ................................................................. 972-7084

Career Placement Services .............................................. 972-7747

DocuZip (photocopying)

Gardner Student Center .................................................. 972-7870

Polsky's Center ........................................................ 972-2120

English Language Institute .............................................. 972-7544

Financial Aid, Office of Student Scholarships ......................... 972-7032

Student Employment ..................................................... 972-7405

Work Study ............................................................... 972-8074

Gradener Student Center

Director's Office .......................................................... 972-7666

Information Center ....................................................... 972-INFO (4636)

Health Services, Student .................................................. 972-7808

International Programs ................................................... 972-6349

Imigration ................................................................. 972-6740

International Admissions ................................................ 972-6405

Libraries, University

Bierce Library ............................................................. 972-7236 or 972-7497

Law Library ............................................................... 972-7330

Photocopying, Bierce Library ......................................... 972-6278

Science and Technology Library ....................................... 972-7195

University Archives ...................................................... 972-7670

Pan-African Culture and Research Center ................................ 972-7030

Parking Services .......................................................... 972-1213

Peer Counseling Program .................................................. 972-6769

Registrar, Office of the University .................................... 972-8300

Graduation Office ........................................................ 972-8300

Records and Transcripts ................................................ 972-8300

Residence Life and Housing ............................................. 972-7800

Student Affairs, Division of ............................................ 972-7007

Student Conduct ........................................................... 972-7221

Study Abroad ............................................................... 972-7460

Ticketmaster ............................................................... 972-6684

Tours (of the University) ................................................. 972-7077

University Program Board ................................................. 972-7014

Veterans Affairs Coordinator and Counselor .......................... 972-7838

WZIP-FM Radio Station ................................................... 972-7105

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**Emergency Phone Numbers**

Police/Fire/EMS ........................................................... 911

Police (non-emergency) .................................................... 972-7123

Campus Patrol ............................................................. 972-7263

University Switchboard ................................................... 972-7111

Closing Information ....................................................... 972-SNOW (7669)
Section 1

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, metropolitan, 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 the University's effort 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 struggling institution was repeatedly aided in its efforts to survive by various local entrepreneurs who pioneered and prospered in the industries that were the catalysts for the city's growth.

The growth of the college paralleled the remarkable expansion of the community itself. From 1910 to 1970 Akron was the fastest-growing city in the country, evolving from a thriving canal town of 70,000 to a major manufacturing center of 205,600, 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 items—changed the complexion of Akron forever.

Changes within the University's curriculum reflected the strong interrelationship of town and gown. In 1914 a College of Engineering began instruction, and other professional schools followed: Education (1921), Business Administration (1923), Law (1955), the Community and Technical College (1964), Fine and Applied Arts (1967), and Nursing (1967).

Considering institutions located 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 1959. From those first classes in Professor Charles W. Knight's laboratory would evolve the world's first Polymer Science and Polymer Engineering (1968), now the largest academic polymer program in the world. In the 1970s and 1980s, with the establishment of Akron's Guggenheim Airship Institute, University scientists studied the structure and design of zeppelin. 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 attract millions of dollars annually in research support, as well as top graduate students from around the world.

Research, innovation, and creativity actively take many forms at the University—in the sciences and in the arts and humanities. Today, University faculty study ways of developing manufacturing jobs to maximize safety and performance; they develop new ways to synthesize fuel; they write and produce plays, poetry, choreographed dance; they explore improved methods of tumor detection; they evaluate water quality in northeastern Ohio; they provide speech and hearing therapy to hundreds of children; they aid the free enterprise system by sharing the latest in business practices; they establish companies Alarm, which provide health care in community clinics; they study political campaign financing and reform. Faculty are awarded patents each year for their work on new technologies and products. The University of Akron's continuing and central commitment to the liberal arts is supported by the perpetuation of the institution's original name in the Buchtel College of Arts and Sciences.

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 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 awarded in 1961, but master's degrees were granted as early as 1960. The University of Akron now offers 17 doctoral degree programs and four law degree programs as well as more than 100 master's degree programs and options. The University offers undergraduate students a choice of more than 200 majors and areas of study leading to associate and bachelor's degrees. Hundreds of noncredit continuing education courses, certificate programs, and specialized training opportunities are available for individuals and organizations.

In 1963 the state tax monies made the University a state-assisted municipal university, and on July 1, 1967, the University of Akron officially became a state university. Today, nearly 73,000 students from 40 states and 70 foreign countries are enrolled in its 10 degree-granting units. The University of Akron is only Ohio institution, public or private, with a science and engineering program ranked in the top five nationally. Its College of Polymer Science and Polymer Engineering also is the nation's largest academic polymer program. The University excels in many other areas, including global business, biomedical engineering, organizational psychology, educational technology, marketing, dance, intellectual property law, and nursing. Alumni of the University number more than 115,000 and include scientists, engineers, artists, lawyers, educators, nurses, writers, business people, and other professionals at work in every state and 84 foreign countries.

The 170-acre Akron campus, with 70 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, and choral programs, Thurning 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 joined the Mid-American Conferences in 1951 and participates on the NCAA Division I level in 18 sports. (Women's soccer begins in Fall 2001).

The University of Akron campus, already one of the most modern in Ohio, has embarked on an ambitious venture to create "a new landscape for learning." With a $200 million investment, six new buildings and major expansions or renovations of 14 other structures will be completed during the next five years. Among the new buildings will be a Student Recreation and Wellness Center and a Student Union. The campus will have 30 additional acres of green space as well.

For 130 years, The University of Akron has been an active participant in Akron's renaissance of commercial and artistic endeavor, a leader in the metropolitan area's intellectual and professional advancement, a center for internationally-lauded research efforts, a source of enrichment, education, and vitality for northeast Ohio. Our history is a long and proud one—but at 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 metropolitan institution, 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 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.

STRATEGIC DIRECTIONS

The following strategic directions provide further definition of the University's mission and service as the bases upon which the college, departments, and service units of the University are establishing program objectives new and toward the 21st century.

Strategic Direction I

Attract and retain a higher quality and more diverse student body.

Strategic Direction II

Identify and eliminate barriers to a campus culture of service, and make every effort to improve the campus environment.

Strategic Direction III

Increase student retention and progress toward completion of their academic programs.

Strategic Direction IV

Improve the quality of the undergraduate experience.

Strategic Direction V

Cultivate scholarly and creative activities that are recognized regionally, nationally, and internationally.

Strategic Direction VI

Acquire and efficiently utilize the human, information, financial, and physical campus resources needed to fulfill the mission of The University of Akron.

A CIVIL CLIMATE FOR LEARNING: Statement of Expectations

The University of Akron is an educational community of diverse peoples, processes, and programs. While all of us in one way or another hold values, beliefs, and preferences, we all share certain principles of personal responsibility, mutual respect, and common decency. Our campus culture requires that we maintain and extend these principles, for without them we cannot thrive as a humane and worthwhile university. To keep ourselves aware of these shared principles, this statement articulates some of the expectations and responsibilities of a civil climate for learning on our campus.
Principles of Our Campus Culture

Our campus culture acknowledges the importance of all in our community for their participation in our common enterprise as a university. We value the contributions and we respect the needs of students, faculty, contract professionals, staff, administrators, maintenance and service personnel, and everyone else whose work and dedication enables us to pursue our individual and collective academic goals.

Together, we maintain an intellectual culture that is accessible, disciplined, free, safe, and committed to excellence.

By our behavior with one another we endorse a culture of diversity, celebrating the uniqueness of the individual and developing our understanding and tolerance of differences in gender, ethnicity, age, spiritual belief, sexual orientation, and physical or mental potential.

We take responsibility for sustaining a caring culture, nurturing growth and fulfillment in one another and in the larger communities of which we are a part.

We insist on a culture of civility, unified in our rejection of violence, coercion, deceit, or terrorism. We work to increase collaboration, cooperation, and consensus within rational dialogue characterized by mutual respect and consideration.

Ours is a responsible culture. We expect each member of our community to carry out his/her duties for preserving the integrity, quality, and decency of our environment and our discourse.

Expectations and Responsibilities

To preserve and propagate the Culture of The University of Akron, everyone must engage in certain specific behaviors. Anyone new to this campus must be aware of the expectations we have of each other and be committed to fulfilling their responsibility in maintaining our culture.

Inside the Classroom

Inside the classroom, faculty are expected to respect the sanctity of the teaching-learning process by honoring their commitment to students in terms of time, fairness, and enthusiasm. It is the responsibility of faculty to set and enforce the classroom rules of conduct. Faculty members are expected to treat men and women, persons of all colors and ethnicities, and persons with varying abilities, spiritual preference, or sexual orientation with equitable respect and consideration. Faculty should value and pursue excellence in teaching as well as research. Faculty shall not engage in sexual or other forms of harassment or engage in inappropriate dual relationships with students. Faculty must not tolerate academic dishonesty, nor discrimination or harassment from students to other students.

Students are expected to respect the sanctity of the teaching-learning process by expressing respect for the faculty member as the organizer and guide through this learning experience, as well as for fellow students. Disruptive, disrespectful, discriminatory, harassing, violent and/or threatening behavior is explicitly prohibited. Academic dishonesty will not be tolerated. Students are expected to take responsibility for their own learning and, in return, can expect responsible teaching from the faculty member. Students should report unprofessional behavior on the part of faculty members. Students have a right to expect that they will not be sexually or physically harassed, intimidated, or threatened.

On the Campus

On the campus, everyone is expected to respect and protect the dignity and freedom of each other. There must be the opportunity for expression of all points of view, free from name-calling or ridicule. All members of the University family are expected to be civil and tolerant of others. It is the responsibility of each member of the University community to express dissatisfaction with anyone who fails to meet the responsibility of civility, and to request that they do so. In the event that cooperation cannot be attained, proper authorities must be involved to insist upon these minimum expectations. Only by campus-wide compliance to these expectations can we achieve a clear sense of our campus culture and, accordingly, a sense of mutual pride.

Students can expect that all representatives of all departmental and administrative offices will treat them with respect, a sense of cooperation and with concern for their welfare. Students can also expect appropriate coordination of services among departments.

Everyone is expected to respect the campus environment by behaving in ways that protect the safety, order, and appearance of all campus facilities. Each person must take steps to preserve the ecological and aesthetic aspects of the campus.

Additional Behavioral Expectations

All members of the University community are required to abide by all laws and regulations of The University of Akron, the City of Akron, the State of Ohio, and the Federal Government. Students are expected to abide by the Student Code of Conduct and the University Disciplinary Procedures. Faculty, contract professionals, administrators, and staff are expected to abide by all University regulations and procedures.

ACCREDITATION

Accreditation assures that degrees are recognized and approved by selective regional and national education associations, societies, and councils. The University of Akron has been approved by the North Central Association of Colleges and Schools (30 N. LaSalle St., Chicago, IL 60602-2504; telephone (312) 621-7440) since 1914 and was recently reaccredited at the highest level as a comprehensive doctoral degree-granting institution. This recognition illustrates the high academic standards maintained at the University and assures students taking preprofessional courses leading to advanced study in such fields as medicine, dentistry, law, and theology that they are receiving sound preparation for acceptance at other graduate and professional schools. Accreditation also provides the security of knowing that the University will honor most credits earned at a similarly accredited college or university. Degrees earned at the University are respected and sought after by prospective employers.

In addition to the recognized regional accreditations, special accreditation for particular programs has been awarded as follows:

AACSB, the International Association for Management Education
Accreditation Board for Engineering and Technology
Engineering Accreditation Commission
American Chemical Society
American Council on Social Work Education
American Dietetic Association
American Economics Association
American Medical Association
American Psychological Association
American Speech-Language-Hearing Association
Association of Collegiate Business Schools and Programs
Commission on Accreditation of Allied Health Education Programs
Council for the Accreditation of Counseling and Related Educational Programs
Council for Certification of Nurse Anesthesia Educational Programs
Council for Professional Development of the American Home Economics Association
Foundation for Interior Design Education
National Academy of Early Childhood Programs (Division of the National Association for the Education of Young Children)
National Accredit ing Agency for Clinical Laboratory Sciences
National Association of Schools of Art and Design
National Association of Schools of Dance
National Association of Schools of Music
National Association of Schools of Public Affairs and Administration
National Council for Accreditation of Teacher Education
National League for Nursing Accrediting Commission
Ohio Board of Nursing
Ohio Department of Education

The University also holds membership in the following educational organizations:
American Association of Colleges of Nursing
American Association of Colleges for Teacher Education
American Association of Community Colleges
American Association of State Colleges and Universities
American Council on Education
American Society for Engineering Education
American Society for Training and Development
Council of Graduate Schools
Council of the North Carolina State Bar
Department of Baccalaureate and Higher Degree Programs (National League for Nursing)
League of Ohio Law Schools
Midwestern Association of Graduate Schools
National Association of Graduate Admission Professionals
National League for Nursing
North American Association of Summer Sessions
Ohio College Association
Ohio Continuing Education Association
State of New York Court of Appeals
University Continuing Education Association

The American Association of University Women grants membership to women graduates with approved baccalaureate degrees from The University of Akron.

The School of Law is accredited by the American Bar Association and is a member of the Association of American Law Schools.
The Campus

During recent years, the University campus has undergone many major changes. In 1957 the University's 13 acres encompassed only 10 buildings. Currently the Akron campus covers 170 acres and includes 73 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 parklike pedestrian areas. Students have ready access to retail outlets, transportation, and churches. Akron is easily reached by automobile from major national east-west routes (Interstates 80, 90, and 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 Market Street and East Exchange Street in the downtown area. Arising past parking lots, 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:

Admissions Building. Located at 361 Buchtel Common, the Office of Admissions assists students with applications, requirements, and procedures for undergraduate, postbaccalaureate, guest, transfer, and special student status.

Akron Polymer Training Center. The Akron Polymer Training Center is an instructional classroom and laboratory facility for Polymer Engineering and Engineering and Science Technology Polymer Science classes.

Auburn Science and Engineering Center. Named for Dr. Norman P. Aubin, 10th 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 recently completed $2 million biology research facility, and the science and engineering holdings of University Libraries.

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

Ballet Center. This center, located at 354 East Market Street, houses dance studios, a choreography laboratory, faculty offices, 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, philosopher, philanthropist, and soldier, the building opened in the spring of 1973. In addition to the book and periodicals collections, the library houses audio-visual materials, maps, and microfilms. University Libraries, including Science and Technology materials located in the Auburn Science and Engineering Center, have holdings of more than 2.8 million items.

Buchtel Hall. Originally built in 1910, this structure was destroyed by fire in 1969 and rebuilt in 1971 (Buchtel Hall III). 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 $9.1 million facility, located at 259 South Brosieyave, was completed in 1991. The structure consolidates office, classroom, and laboratory facilities for the College of Business Administration, the George W. Clevenger School of Accounting, 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 Planning, Developmental Programs, the Academic Computing and Student Facility, New Student Orientation, and the Office of the President of the Faculty Senate.

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

Central Services Building. At 165 South Forge Street, this building houses the administrative service departments of central stores, printing services, and mail room.

Computer Center. Purchased and renovated in 1981 for $13 million, this building at 165 Carroll Street houses the University's Information Services office, main computers, and workrooms, as well as student and faculty microcomputer labs and time-sharing terminals.

Crouse Hall. Crouse Hall houses the Department of Geography, the 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 a dedicated member of the University Board of Trustees from 1952 to 1975, this cultural center, which cost more than $13.9 million, was 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.

Firestone Conservatory. On the first floor of Guzzetta Hall, this facility provides conservation space, practice rooms, and office space.

Folt Hall. This building, at 150 East Exchange Street, provides modern, well-equipped facilities for the Mary Schiller Myers School of Art. Studios are available for graphic arts, photography, drawing, painting, metalsmithing, ceramics, and computer design. The Emily Davis Art Gallery is also located in the facility.

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

Gardner Student Center. This complex was named for Dorothy H. Gardner, who was appointed dean of men in 1926, the University's first dean of students in 1937, the first dean of administration in 1955, and later, in 1969, was promoted to vice president for student affairs. She retired in 1982. This facility, which serves as a unified force in the life of the institution, houses nearly 80 percent of all non-academic activities. It provides bowling alleys, meeting rooms, lounges, student activity and publication offices and workrooms, a game and billiard room, a bookstore, bank facilities, the Gardner Theatre, a cafeteria, and other dining facilities.

Mary E. Gedwinn Hall. Housing the College of Nursing and biology laboratories, this building was named in honor of distinguished alumna Mary E. Gedwinn (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.

Goodyear Polymer Center. Construction of the $17 million Polymer Science Building was completed in the spring of 1991. This two-story structure of steel, concrete, and glass, located at 170 University Avenue, houses offices for the dean of the College of Polymer Science and Polymer Engineering, and the 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.

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, and provides additional space for the School of Dance, Theatre and Arts Administration, and for the School of Music. In addition to providing more than 40 student practice rooms, the complex houses 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 South Union Street and contains an athletics facility seating 7000, an indoor jogging track, physical education laboratories, classrooms, the athletic director's office, the sports information office, athletic offices, and a ticket office.

Tower House. Located on Fir Hill, this 19th-century mansion 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 1903. Opened in 1973, the building houses the Department of Chemistry and features many innovative laboratories with the most sophisticated safety equipment, as well as classrooms and faculty and administrative offices.

Kolbe Hall. Named for the first president of the Municipal University of Akron, this building was renovated for the School of Communication at a cost of $7.3 million. Additions to and remodeled space within the building have provided space for faculty and staff offices, TV studio areas, WQAP-FM radio station, computer labs and classrooms. The building also houses the Paul A. Daron 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 general purpose classroom space. Temporary occupants of the building include interdisciplinary studies, the English Language Institute, World Civilization and Western Traditions Offic, the Strategic Planning Office, the Statistics Department, and the Equal Employment Opportunity Affirmative Action Office.

Paul E. Martin University Center. Located at 105 Fir Hill, the Paul E. Martin University Center has changed from a private club serving dining-staying members to a University facility. This building serves as student center, the campus bookstore and is open for lunch between 11:30 a.m. and 2 p.m. Business and departmental functions, banquets, receptions, and parties can be scheduled during the hours of 7:30 a.m. to
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, moot courtroom, appellate review office, seminar rooms, and faculty offices. A $22.6 million addition to the library and support space, and a $1.5 million second expansion has linked McDowell Law Center to West Hall, providing additional administration office space. The law complex stands at the corner of University Avenue and Wolf Ledges Parkway.

Memorial Hall. Dedicated to the memory of Summit County man and woman who died in World War II, this structure completes the JAR. It contains offices of the Department of Physical and Health Education, a main gymnasium, a gymnastics area, a combatives area, a motor learning lab, a human performance lab, an athletic training lab for sports medicine, a weight training and fitness center, an athletics batting cage, the intramurals 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.

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

Olin Hall. Named in honor of Professor Oscar E. Olin and Mr. Charles Olin, this facility was completed in March 1975. 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, Arts and Sciences Careers Program, History, Modern Languages, Political Science, Philosophy, Sociology, and the Ray C. Bliss Institute of Applied Politics. The complex is at the corner of Buchtel Common and South Union Street.

100 Lincoln Street Building. This building houses the Purchasing Department and Telecommunications Department offices, as well as the Office of the Vice President, Capital Planning and Facilities Management, The Office of the Director of Campus Planning, and the Office of the Director of Space Utilization.

143 Union Street Building. This building provides temporary administrative office space for the University Treasurer, Resource Analysis and Budget and the Payroll Department.

Olson Research Center. This remodeled warehouse on Forge Street houses the Department of Biomechanical 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 Graduate School Dean's Office, the Community and Technical College dean's office, and the departments of Business Technology, Public Service Technology, Allied Health Technology, and Associate Studies. All of the building are the University Archives. The Archives of the History of American Psychology, The School of Speech-Language Pathology and Audiology and its Audiology and Speech Center, the Department of Public Administration and Urban Studies, the School of Social Work, The Continuing Education Office, the Office of International Programs, the Associate Vice President for Research and Technology Transfer of Research Services and Sponsored Programs, and the Institute for Policies Studies offices, the Institute for Health and Social Policy, and temporary quarters for the Department of Psychology and the Institute for Life-Span Development and Gerontology. A University food service facility and a campus bookstore are in operation on the High Street level third floor.

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 600 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 the Board of Trustees, this complex, which adjoins Science and Engineering Center, is comprised of two academic structures and a parking deck. Schrank Hall North contains space for the Counseling, Testing and Career Center (including Placement Services), some Civil and Mechanical Engineering Faculty offices and research space, a College of Engineering minority students study area, the Biology lab and Learning Resource Center, Engineering and Science Tech Drafting lab, and general purpose classroom space. Schrank Hall South provides facilities for the School of Family and Consumer Sciences, the Community and Technical College's Engineering and Science Technology Department, and the Army and Air Force ROTC units.

Spicer Hall. This major student services building houses the Registrar's Office, Aca­demic Development Center, Office of Student Services and Sponsored 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, the Cashier's Office, and the Loans, Receivables Office.

Stitzlein Alumni Association Center. Named for Harry P and Pauley G. Stitzlein, this recently-remodeled building, north of East Buchtel Avenue at Fii Hill, houses the Office of The Alumni Association.

271 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.

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

Whitby Hall. Named for G. Sanford 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 1941, this Buchtel Commons building is the heart of the College of Education and provides a lecture room that seats 245, general classrooms, a handicrafts room, a teaching demonstration classroom, a multimedia 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. Many of these facilities are described below.

Buchtel College of Arts and Sciences

The Department of Biology houses greenhouses, controlled-environment chambers, a new animal research facility, a molecular biology research center, modern laboratories, and equipment that includes advanced light microscopes (differential interference contrast, fluorescence), electron microscopes (scanning and transmission), scanning electron microscopes, ultracentrifuges, DNA sequencing apparatus, and physiographs; vehicles and boats and a 400-acre nature preserve are available for fieldwork. Many biology courses use the department's student computer lab for review of multimedia presentations, data analysis, simulations, Internet and Web assignments, teleconferencing, scanning, word-processing, and printing.

The Department of Chemistry is located in Knight Chemical Laboratories. The department offers outstanding instrumentation, such as nuclear magnetic resonance spectroscopy, research-grade gas chromatographs, infrared and ultraviolet spectrophotometers, and other modern research tools for identification and characterization of compounds. The Chemical Stores facility maintains an inventory of more than 1,100 items, including chemicals, glazes, and apparatus.

The Department of Classical Studies, Anthropology and Archaeology has a Macintosh-based computer lab which gives easy student access to a collection of several thousand original digital images of ancient Mediterranean buildings, artifacts and art works, to the Perseus program, a digital multimedia database on the Greek world (20,000 images and most of Greek literature both in Greek and in translation), and to the Internet and the Web. The lab includes an extensive suite of graphic software, three dual-monitor authoring workstations as well as desktop machines, flatscan and film scanners, and an accelerated 100 base-T local network connected to the University backbone. Digital investigation and creation are a reg­ular part of most classes.

The Interdisciplinary Anthropology Program laboratories contain numerous fossil casts, anthropological collections, and a variety of equipment used for research purposes, as well as computers for use with faculty and student research projects using Archview and qualitative software packages. The Anthropology Program is affiliated with the Institute for Health and Social Policy. The Anthropology website is www.uakron.edu/anthro. It contains current course listings, the "Notes From the Field" Newsletter and information on research.

The Department of Economics is housed on the second floor of Olin Hall in a modern office facility with space for faculty and graduate assistants. Economics as a discipline has become increasingly analytic. In keeping with this trend, the department recently opened a new computer laboratory for faculty and students. The lab is equipped with the latest equipment, running in a Windows environment. In addition, the department has a variety of software, including economic tutorials, word processing programs, SASMV, SAVVM, and SPS/PC. The lab is equipped with laser printers. Network access allows students to search for books, journal articles, the latest economic data, etc., remotely from either OhioLink or the World Wide Web. The lab is located in close proximity to the faculty offices which facilitates interaction between faculty and students, and enhances the students' educational experiences.

The Department of English maintains a Communication Center, where English students may create and print papers, do desktop publishing, and gain telecommunication access through the Zilnet and Internet. The department supports the Journal of Seventeenth-Century News and co-sponsors and staffs Analytical and Enu­merative Bibliography (AEB). The Thackaberry Room houses bibliographies, indices, and reference works relevant to the specialties taught. Graduate seminars are held in the department's own seminar room within the English complex.

The Department of Geography and Planning has an instructional computer lab and specialized labs for research and production work in cartography, geographic information systems (GIS), remote sensing, and soils analysis. These labs have a variety of cartographic, GIS, remote sensing, database, spreadsheet and statistical
The Department of Geology has modern instrumentation for field and laboratory studies which include an automated electron microprobe, automated X-ray diffraction system, ion-coupled plasma emission spectrometer, atomic absorption spectrometry, electron microprobe, ultraviolet-visible spectrometer, and X-ray fluorescence system. The Department offers a variety of courses in geology, paleontology, and Earth sciences.

The Department of History is housed in Olm Hall and is housed in a modern office suite with space for graduate assistants as well as professors. The Clara G. Fox Seminar Room is used for graduate seminars.

The Department of Mathematics and Computer Science is located on the upper floors of Ayer Hall. Students of mathematics, applied mathematics, and computer science have access to a wide variety of computing facilities, operating environments, languages, and software in laboratories maintained by the department.

Two labs, which contain Intel-based computers, are connected by a NT Server Network. One of these labs is frequently used for class laboratory sessions for up to twenty students. This is a standard feature of many upper-level computer science courses. The other lab is an open lab in which students find a similar environment in which to work independently on assignments. The lab runs Windows NT 4.0. NSF TRIP has been installed and is provided to the Internet via ftp, telnet, and Netscape. Software available includes Maple, ISETL, and MATLAB for mathematics courses; C++, Java, Visual C++, Mac Assembler, Visual BASIC for computer science; Microsoft Office, and Microsoft Works for more general use.

Another open laboratory is mainly devoted to a UNIX client/server environment. There are 15 SUN SparcStationS, Solaris 2.5.1, and 9 RedHat Linux machines, all of which support a graphical user interface. These are devices used for many of the upper-level computer science courses. They are on a separate local ethernet network supported by a high-performance server running OSF TRUNK UNIX operating system. They also support MOSAIC and Netscape. Other languages available include Lisp, FORTRAN, Pascal, two versions of C and C++, Perl, and JAVA.

Two special graduate research laboratories are also part of the Department. An Applied Mathematics and Scientific Computation Lab contains SUN SparcStations, IBM RISC 6000s, and Silicon Graphics Workstations. A MasPar parallel computer is provided for parallel processing. It is available for research, but is also used for an undergraduate computer science course. A lab is also available for graduate students in computer science. It has a variety of workstations and PCs and is connected to both the NT Server network and the SUN network.

Most machines in the department also provide Internet access to encourage students and faculty to keep current on subjects of interest. The University and the department have home pages on the web. Additional information about the department, its faculty, and its programs is therefore available on the internet. The address for the home page of the department is http://www.maths.uakron.edu. Remote login from the internet is permitted to anyone who has an account elsewhere. For example, many faculty members have accounts at the Ohio Supercomputer Center in Columbus, Ohio. The department also has a connection to the VINES Internet network.

A limited access to all facilities, except the NT server network, is available via the University dial-up line. Students are encouraged to work at the location that is most convenient to them. Any communication software using ppp protocols can be used.

With the variety of equipment, operating systems, languages and software, the department can meet the computing needs of its students and faculty. As advances and changes are made in what is available, the department makes the appropriate modifications, updates, and purchases to maintain currency in a rapidly changing field.

The proximity of the faculty offices to the computer laboratories encourages regular interaction between students and faculty. E-mail is another vehicle for student-faculty communication. Communication is maintained through semi-annual seminars and is always available to assist and guide students. A friendly, informal, helpful atmosphere makes the department an enjoyable place to learn and gain practical experience.

A most important resource of the Department of Modern Languages is the Language Resource Center in Olm Hall. The Language Resource Center contains facilities for students to listen to audiotapes and view videotapes as a class or individually. Fourteen networked multimedia computers have software for additional language practice and foreign language word processing. Access to the World Wide Web provides students with the opportunity to both read and listen to up-to-date news and cultural information in foreign languages. Magazines and dictionaries are also available for student use.

The Department of Physics is located on the first three floors of Ayer Hall. Facilities include research laboratories used for faculty and student research projects, laboratories for experiments associated with coursework and several microwave tubes for undergraduate and graduate student use. Most of the department's computing facilities are networked. The department maintains a mainframe system and a web page (http://www.physics.uakron.edu) for use by the faculty and students. Many instructors use this system to distribute course materials and entertain questions and feedback from students. The smallness of the department provides ample opportunity for interaction with all faculty members. This interaction combined with the friendly rapport, courtesy, and caring attitude of the faculty offers a diverse learning experience to the student in an attractive and hospitable environment.

The Department of Political Science maintains a computer laboratory consisting of eight computers and a scanner. This laboratory is used by Political Science students assigned research tasks requiring improved computer and internet skills.

The Department of Psychology is located on the third floor of the Polsky Building. The department maintains four computer labs that are available for undergraduate and graduate students in Psychology. All labs have access to the Internet via Netscape as well as access to campus programs that include OfficeLink, ZipLink, MS Word, and OAK. Equipment available in the computer labs include: Pentium-based computers, HP Laser printers, VCRs, and video/computer projectors. Supported throughout the labs are statistical packages which include SAS, SPSS and Lirel. WordPerfect and MS Word are available throughout the department for word processing. A full-time research programmer/analyst provides hardware and software support for the department and writes custom software for computerized research. In addition to the computer labs, a counseling clinic is maintained by the department which includes videotaping capabilities as well as the study of computer applications in research. The Psychology Department also provides research areas for individual computer research and for small group behavior research, a Test Room where current psychological testing materials are kept, and an Undergraduate Advising Office for psychology students. Additional information about the department, its faculty, and its programs, is available on the internet at http://www.uakron.edu/psychology.

The Department of Sociology includes research laboratories used for funded research projects. The department shares a computer facility for all students in Olm Hall which includes microcomputers and terminals directly linked to the University's mainframe computer. Many statistical, word processing and web search facilities are included in the software packages. The Newman Library, providing many current professional journals, is open for students' use. The department is also affiliated with the Institute for Health and Social Policy.

The Department of Statistics maintains two instructional computer labs. One of these labs is used for class laboratory sessions for the general education mathematics requirement course, Basic Statistics, and is located in Leigh Hall Room 102. The other lab, located in Leigh Hall Room 67, is being used for various undergraduate and graduate statistics courses. The Center for Statistical Consulting, housed in the department and maintained by the Buchtel College of Arts and Sciences, provides opportunities for students to gain valuable experience in the practical applications of statistics while interacting with faculty and clients.

College of Business Administration

The College of Business Administration is located in the 81,000 square-foot, four-story College of Business Administration Building, which houses the college's offices, classrooms, computer laboratories, and advising services. The department of Finance, Management, Marketing, the George W. Daverio School of Accountancy, the Fitzgerald Institute of Entrepreneurial Studies, the Fisher Institute for Professional Selling and the Institute for Global Business share the CBA. All undergraduate and graduate programs are fully accredited by AACSB—the International Association for Management Education, the most prestigious accrediting agency for business schools.

Tiered, amphitheater-style classrooms permit close contact between students and professors. The Milton and Henrietta Kushkin Computer Laboratory provides three computer classrooms, each equipped with approximately 35 personal computers and a homework laboratory for students with more than 72 computers. Each PC is equipped with current versions of word processors, spreadsheets, database managers, and multimedia software. Also, all PCs are connected to the Internet, World Wide Web, and e-mail.

The nationally acclaimed Carl V. and Clyde A. Fisher Sales Laboratory provides the college graduate group lab rooms connected by one-way mirrors to a central monitoring and control room. Sophisticated videotape equipment permits the recording of activity in each lab room which can then be shown to students to provide immediate feedback. This facility is a key resource in college programs for training in sales, sales management, negotiation, leadership, and employment interview preparation.

The Goodyear Tire and Rubber Company Lecture Hall, the building's largest classroom, is equipped with a state-of-the-art technical system capable of projecting textbook material, transparencies, slides, videotapes, computer screen images, and the like onto the room's 10-by-10 foot screen. Other classrooms also offer multimedia capabilities.
Facilities for seminars, continuing education programs, and student organization meetings are provided in the John P. Murphy Executive Room and adjacent small-group meeting room.

The CBA Career Center is located in a suite of eight offices on the second floor. The suite includes a reception area, resource library, and interview rooms. The Career Center's dedicated staff of career counselors provide assistance in resume preparation, development of interviewing skills, job search strategies, on-campus interviews, job referrals, and internship/cooperative education opportunities. The CBA's internship and cooperative education programs are among the most extensive on campus.

Offices of the college's 18 active student organizations are located in the James Durlap Student Organization Office Suite just off the atrium lobby. Student organizations offer opportunities for development of social, professional, leadership, and networking skills through interaction with business professionals and other students.

College of Education

The offices, laboratories, and other facilities of the College of Education are located in Zook Hall, Carroll Hall, Crouse Hall, the James A. Rhodes Health and Physical Education Building, and Memorial Hall.

The Department of Educational Foundations and Leadership serves undergraduate and graduate students in the College of Education. The department serves undergraduate students by providing instruction in core courses in teacher education. The department provides graduate courses in school administration and higher education administration. The department members also teach the core curriculum of historical, philosophical, psychological, and social foundations required in all graduate education programs. They teach, advise, and supervise problems, theses, and dissertations of students in their degree-granting graduate programs, the master's programs in Educational Foundations, the master's and doctoral programs in Educational Administration, and the master's program in Higher Education.

The Department of Sports Science and Wellness Education prepares students for careers in teaching, athletic training for sports medicine, health education, coaching, related recreational fields, and related health fields. There are laboratories for the study of exercise physiology, motor behavior, teaching skills (microteaching), and computer utilization in physical and health education. The department has access to the James A. Rhodes Health and Physical Education Building (classrooms, the main gym, an outdoor running track, a multipurpose room, and four teaching station areas), Memorial Hall (classrooms, as well as large and small gyms), Oceane Natacium (a classroom, swimming pool, nine racquetball courts, and a weight room), and Lee Jackson Field (14 tennis courts, an outdoor running track, and two softball fields). Each of these facilities and resources is used in the presentation of our academic programs.

The Department of Curricular and Instructional Studies includes the areas of early childhood, middle childhood, secondary (adolescent to young adult) and preschoool to grades 12 (P-12) education. Initial teacher preparation programs are available at the undergraduate, post-baccalaureate and master's degree levels. The early childhood program prepares teachers to teach age three to grade three. The middle childhood program prepares teachers to teach grades four to eight. The Department of Curricular and Instructional Studies offers specialization in each of two areas selected from: reading/language arts, mathematics, science and social studies. The secondary program prepares teachers in grades seven to grade twelve to teach language arts, mathematics, science, social studies, family and consumer science (grades 4-12), or vocational business (grades 4-12). The F-12 program prepares teachers of foreign language, music, dance, drama, and visual arts. Endorsements are available in computer/technology, reading, and teaching English as a second language. The department also offers the Technical Education degree, which prepares students for teaching/training and other personal positions at the postsecondary level and for business and industry settings. The University Center for Child Development, directed by department faculty, provides day care for children while serving as an experimental learning site for teacher education students.

The Department of Counseling and Special Education incorporates three divisions: counseling and psychological services, special education programs, and Special Education, which prepares undergraduates as teachers for children with special needs and graduate students to be master teachers and supervisors of special education programs. The department operates a multidisciplinary clinic, the Clinic for Child Study and Family Therapy.

College of Engineering

The offices, undergraduate laboratories, classrooms, research facilities, machine shops, and computer laboratories, and other facilities of the College of Engineering are located in the Auburn Science and Engineering Center, Schrank Hall North, Whitby Hall, and the Olson Research Building.

Every regular faculty member actively teaches at both the undergraduate and graduate levels while performing research and professional service to the community. The current active research centers include the Computational Mechanics Research Center, the Institute for Biomedical Engineering Research, and the Microscale Physiological Engineering Center. The College enjoys excellent relations with industry and the public sector. This relationship is formalized through the Engineering Advancement Council, which works actively on behalf of the College, and the Engineering Advisory Council.

The master's programs in the College consist of departmentally administered Master of Science degrees in Chemical, Civil, Electrical, and Mechanical Engineering. The Dean's Office administers the Master of Science in Engineering degree with specializations in Biomedical Engineering, Polymer Engineering, and Engineering Management.

The Doctor of Philosophy in Engineering is offered in the interdisciplinary fields of Environmental Engineering, Mechanics, Systems Engineering, Materials Science, Transport Processes, Biomedical Engineering, Engineering Applied Mathematics, Chemical Reactions and Process Engineering, Microscale Physicochemical Engineering, and Polymer Engineering. This interdisciplinary degree integrates departmental disciplines and is administered by the Dean's Office. There is a coordinated Doctor of Philosophy in Engineering Degree with Youngstown State University and a joint PhD/MD Doctor of Philosophy in Engineering with the Ohio University College of Medicine.

The Department of Biomedical Engineering is located in the Olson Research Center and has classrooms, instructional laboratories and research laboratories. The department provides educational opportunities at both the undergraduate level and the graduate levels (M.A. and Ph.D. in Engineering). Biomedical engineering graduate students may also participate in the joint MD/Doctor of Philosophy in Engineering programs offered by the College of Engineering and the Northeast Ohio Universities College of Medicine.

Research faculty members in the Biomedical Engineering Department have strong research programs in biomimetics, instrumentation, signals, and imaging and are active participants in the Institute for Biomedical Engineering Research. There are nine major research laboratories located in the Biomedical Engineering Department.

The Musculoskeletal Biomechanics Laboratory is equipped with materials testing equipment and computerized analysis capabilities. The Imaging, Detectors, and Sensors Laboratory has instrumentation for design, production, and analysis of medical imaging devices. The Image Processing Laboratory is built around Sun Sparc workstations, two of which are equipped with image processing accelerators. Image processing and display software and a large database of medical images are available for students to use in individual research and class projects.

The Human Interface Laboratory conducts research in virtual reality, telemanipulation, and knowledge engineering. The Biomedical Engineering Research Laboratory is equipped to conduct collaborative research on problems related to stroke, head injury and amputative problems. The Biomedical Instrumentation Laboratory has continuous wave and Doppler ultrasonic equipment, temperature-sensing devices, and blood pressure and flow monitoring equipment.

The Vascular Dynamics Laboratory provides facilities to analyze blood flow using laser Doppler anemometry and Doppler ultrasound techniques. The Visual Analysis Laboratory studies all aspects of human movement. This laboratory is equipped with a Vicon Motion Analysis System, two AMTI force plates, a MA-100E10S system, and associated computer hardware and software.

The Bostromelecetronics Laboratory is equipped to perform spatial analysis using three-dimensional sensing technology, which includes a Karm-Map-B20 Digitizing System and a JK Laser Holographic camera for laser holographic interferometry.

The Department of Chemical Engineering is located in Whithby Hall with undergraduate laboratories in the South Tower of the Auburn Science and Engineering Center and research laboratories in the North Tower of the Auburn Science and Engineering Center. The department provides educational opportunities for students at both the undergraduate and graduate levels in Chemical Engineering.

The Applied Colloid and Surface Science Laboratory has a state-of-the-art laser light scattering facility including a Lexel argon-ion laser, a variation isolated optical bench, a Brookhaven nephelometer and particle analyzer, FTIR-Raman, TGA, and an IBM PC-based data acquisition system. The Biochemical and Environmental Biocatalysis Laboratory, a satellite center of the Ohio Biosciences Research Consortium, houses a state-of-the-art HPLC-MS with additional luminescence, UV/Vis and RI detectors. The labs are well-equipped with several bioreactor assemblies, photoreactors, temperature-controlled workstations, two of which are equipped with image processing accelerators. A Laser Doppler anemometer and Doppler ultrasound techniques. The Motion Analysis Laboratory is equipped with an optical bench, a force plate, a Perkin-Elmer UV/Vis spectrometer and a LS-50B luminescence spectrophotometer, and online NCIP-H fluorometers. The Biomaterials Laboratory is available for polymer synthesis and storage, including a nitrogens, high pressure 1500 psi and a Bucker vacuum system, a vacuum oven, a Bio-rotary evaporator, and a Labconco filter. The Cytometry Research Laboratory is equipped with high pressure and high temperature IR detector systems, a Nicolet Magna-IR 560 Spectrometer, a Nicolet Magna-IR 560 Spectrometer E.S.P. and a Bakers Prisma XQM-200 Mass Spectrometer for in situ catalyst preparation, in situ characterization, temperature programmed desorption of NO, H2, and CO, and in situ reaction studies. The Multipurpose and Solid Process Laboratory is equipped to do research in filtration and flow through porous media. The labs are equipped with a gamma ray instrument for measuring porosity of packed columns and filter cakes, a Frazier Test to measure air permeability of filter media, a Hi-C Texas 882 particle counter, a Xenon meter and a Brookhaven EKA Streaming Potential instrument for measuring
The analog and digital electronics laboratory is equipped with Unix-based workstations and a variety of engineering software packages.

The Superfluids Laboratory, a key lab in the Ohio Superfluids Technology Consortium, is equipped with FTIR/Raman, GC/FC/TCD high pressure/surface behavior apparatus, Sarto Reactor, 1-litre stirred reactor, dynamic light scattering, mechanical testing and high temperature CPG. The Thin Film Laboratory is equipped with plasma systems, thermal, chemical vapor deposition, and in situ microscopy.

The Department of Civil Engineering is located in the Auburn Science and Engineering Center and Schrank Hall North and has five major laboratories. In the Environmental Engineering Laboratory, students learn to analyze water, wastewater and contaminated sites to assess its quality and to determine the most effective treatment techniques. Laboratory equipment includes UV-visible spectrophotometers, respirometers, gas chromatograph/mass spectrometry, flow cytometers, tokay analyzers, and a total organic carbon analyzer. Water and wastewater analysis and specialized meters are also available for field studies.

In the hydraulic laboratory, a titling flume allows the student to visualize water flow in streams and rivers. A pressurized pipe module is used to study frictional losses in different sizes pipes. Instructional laboratories introduce several hydraulic software tools such as FlowMaster for pressurized pipes and open channel flow calculations, EPA/Net for water distribution, tecnet network analysis, and HEC-RAS for calculating water surface profiles for natural streams and channels.

In the soil mechanics and foundation engineering lab, a student learns how to analyze soil by a variety of tests and equipment to determine shear strength characteristics, compaction characteristics, and seismic and electrical resistivity equipment for geophysical exploration of soil and rock deposits. In addition to the standard equipment for routine testing, the laboratory has a computer-controlled cyclic triaxial testing system, pneumatic triaxial load cell, triaxial cells, flexible wall permeameters, a portable triaxial core penetrometer, a piezocell analyzer, and capability for ground vibration monitoring and analysis.

In the structural materials laboratory, the opportunity to observe experimental verification of earlier training on the behavior of structural members subjected to tension, compression, bending, and torsion is accomplished with the use of three universal testing machines, an MTS closed-loop system which has a loading capacity to 100,000 pounds, and two Instron dynamic testing machines which can be used in either axial or torsional loading.

The Department of Electrical Engineering is located in the South Tower of the Auburn Science and Engineering Center. Learning facilities in the Department of Electrical Engineering include laboratories for the study of circuits, analog and digital electronics, control, computers, energy conversion, microprocessor interfacing, power electronics, and electromagnetic/microwaves. Laboratories follow instruction to help the student apply the material learned in class.

In the circuits laboratory, students learn the basics of circuit design, instrumentation, and measurements. The laboratory is equipped with digital oscilloscopes, digital voltmeters and meters and other basic measuring equipment.

The analog and digital electronics laboratory builds on the circuits sequence and introduces the student to more advanced design tools and concepts, including computer simulation of circuits. In addition to digital oscilloscopes, the laboratory contains signal generators and the like, specialized equipment such as a transistor curve tracer, single-board computers, development systems, personal computers and other specialized instruments.

The computer laboratory is an open laboratory with free access to students. The laboratory contains networked personal computers with all software necessary for other courses, as well as word processing and networking software. The laboratory also serves courses in computer engineering and many elective courses and for research purposes.

The two control laboratories teach the basics of analog and digital control. The laboratories are equipped with digital measuring equipment, analog and digital computers and interfacing components.

The energy conversion laboratory teaches electric machine, energy conversion, and machine control. The laboratory is equipped with motors, generators and controllers, both digital and analog. Emphasis is placed on computer control of machines.

The microprocessor interfacing laboratory is dedicated to interfacing the computer to the outside world. Students learn how to connect devices to computers, how to program them, and how these can be used in design. The laboratory uses a variety of real-world designs and projects to keep students up to date on this important engineering activity.

The equipment in the laboratory includes personal computers, single-board microcomputers and industrial controllers in addition to measurement equipment and components.

The power electronics lab is taught as part of a power electronics course and teaches design of power components and circuits for operation at high voltage, high current, and high power. Digital controllers and all digital measuring equipment make up a variety of modern laboratories.

The electromagnetic-microwave laboratory uses basic experiments in transmission lines, waveguides and antennae to teach the principles involved. In addition to the basic equipment, the laboratory has a shielded room for specialized measurements.

Additional laboratories in software engineering, signal processing and advanced control exist as part of elective courses.

The Department of Mechanical Engineering is located in the Auburn Science and Engineering Center. These are eight laboratories in the Department of Mechanical Engineering. The Thermal and Fluid Science Laboratory has internal combustion engines, a supercritical water turbine, a subsonic wind tunnel, and a water tunnel. The Heat Transfer Laboratory has temperature measurement systems, a gas laser, and a spectrum of heat exchangers.

The Mechanical Measurements Laboratory has a complete complement of transducers, calibration equipment and standards, signal conditioners, analog recording devices and microprocessor-based digital data acquisition systems. The Materials Testing Laboratory has a computer-controlled servohydraulic structural testing machine and a uniaxial universal testing machine for performing static, quasi-static, cyclic and dynamic tests on a spectrum of engineering materials and several types of hardness testing equipment.

The Experimental Mechanics Laboratory has plastometer strain measuring equipment and associated facilities, equipped with a complete range of strain gage instrumentation for both static and dynamic measurements. The Mechanical Design Laboratory has several major software packages for computer-aided design connected to the College's Engineering Computer Network Facility (ECNF). The System Dynamics and Controls Laboratory is composed of several microprocessors, analog computers, and digital controllers, as well as equipment for process control and robotics.

The Vibration and Acoustics Laboratory has electromechanical shakers, sound pressure level instrumentation, and frequency spectrum analyzers for modal analysis. The Metallurgy and Failure Analysis Laboratory has a complete set of metallographic instrumentation for microstructural analysis of both conventional and advanced engineering materials, and electron microscopes for analysis of failure.

The facilities in the Department of Polymer Science contain extensive laboratories for polymer synthetic chemistry and for the characterization of macromolecules and polymer morphology. A nuclear magnetic resonance laboratory is maintained with several high-resolution instruments. The applied research section of the Maurice Morton Institute of Polymer Science operates a variety of analytical and compounding/processing laboratories to serve the needs of industry and government agencies for a reliable solution to real problems and data. Processing laboratories include unique blowing/molding and forming facilities.

The Akron Polymer Training Center serves as a laboratory for the processing and testing of rubber and plastic materials. This Center provides classrooms and laboratories for undergraduate students in the Mechanical Polymer Engineering program. The laboratories available in the Department of Polymer Engineering include the Extrusion Laboratory, the Electromagnetic Radiation and Electron Optical Laboratory, the Thermal and Ductile Laboratory, the Rheological Laboratory, and the Mechanical Laboratory.

College of Fine and Applied Arts

The School of Communication features a television classroom studio and a wide complement of supporting audio and video equipment, including graphics generator and linear and nonlinear editors. Portable audio and video equipment is available for location use. There is an audio recording facility with multitrack capability. The school also houses radio station WZIP (FM 1050) a Class A broadcast station serving Northeast Ohio. WZIP-FM is operated by UA students under the supervision of professional broadcasters and gives students an opportunity to develop skills in broadcasting and communication through the completion of on-air assignments. A multimedia production high technology-classroom supports class instruction. News, public service, and other writing projects have access to a Macintosh computer laboratory with complete desktop publishing layout, graphics, and text capabilities. The School works in cooperation with local organizations, non-profit groups and professional agencies in an internship program for upper-level students.

The School of Dance, Theatre, and Arts Administration is located in the Baker Center. The Theatre Program offers graduate programs in Theatre and Arts Administration. It utilizes three different performing spaces to present its annual season of two to four productions. Guzzetta Hall houses the versatile "black box" experimental Sandefur Theatre as well as rehearsal, teaching, and shop facilities. Kolbe Hall houses the site of the 24-seat Daum Theatre, complete with support facilities. This conventional proscenium theatre is the home of theatre productions as is E.J. Thomas Performing Arts Hall. Student productions are performed in Studio 20, Sandefur Theatre, and Daum Theatre.

The School of Family and Consumer Sciences is housed in Schrank Hall South and is accredited by The American Association of Family and Consumer Sciences. The School provides education in nine undergraduate and six graduate programs, including Child Development, Family Development, Child Life, Family and Consumer Sciences Teacher Education, Dietetics, Food Science, Fashion Merchandising, and Interior Design. Nine laboratories, including a Computer Center, are available for authentic student learning experiences. All programs provide community experiences through internships, clinics, and student teaching.

The University of Akron 2000-2001
grams have active Advisory Committees of community professionals who provide advice and networking assistance. The School’s Center for Family Studies offers a variety of certificate programs, including Divorce Mediation, Home-Based Intervention and Case Management. In cooperation with the College of Education, the School maintains the Early Childhood Center for the study of child development and teacher education.

The School of Music is housed in Guzzetta Hall and also utilizes the E.J. Thomas Performing Arts Center. Guzzetta Recital Hall, 250-seat, is equipped with a pipe organ, harpsichord, two concert grand pianos, and a recording booth. The Music Computer Center is equipped with Macintosh computers and MIDI/sound and video equipment. An electronic music studio features digital and analog multitrack recording and sound synthesis equipment for music composition. Classrooms, studios, and 40 practice rooms (acoustical sound medievails) are used for teaching, rehearsals, and practice.

The School of Social Work offers CSWE-accredited professional training to social work students by linking them to a variety of local health and human services community agencies and organizations. The strong commitment and interaction with a network of agencies in the community serves as a laboratory for students.

The School of Speech-Language Pathology and Audiology provides preprofessional and professional training to students who wish to become speech-language pathologists and/or audiologists. The School houses the Audiology and Speech Center, which functions as a practice training arm as well as a service agency for persons in the Akron community who have speech, language, and/or hearing problems.

College of Nursing

The College of Nursing, located in Mary Gladden Hall, provides professional nursing education at the bachelor's, master's, and doctoral levels. The College is accredited by the Ohio Board of Nursing and all programs are fully accredited by the National League for Nursing Accreditation Commission. The College has a Student Affairs Office which provides academic advising services to prospective students. The College contains a state-of-the-art Learning Resource Center, including a computer laboratory exclusively for nursing students. The Center for Nursing within the College is closely tied to the Akron community and is used by faculty and students for community service, practice, education, and research.

The master's program includes advanced practice opportunities as either a clinical specialist or nurse practitioner along with functional roles in education and administration. Advanced practice opportunities are in the areas of Adult Health Nursing, Gerontological Health Nursing, Child and Adolescent Nursing, Behavioral Health Nursing, and Nurse Anesthesia. Post-master's offerings are in the nurse practitioner areas of Acute Care, Child and Adolescent, Adult Health, Gerontology, Behavioral Health and Nurse Anesthesia. Master's core courses are offered via distance learning between the Akron campus and Lorain County Community College.

The doctoral program in nursing is a joint Ph.D. program with Kent State University. It is the first Joint Doctoral Nursing Program in the state of Ohio. The curriculum is constructed so that students pursuing the scholarship of nursing as it applies to theory development and practice while developing their own areas of expertise. Courses focus on nursing theory and development, discovery of nursing knowledge and professional development for advanced practitioners.

College of Polymer Science and Polymer Engineering

The College of Polymer Science and Polymer Engineering offers only graduate degrees leading to the Master of Science and Doctor of Philosophy in both Polymer Science and Polymer Engineering. In addition, there are elective courses in both polymer science and polymer engineering for undergraduate science and engineering majors.

The facilities of the Department of Polymer Science and the Maurice Morton Institute of Polymer Science support fundamental and applied research in polymer chemistry and physics, and aspects of related behavior. There are extensive laboratories for polymer synthetic chemistry and for the characterization of macromolecules and polymer morphology. The macromolecular modeling center provides state-of-the-art computer modeling capabilities for research, and provides a way to introduce chemistry students in local high schools to computer modeling. A nuclear magnetic resonance laboratory is maintained with several high-resolution instruments supervised by a professional staff. The applied research section of The Maurice Morton Institute of Polymer Science operates a variety of analytical and compounding/processing laboratories to serve the needs of industry and government agencies for a variety of polymer-oriented studies. The total value of major instrumentation and equipment housed in the polymer science laboratories exceeds $9 million.

The Department of Polymer Engineering and Institute of Polymer Engineering maintain a broad-based range of processing, structural, and rheological/mechanical characterization facilities. Processing facilities include unique blending/co-compounding facilities as well as extruders, a Brabender, and seven internal mixers, including flow visualization capability, seven single-screw extrusion lines for plastics and rubber, with ultrasonic and sound waves and rotational mandrel dies, and with single/multiple bubble tubular film and cast film extrusion capability as well as a biaxial film stretcher. Molding facilities include screw injection molding capability of five machines, blow molding, mold, assist thermoformering and compression molding with composites capability. The Institute of Polymer Engineering is the home of the EPIC-M.A. Hanna Corningwood and Blending Center and the Molding Technology Center. Characterization capability includes scanning and transmission electron microscopy, X-ray diffraction (including a rotating anode X-ray generator), Fourier transform infrared, small angle light scattering, optical microscopy and retardation, radiography, differential scanning calorimetry, thermogrammatic analysis, dielectric thermal analysis, and surface profiling, rheological and mechanical testing, including elongational flow, rotational and capillary rheometer, dynamic mechanical tensile and impact testing.

The Akron Polymer Technology Center, which serves as a laboratory for the processing and testing of rubber and plastic materials, was opened in June 1994. The Center was developed at the urging of the Akron Regional Development Board and EPIC, an industrial-government-university consortium, to train machine operators and technicians for the polymer industry. The Center also provides classrooms and laboratories for graduate students in Polymer Engineering, for undergraduate students in Mechanical Polymer Engineering, and for two-year associate degree students in Polymer Technology as well as continuing education courses for scientists and engineers.

University Libraries

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

Libraries include reference and research assistance, user education, bibliographic instruction, and computerized 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.

The University Libraries' collections contain more than 2.8 million items: books, periodicals, government documents, curricular materials, microforms, maps, audio-visual materials, and archival documents. The library also contains nearly 6,500 magazines, newspapers, and other serial publications, as well as annual reports and the publications of various societies.

Through the library's members in the Center for Research Libraries, the Ohio Library and Information Network, 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 functioning as library card, 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 available in Bierce Library.

Audiovisual 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 contains a collection of instructional materials in various media formats (filmstrips, slides, etc.). It also provides classroom instruction. The Media Center supports the faculty who want to improve teaching through the use of technology. Audiovisual services also design, install, and maintain technology-enhanced general purpose class rooms, offering permanent in-room projection, sound reinforcement and a sophisticated multimedia retrieval system.

Bierce Library houses the Distance Learning Classroom on the second floor. This is a state-of-the-art facility that permits the University to offer credit and non-credit courses to area schools, agencies and businesses. Part of the Medline Link initiative, this classroom can be connected to virtually any geographic location that has the appropriate technology. The University of Akron will have a distance learning classroom in all Medina County high schools and other locations by the year 2000.

Information Services

The Information Services Department provides communications and computing support for the University of Akron. There are four divisions within the department: Client Services (Computer Center, Lincoln Building and Carroll Hall), Technical Services (Computer Center), Telecommunications Services (Lincoln, Building), and Applications Services (Computer Center).

The Information Services Help Desk can be reached at (330) 972-6488. Help Desk personnel can answer questions or refer callers to the appropriate source for more information. The walk-in consulting desk is located in the Computer Center, room 144, and can also be reached by e-mail at consult@akron.edu. Free seminars, handouts, and dial-in software are available.

There are six general purpose computer labs for students, faculty and staff to use. In addition, there are 165 Windows/DOS computers and 10 Macintosh computers (Computer Center only) in these labs. These computers have personal productivity tools such as word processing and spreadsheets) and network access. The lab locations are:

- Computer Center, rooms 139, 142 and 146
- Bierce Library, room 274A
There are more than 300 dial-in lines for faculty, staff, and students to use with their computers and modems from home to access UA and Internet networks. UAG’s computer network, named UANet, has about 4,000 computers connected on campus. To use these services, faculty, staff and students should go to the Computer Center at 185 Carroll Street and obtain a UANet ID. The network provides access to:

- ZipLINK - UANet library catalog
- OhioLINK - the library catalogs of all State of Ohio universities and colleges.
- Electronic Mail (E-mail)
- The Internet: a worldwide network, including the popular World Wide Web (WWW) multimedia information protocol
- Usenet news groups
- Discussion lists
- Wayna College
- IBM mainframes and Digital servers

Student information is available using a touch-tone telephone and a PIN number. Services available in this manner include registration for classes, personal financial aid information, course grades, and fee payment by credit card.

Computer-Based Education and Testing services provide on-line tutorials, instruction, and testing for UA. The Testing Center is located in Carroll Hall, room 325.

Applications development and support for University systems is provided. Major systems supported include Human Resources, Student Information, Alumni and Financial Aid systems.

Central computer services include:

- A CMOS-based IBM 9672/R41 CMOS running MVS/ESA for administrative and batch research applications
- A Digital AlphaServer DS20 for E-mail and web home pages
- A Digital AlphaServer 2100 for ZipLINK, the on-line library catalog
- A Digital DEC 3000/6000Usenet news server
- An NCS Opisan 27-78 optical mark sense reader for scanning mark sense forms

Other services provided to the campus by Information Services include:

- PC purchase information and assistance
- On-campus hardware and software installation services for departments
- Computer repair services on-campus and carry-in
- Cable Television - ZAP-TV
- Telephone and voice mail services
- Security systems
- Cable plant management
- Cable television and network connections to residence hall rooms in Bulger, Grant, Garson, Gallucci, and the Townhouses
- Rental of public address systems for campus events

The Information Services Department continues in its quest to bring staff and students the most up-to-the-minute advances in computer applications, research, knowledge and training.

Visit our web site at http://GoZips.uakron.edu for more information.

### Student Affairs

#### Counseling, Testing, and Career Center

The Counseling, Testing, and Career Center provides a wide range of psychological counseling, therapy, testing, career planning, and outreach and consulting services to the University community. The Center is staffed by psychologists and psychology trainees. All of our psychological services are confidential and free to enrolled students. The Center is located in Schrann Hall North, with the Counseling Services in Room 152 and the Testing Services in Room 58. Phone numbers are: Counseling Services (330) 972-7052, and Testing Service (330) 972-7094.

#### Counseling Service

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

- Short-term personal counseling and therapy designed to address a variety of areas. Areas of concern may include (but are not limited to) feelings of loneliness, inadequacy, guilt, anxiety, and depression; alcohol and drug use; recovery from acquaintance or stranger rape; interpersonal relationships, especially with the immediate family, intimate relationships, and roommates; personality development, issues of oppression, 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, through the College Survival Kit, cover a wide range of topics which typically deal with improving grades, reducing test anxiety, planning careers, increasing wellness, and addressing personal issues; as well as providing support groups for minority students and others with a variety of concerns. Brochures are available.
- Career counseling involves helping students make decisions on majors and career direction. It consists of discovering one’s own interests, needs, values, aptitudes, abilities and goals; relating these to the world of work; exploring appropriate major subject and career fields. Interest, aptitude, personality and values testing is available through individual and group counseling. Occupational information is available through reference books and computerized career guidance and information systems.

#### Testing Service

- A wide range of testing programs including college entrance examinations, career assessments, personality assessments, academic placement testing and some learning disability assessments are available to students.

#### 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. Topics include, among others, academic performance, wellness, sexuality, and appreciating cultural diversity.

#### Career Placement Services

- The primary mission of the Career Placement Services office is to assist graduating students in their initiatives in seeking full-time employment. The office combines the University’s placement and cooperative education programs, which assist students in preparing for their job search; obtaining pre-professional, experiential education assignments; and entering the job market upon completion of their degree. Career Placement Services is located in Schrann Hall North, Room 153, (330) 972-7474.
- Placement Services for graduating students include on-campus interviews with representatives of businesses, industries, education, branches of the government and military. In addition, workshops are offered on Resume Writing, Cover Letters, Interviewing Skills, and the Self-Directed Job Search throughout the fall and spring semesters. Personal career consultation may be scheduled with placement advisors. A reference library of employer literature, videotape presentations and numerous career and job reference materials is also available. Other services to registrants include computerized job referrals and the maintenance and distribution of students’ credential files. Career Placement Services also sponsors a Fall and Spring Career Fair, a Teacher’s Career Fair, and other specialty career fairs. These fairs give students the opportunity to meet and speak with a large number of potential employers. Workshops for specialized job search skills for students and under-represented groups are also available.

### Student Health Services

Primary health care services are available to all students enrolled at The University of Akron. Health Services is located in Robertson Dining Hall, immediately adjacent to the North Quad residence halls. This facility is capable of handling minor acute injuries and episodic illnesses. Student Health Services is open from 8:00 a.m. to 8:00 p.m., Monday through Thursday, and from 8:00 a.m. to 5:00 p.m. on Friday.

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. Completed health forms and other health-related records are treated as confidential and are kept in the Student Health Services offices.

For more information, contact Health Services at (330) 972-7808 or visit the office website at http://www.uakron.edu/health/
Office of Accessibility
The University welcomes students with disabilities. The mission of the Office of Accessibility is to provide equal access opportunities to students with disabilities and coordinate academic accommodations, auxiliary aids, and programs for students with disabilities to maximize their educational potential. The office encourages students to contact them to find out more about the programs and services. For more information, call (330) 972-7928 (voice) or (330) 972-5384 (TTY) or visit Spicer Hall 124.

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. The trained teaching staff provides a stimulating learning environment and opportunities for growth in all areas of development—social, emotional, physical and intellectual.
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 and full-day programs for children three to five years old and toilet trained. Full-day sessions are available year round for children 18 months to five years old.
A summer preschool/afternoon program is offered Summer Sessions I and II. A summer program is also offered for school-aged children. The 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, (330) 972-6210.

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, Computer Solutions—The University of Akron's computer technology store, the DocuZip Copy Center, a bank, Ticketmaster/Film/Fax Center, the Information Center and a bookstore.

• Food Areas in the Gardner Student Center offer a variety of food items. On the first level, the Chuckery features the services of a fast-food operation, a pizza shop, and an ice cream and yogurt shop. For more of a cafe-style offering, the Hilltop, on the second level, provides deli-style selections at Sara Lee's, as well as full catering for banquet and meeting needs.

• Gardner Theatre, located on the upper level, screens first- and second-run movies twice each night Tuesday through Sunday and is open to the public.

• The Game Room, located on the lower level of the Gardner Student Center, is open six 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.

• Computer Solutions, The University of Akron computer technology store, is located in Gardner Student Center Room 102. As an education reseller, personal computer hardware, peripherals, and software are available at educational pricing. The store can also print student, faculty, and staff. In addition, the store is a point of contact for other services, such as requesting a University network ID (UANet ID) or requesting a network connection for the residence halls.

The DocuZip Copy Center, located in the lobby of Gardner Student Center offers the following 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/Fax Center, located in the lobby of Gardner Student Center (330) 972-6644, sells tickets to most events in northern Ohio, including Blossom Music Center. The IX Center, Playhouse Square, Public Hall, and the Jacobs Field and Gund Arena. 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 Information Center, located in the Gardner Student Center lobby, is operated Monday-Saturday. The Information Center staff can answer questions regarding departments and student organizations, on-campus and off-campus events, and the Metro buses and University Bus Loop. The Information Center staff can also print student class schedules. Please call 972-FAXO if you need a question answered.

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.

Campus Safety and Security Information

Safety and Security
This information is provided as part of The University of Akron's commitment to safety and security on campus and is in compliance with the Federal Crime Awareness and Campus Security Act of 1990.

The Campus
The University employs many people to keep the campus safe and secure. The Division of Public Safety provides for student and employee safety and security through the departments of University Police and Environmental and Occupational Health and Safety. The Division of Student Affairs is responsible for security and safety policies governing residence halls, fraternities, and sororities and for teaching students about security and crime prevention.

It is the intent of the University to continue and enhance current safety and security education awareness programs throughout the year. The purpose of these programs is to assure that the campus community frequently receives information and instruction on University crime and safety policies and procedures, and on drug and alcohol control and prevention.

A safe campus can be achieved only with the cooperation of the entire campus community. The University hopes students will read and become familiar with this material and be responsible for their own safety and the safety of others.

University Police
Campus law enforcement is primarily the responsibility of The University of Akron Department of Police. University police provide 24-hour day patrol protection to the campus, parking lots, residence halls, and off-campus fraternity and sorority houses. The police station is located in the Physical Facilities Operations Center at the corner of Hill and South Forge streets and is staffed 24 hours a day.

The University's 32 police officers are commissioned by the State of Ohio with full law enforcement authority and responsibilities identical to the local police or sheriff.

The University Police Department works closely with the Akron Police Department and other law enforcement agencies. Reports are exchanged every business day so that both agencies receive pertinent information. Information is shared through personal contacts and by phone and radio. University and City of Akron police regularly work together at large campus events such as athletic competitions and dances.

UA Police officers have met or exceeded the training standards of the Ohio Peace Officers Training Council. They also receive ongoing in service and specialized training in first aid, CPR, firearms, defensive tactics, legal updates, and other skills.

UA Police officers enforce laws regulating underage drinking, the use of controlled substances, weapons, and all other incidents requiring police assistance. They are also responsible for public safety services such as crime reports, medical emergencies, fire emergencies, and traffic accidents.

Incidents which may not rise to the level of a violation of law are referred to the Office of Student Conduct. The Student Code of Conduct Manual explains the University's disciplinary process and is available through the Office of Student Conduct.

It is the goal of every member of the University Police Department to promote, preserve, and deliver feelings of safety and security through quality services to the members of the University community.

Drug and Alcohol Prevention
The issue of drug and alcohol abuse concerns the entire University community as well as our surrounding neighborhoods. The federal Drug Free Schools and Communities Act Amendments of 1989 require schools, colleges, and universities receiving federal financial assistance to implement and enforce drug and alcohol prevention programs for students and employees.

The University of Akron prohibits the illegal use, possession, sale, manufacture, or distribution of drugs and alcohol by all students and employees. University premises or as part of any University activity. Any request of substances by University students and employees that presents physical or psychological hazard to individuals also is prohibited.

It is the responsibility of The University of Akron to adopt and implement a drug prevention program for its students and employees. The University as an institution and each of us as individuals, must eliminate the use of illegal drugs and alcohol that contribute to the unacceptable loss of time, talent, and lives.
Crime Prevention

Through the Office of Crime Prevention, University police officers provide educational programs to students and employees on personal safety, sexual assault/acquaintance rape prevention, drug and alcohol abuse prevention, and related topics. The University Police Department welcomes the chance to talk with any campus group. Candid dialogue between UA Police and the public has created greater confidence in the community to report unlawful activities. These programs are scheduled when requested.

Potential illegal actions and on-campus emergencies can be confidentially reported by any student, faculty, or staff member. Complaints received by UA police which fall outside their jurisdiction will be referred to the appropriate agency, or the complainant will be provided a phone number where the complaint can be filed. Likewise, other agencies refer complaints to University Police when appropriate. The University Police encourage prompt reporting of crimes.

Security considerations in maintenance are a high priority. Police officers patrol parking lots 24 hours each day. UA police also offer assistance to motorists with battery jumps, inflating tires, unlocking vehicles, and obtaining fuel for a small fee.

To request nonemergency assistance, call extension 7123. To schedule an appointment for an educational program, call extension 7123.

For emergencies, dial 911 from any campus telephone.

Student Campus Patrol

A student escort service operates 5 p.m. to 1 a.m. seven days a week for the safety of anyone walking alone on campus during the evenings. By calling extension 7263, an escort will come to the student’s location and accompany him/her to any campus building or parking lot.

Employed and trained by the University of Akron Police Department, the campus patrol teams are easily identified by labeled blue jackets or maroon t-shirts. These teams assist the University Police in patrolling campus parking lots and other campus areas and report suspicious individuals or activities directly to the police dispatch center.

Emergency Phones

Yellow or red emergency phones are directly connected to the UA Police Department. These phones are strategically located throughout campus pedestrian walkways and inside parking decks. Police respond to the activation of any emergency phone receiver, even if no words are spoken.

Outdoor security phones are at the main entrances of all campus residence halls. UA Police and other campus numbers can be dialed on these phones. If using an off-campus phone, dial 972 before the campus extension.

Campus Buildings

Most University academic facilities are open to the public from 7 a.m. until the latest evening classes let out. Administrative buildings are generally locked at 6 p.m. When the University is closed, all buildings are locked and may be opened only by authorized personnel.

Health and Safety

Members of the Department of Environmental and Occupational Health and Safety routinely inspect the campus for environmental and safety concerns. The Department of Physical Facilities maintains University buildings and grounds and regularly inspects facilities and promptly makes repairs to ensure safety and security. University Police work with both units to respond to reports of potential safety and security hazards, such as broken windows and locks. UA police also work with physical facilities personnel to help maintain adequate exterior lighting and safe landscaping practices.

Personal Responsibility

The cooperation and involvement of students, faculty, and staff in any campus safety program is absolutely necessary. All must assume responsibility for their own safety and security of their property by following simple, common sense precautions. For example, although the campus is well-lighted, everyone should confine their movements to well-traveled areas. There is safety in numbers, and everyone should walk with a companion or with a group at night. Valuables should be marked with a personal identification number in case of loss or theft. Bicycles should be properly secured when not in use. Automobiles should be locked at all times. Valuables and purses should never be lying in view in a car but locked in the car trunk for safekeeping.

Crime Statistics

The University of Akron Police Department prepares monthly statistics for the Federal Bureau of Investigation under the Uniform Crime Reporting (UCR) program. The serial numbers of property stolen on campus are reported nationwide through the National Crime Information Center. A LEADS computer terminal at the police station dispatch center allows information to be exchanged with law enforcement agencies across the United States and Canada.

Crime statistics can be found at the police department's website, http://www.uakron.edu/police/crimeprev.htm. A hard copy can be obtained at their office in the Physical Facilities Operation Center, 346 Hill Street.

EMERGENCY PHONE NUMBERS

Call extension 911 on campus to reach UA police immediately.

<table>
<thead>
<tr>
<th>Service</th>
<th>Extension</th>
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<tbody>
<tr>
<td>Police</td>
<td>7123</td>
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<tr>
<td>Campus Patrol</td>
<td>7263</td>
</tr>
<tr>
<td>Police Nonemergency</td>
<td>8123</td>
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<tr>
<td>Environmental and Occupational Health and Safety</td>
<td>6866</td>
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<tr>
<td>Fire</td>
<td>911</td>
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<tr>
<td>EMS/Medical</td>
<td>911</td>
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<tr>
<td>Electrical/Plumbing</td>
<td>7415</td>
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<tr>
<td>Hazardous Materials</td>
<td>8123</td>
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<tr>
<td>Caging Information</td>
<td>7669</td>
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Emergency numbers are monitored 24 hours a day. If calling from an off-campus phone, dial 972 and then the four-digit number you wish to reach. Use 911 for emergencies when dialing from all campus extensions.
Graduate School

Lathardus Goggins, Ph.D., Associate Dean
Doli Q. Markovich, M.A.Ed., Assistant to the Dean
Karen L. Caldwell, Coordinator of Graduate Financial Assistance
Heather A. Blake, M.S.Ed., Senior Administrative Assistant
Brenda J. Henry, Admissions Coordinator
Cheryl Garcia, J.D., Degree Completion Coordinator
Kevin M. Tondra, M.A.Ed., Office Support Specialist

OBJECTIVES

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

- Advanced courses in various fields of knowledge beyond the baccalaureate level.
- Opportunities to develop and apply research techniques and to use the resources appropriate to various graduate programs.
- Advancement of 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 College of Engineering and Business Administration in 1959, the College of Fine and Applied Arts in 1967 and the College of Nursing in 1979. The School of Speech-Language Pathology and Audiology (formerly the Department of Speech and later, the School of Communications Disorders), now housed in the College of Fine and Applied Arts, was formerly a part of the Buchtel College of Arts and Sciences and conferred a master's degree in 1963. The first earned doctoral degrees were conferred in 1969. Professor Charles Bulger was appointed first dean of graduate work in 1933, and he continued in that capacity until 1950. Professor Ernest H. Harrington, Jr. served as director of graduate studies from 1955 to 1960, and as dean of the Graduate Division from 1960 to 1967. Dr. Arthur K. Breslau was appointed dean of Graduate Studies and Research in 1967 being succeeded in 1968 by Dr. Edwin L. Lively. Dr. Clasbon E. Griffin succeeded Dr. Lively in 1971, 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. Centi was appointed dean of Graduate Studies and Research in 1978 and served in that capacity until 1983. Dr. Joseph M. Walton served as acting dean of Graduate Studies and Research from 1986 until 1989. In 1989 Dr. Patricia L. Carrell became dean of the Graduate School. Dr. Charles M. Dye was named interim dean in 1993 and became the dean of the Graduate School in 1995 until his retirement in July 2000.

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, counseling psychology, elementary education, engineering (biomedical, civil, electrical, engineering applied mathematics, mechanical, and polymer), guidance and counseling, history, nursing, political science, psychology, secondary education, sociology, and urban studies and public affairs. The Doctor of Education degree is offered in educational administration. The Doctor of Philosophy programs in nursing and sociology are joint programs with Kent State University. The Doctor of Philosophy program in urban studies and public affairs is a joint program with Cleveland State University.

The school also offers programs of study leading to the master's degree with majors in the following areas: accountancy, applied politics, audiology, biology, biomedical engineering, business administration, civil engineering, computer science, construction engineering and management, economics, entrepreneurship, finance, global sales management, health care management, international business, international finance, management, management of technology, marketing, military science and technology, and supply chain management (JD/MBA joint program), chemical engineering, chemistry, civil engineering, counseling psychology, counseling, criminal justice (JD/MBA joint program), education, English, English literature, environmental biology, environmental science, geology, geophysics, geography, urban planning, geophysics, geology, health science, engineering geology, environmental geology, applied mathematics, computer science, mathematics, mechanical engineering, modern languages (Spanish), music (accompaniment, composition, education, history/literature, performance, theory), nursing (R.N/MSN), nutrition/dietetics, outdoor education, physical education (exercise physiology/athletic training, sport science/coaching), physics, political science, polymer engineering, polymer science, psychology (applied cognitive aging, counseling, industrial/organizational), public administration and urban studies (JD/MBA joint program, public administration, urban studies), social work, sociology, special education, speech-language pathology, statistics, taxation (JD/MBA joint program), technical education (guidance, instructional technology, teaching, training), theatre arts (arts administration, theatre), theatre arts (arts administration, theatre), theatre arts (arts administration, theatre), theatre arts (arts administration, theatre), theatre arts (arts administration, theatre).

The College of Education provides a year of study beyond the master's degree in the area of school superintendent.

Several departments offer a limited amount of work which may be taken on the graduate level. Such courses may supplement the major program of study for students who do not wish to devote their entire attention to one field.

Graduate Faculty and the Graduate Council

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

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

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

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

Graduate Council is elected by the graduate faculty. Membership in the council presently includes two members from the College of Engineering, two members from the College of Business Administration, two members from the College of Education, four members from the Buchtel College of Arts and Sciences, two members from the College of Fine and Applied Arts, one member from the College of Law, one member from the College of 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 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.

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

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.

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.

Other Graduate Student Organizations

Chi Sigma Iota-Alpha Upsilon
Counseling Psychology Graduate Student Organization
Graduate Business Students Association
Industrial/Organizational Psychology Graduate Student Club
Master of Social Work Student Association
Minority Graduate Student Council
Polymer Engineering Student Organization
Polymer Science Graduate Student Organization
Public Administration and Urban Studies Student Association
Student Association for Graduates in Education (SAGE)
General Information
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 given 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 and has met the following requirements:
  - For full admission to the Graduate School, an applicant must meet the following requirements:
  - At least 30 semester hours toward a baccalaureate degree must be completed, with at least 10 semester hours completed at a recent institution.
  - A minimum grade-point average of 2.75 in all work attempted at a recent institution.
  - A minimum grade-point average of 3.00 in all work attempted at The University of Akron.
  - A minimum grade-point average of 3.00 in all work attempted at a recent institution.
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  - A minimum grade-point average of 3.00 in all work attempted at The University of Akron.

- **Non-Degree Admission** may be considered to a student 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 are applied to graduate degree programs, but only when all requirements for full admission have been met.

- **Deferral Admission** may be granted if the applicant's record does not meet all of the University's official admission standards. An applicant who is not granted full admission on the basis of their official record may be granted permission to take one or more graduate-level courses if all the following conditions are met:
  - The student must have a grade-point average of 3.00 or better in all work attempted.
  - The student must meet the minimum grade-point average requirements for full admission.

- **Special Workshop status** is for a person permitted to take workshops for graduate credit without being admitted to the 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 their authorization to complete the workshop. A student admitted to special workshop status must meet all of the following requirements:
  - A minimum grade-point average of 3.00 in all work attempted at The University of Akron.
  - A minimum grade-point average of 3.00 in all work attempted at a recent institution.
  - A minimum grade-point average of 3.00 in all work attempted at The University of Akron.

- **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:
  - The student must have a grade-point average of 3.00 or better in all work attempted.
  - The student must meet the minimum grade-point average requirements for full admission.

Nonaccorded 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 30 semester hours 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 will apply. A student should consult the department chair 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 to continue graduate education must be in good standing at the other school.

Entrance Qualifying Examinations

The use of examinations to determine admisibility to enter a graduate program or to determine eligibility to continue in graduate programs is the prerogative 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 chair of the appropriate department.
Course Load

A full load of coursework at the graduate level is normally 9-15 semester credits, including aoric. Full-time status is defined as a minimum of 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 courses and/or 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 $6,000 per year plus remission of all 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 chair 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 $33,000. For information, contact the chair 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 may be obtained from the Graduate School.

International Students

The University of Akron welcomes international students and seeks to make their educational experience pleasant and meaningful. Each year, approximately 850 international students from 59 countries pursue studies and research at the University of Akron.

Admission

International students may 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 five months in advance of the date they wish to begin their studies. Graduate students applying for assistantships should submit applications nine months before the term begins for best consideration. The following procedures should be followed:

- Obtain an international student application from the Office of International Programs, The University of Akron, Polsky Building, Room 463, Akron, OH 44325-3101, telephone (330) 972-6349, fax (330) 972-8604, (World Wide Web address: http://www.uakron.edu/isp, electronic mail address: international@uakron.edu).
- Complete the required application and the one-time nonrefundable application fee of $50 with the following documentation:
  - An official transcript and degree from the primary institution.
  - A statement of purpose, including financial support information, which can be accompanied by exact English translations and notarized certification by the school, U.S. consulate or other legal 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. Additional information may be obtained from nonnational agencies. United States Information Service (USIS), or from the Educational Testing Service, Princeton, NJ 08540. Graduate applicants must achieve a score of greater than 550 on the paper-based TOEFL or 213 on the computer-based TOEFL. Exceptions include the departments of English and History (650 on the paper-based TOEFL or 227 on the computer-based TOEFL), Urban Studies Ph.D. (570 on the paper-based TOEFL or 230 on the computer-based TOEFL) and Biomedical Engineering (590 on the paper-based TOEFL or 243 on the computer-based TOEFL). 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. The Office of International Programs will prepare the Certificate of Eligibility (I-20A/B or IAP-66) upon receipt of adequate financial support and admission to the University.

International Student Orientation

The required International Student Orientation takes place one week before classes begin and costs $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 50 on the Test of Spoken English (TSE, Revised 1995). This exam must be taken prior to functioning as a teaching assistant. 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.

Costs, Financial Aid, and Medical Insurance

To cover tuition and living expenses for the 2000-2001 academic year, international graduate students holding F-1 visas will need approximately $17,800. Additional costs for J-1 visa holders and student's dependents are indicated on the OCF.

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 coverage must be effective throughout the student's studies at The University of Akron. International students will not be permitted to register without proof of such coverage.

Course Numbering System

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

3300:507 Middle English Literature

In the above example, the first four digits of the number (3300) indicate the college and department. In the case, 3000 represents the Buchtel College of Arts and Sciences; 30 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:

- 3000-507 Middle English Literature
- 3000-507 Master's-level courses
- 507-500 Doctoral-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 this University is expected to maintain a minimum 3.00 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>
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<td>Key</td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
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<tr>
<td>F</td>
<td>0.0</td>
<td>Audit</td>
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</table>

General Information
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, including summer sessions, converts the "I" to an "F." When the work is satisfactorily completed within the allotted time the "I" is converted to whatever grade the student has earned. * 

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. 

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

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

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

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

*If instructors wish to extend the "I" grade beyond the following term for which the student is registered, and 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" was received must be repeated.

Audit Policy

A student choosing to audit a course must be admitted and indicate audit at the time of registration. The student pays the enrollment fee and may be expected to do all the work prescribed for students taking the course for credit, except that of taking the examination. An audit member may initiate withdrawal for a student not meeting these expectations.

Thesis and Dissertation Credits

Course number 699 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 is being given for a doctoral dissertation. No credit for 699 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 grading)-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, an appropriate 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 16 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 chair, 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.

*Grades of "D-", "D" and "D+" are treated as "F" grades. (See previous section on Grades.)

Commencement

Graduates earning graduate degrees are expected to participate in the commencement exercises. A degree candidate who has legitimate reasons for graduating "In Absentia" should make a written request to the registrar within the established dates and pay the designated fee. Students must apply to graduate in advance of completing degree requirements. Applications are filed with the Graduation Office which observes the following deadlines:

Fall graduation: May 15.
Spring graduation: September 15.
Summer graduation: February 15.

Academic Dishonesty

Students at The University of Akron are an essential part of the academic community, and enjoy substantial freedom within the framework of the educational objectives of the institution. The freedom necessary for learning in a community so rich in diversity and achieving success toward our educational objectives requires high standards of academic integrity. Academic dishonesty has no place in an institution of advanced learning. The University community is governed by the policies and regulations contained within the Student Code of Conduct available in the Office of Student Conduct, Gardner Student Center 104, (330) 972-7021.

The University of Akron considers academic integrity an essential part of each student's personal and intellectual growth. Instances of academic dishonesty are addressed consistently. All members of the community contribute actively to building a strong reputation of academic excellence and integrity at The University of Akron.

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

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

A student who has been accused of academic dishonesty will be asked to meet with the course instructor. The matter can be reweighed informally in the College level and/or an academic sanction can be imposed. If the student opposes the decision, he/she may appeal to the College Dean.

A further discussion of these procedures and other avenues for recourse can be found in the Grievance Procedures for Graduate Students, available at the Graduate School, The Polsky Building 469, and included in the Appendix of this Bulletin.
Ohio Residency Requirements

Payment of a non-resident surcharge is required of any student who does not qualify as a permanent resident of Ohio as defined by Section 3333.1-10 of the Ohio Revised Code.

A. Intent and Authority
1. It is the intent of the Ohio Board of Regents in promulgating this rule to exclude from treatment as residents, as that term is applied here, those persons who are present in the state of Ohio primarily for the purpose of receiving the benefit of a state-supported education.

2. This rule is adopted pursuant to Chapter 119 of the Revised Code, and under the authority conferred upon the Ohio Board of Regents by Section 3333.31 of the Revised Code.

B. Definitions
For purposes of this rule:
1. A "resident of Ohio for all other legal purposes" shall mean any person who maintains a 12-month place or places of residence in Ohio, who is qualified as a resident to vote in Ohio and receive state welfare benefits, and who may be subjected to tax liability under Section 5747.02 of the Revised Code, provided such person has not, within the time prescribed by this rule, declared himself or herself to be or allowed himself or herself to remain a resident of any other state or nation for any of these or other purposes.

2. "Financial support" as used in this rule, shall not include grants, scholarships, and awards from persons or entities which are not related to the recipient.

3. An "institution of higher education" as used in this rule shall mean any university, community college, technical institute or college, general and technical college, medical college or private medical or dental college which receives a direct subsidy from the state of Ohio.

4. For the purpose of determining residency for tuition surcharge purposes at Ohio's state-assisted colleges and universities, "domicile" is a person's permanent place of abode, there must exist a demonstrated intent to live permanently in Ohio, and a legal ability under federal and state law to reside permanently in the state. For the purpose of this policy, only one (1) domicile may be maintained at a given time.

5. For the purpose of determining residency for tuition surcharge purposes at Ohio's state-assisted colleges and universities, an individual's immigration status will not preclude an individual from obtaining resident status if that individual has the current legal status to remain permanently in the United States.

C. Residency for subsidy and tuition surcharge purposes
The following persons shall be classified as residents of the state of Ohio for subsidy and tuition surcharge purposes:
1. A dependent student, at least one of whose parents or legal guardian has been a resident of the state of Ohio for all other legal purposes for 12 consecutive months or more immediately preceding the enrollment of such student in an institution of higher education.

2. A person who has been a resident of Ohio for the purpose of this rule for at least 12 consecutive months immediately preceding his or her enrollment in an institution of higher education and who is not receiving, and has not directly or indirectly received in the preceding 12 consecutive months, financial support from persons or entities who are not residents of Ohio for all other legal purposes.

3. A dependent child of a parent or legal guardian or the spouse of a person who, as of the first day of a term enrollment, has accepted full-time self-sustaining employment and established domicile in the state of Ohio for reasons other than gaining the benefit of favorable tuition rates. Documentation of full-time employment and domicile shall include both of the following documents:
   a. A sworn statement from the employer or the employer's representative on the letterhead of the employer or the employer's representative certifying that parent or spouse of the student is employed full-time in Ohio.
   b. A copy of the lease under which the parent or the spouse is the lessee and occupant of rented residential property in the state, a copy of the closing statement on residential real property located in Ohio of which parent or spouse is the owner and occupant; or if parent or spouse is not the lessee or owner of the residence in which he or she has established domicile, a letter from the owner of the residence certifying that parent or spouse resides at that residence.

D. Additional criteria which may be considered in determining residency for the purpose may include but are not limited to the following:
1. Criteria evidencing residency:
   a. if a person is subject to tax liability under Section 5747.02 of the Revised Code;
   b. if a person qualifies to vote in Ohio;
   c. if a person is eligible to receive state welfare benefits;
   d. if a person has an Ohio driver's license and/or motor vehicle registration.

2. Criteria evidencing lack of residency:
   a. if a person is a resident or intends to be a resident of another state or nation for the purpose of tax liability, voting, receipt of welfare benefits, or student loan benefits (if the loan program is only available to residents of that state or nation);
   b. if a person is a resident or intends to be a resident of another state or nation for any purpose other than tax liability, voting or receipt of welfare benefits.

E. Exceptions to the general rule of residency for subsidy and tuition surcharge purposes:
1. A person who is living and is gainfully employed on a full-time or part-time and self-sustaining basis in Ohio and who is pursuing a part-time program of instruction at an institution of higher education.

2. A person who enters and currently remains upon active duty status in the United States military service whose a resident of Ohio for all other legal purposes and his or her dependents shall be considered residents of Ohio for these purposes as long as Ohio remains the state of such person's domicile.

3. A person on active duty status in the United States military service who is stationed and resides in Ohio and his or her dependents shall be considered residents of Ohio for these purposes.

4. A person who is transferred by his or her employer beyond the territorial limits of the 50 states of the United States and the District of Columbia while a resident of Ohio for all other legal purposes and his or her dependents shall be considered residents of Ohio for those purposes as long as Ohio remains the state of such person's domicile as long as such person has fulfilled his or her tax liability to the state of Ohio for at least the tax year preceding enrollment.

5. A person who has been employed as a migrant worker in the state of Ohio and his or her dependents shall be considered a resident for these purposes provided such person has worked in Ohio at least four months during each of the three years preceding the proposed enrollment.

F. Procedures
1. A dependent person classified as a resident of Ohio for these purposes (under the provisions of Section C.1 of this rule) and who is enrolled in an institution of higher education whose parent or legal guardian removes their residency from the state of Ohio shall continue to be considered a resident during continuous full-time enrollment and until his or her completion of any one academic degree program.

2. In considering residency, removal of the student or the student's parent's or legal guardian from Ohio shall not, during a period of 12 months following such removal, constitute relinquishment of Ohio residency status otherwise established under paragraphs C.1 or C.2 of this rule.

3. For students who qualify for residency status under C.3., residency status is lost immediately if the employed person upon whom resident status was based accepts employment and establishes domicile outside Ohio less than 12 months after accepting employment and establishing domicile in Ohio.

4. Any person once classified as a nonresident, upon the completion of 12 consecutive months of residency, must apply to the institution he or she attends for reclassification as a resident of Ohio for these purposes if such person in fact want to be reclassified as a resident. Should such person present clear and convincing proof that no part of his or her financial support is or in the preceding 12 consecutive months has been provided directly or indirectly by persons or entities who are not residents of Ohio for all other legal purposes, such person shall be reclassified as a resident. Evidentiary determinations under this rule shall be made by the institution which may require, among other things, the submission of documentation regarding the sources of a student's actual financial support.

5. Any reclassification of a person who was once classified as a nonresident for these purposes shall have prospective application only from the date of such reclassification.

6. Any institution of higher education charged with reporting student enrollment to the Ohio Board of Regents for state subsidy purposes and assessing the tuition surcharge shall provide individual students with a fair and adequate opportunity to present proof of his or her Ohio residency for purposes of this rule. Such an institution may require the submission of affidavits and other documentary evidence which it may deem necessary to a full and complete determination under this rule.
Feef
All fees reflect changes in 2000-2001 and are subject to change without notice. Application Fœ (this fee is not refundable under any circumstances)
Domestic $25
International $50
Tuition Fees
Resident student per credit $200.10
Nonresident student per credit $364.40 (same fees apply when auditing classes)
General Fee
Per credit hour $770 per credit
Maximum of $9180 per semester
Administration Fee* Graduate, transient students $11 per semester
Facilities Fee** Per credit hour $2.00
Maximum of $24.00 per semester
Technology Fee
Engineering graduate courses (numbered 500-899) $11 per credit hour
All other graduate courses (numbered 500-899) $750 per credit hour
Master of Public Health Program
Tuition and fees $289.00 per semester
Parking $25.00 per semester
Joint Ph.D. in Nursing Program (UA and KSU)
Tuition and fees $236.60 per credit hour
Non-resident surcharge $200.00 per credit hour
Dissertation fee
First semester of study, Dissertation I (flat rate) $1,353.00
Subsequent semesters, Dissertation I (flat rate) $15.00
Dissertation II $15.00
Parking Permit Fee
Per semester, Fall and Spring (enrolled for any number of credits) $80
Summer Session (one permit Summer I, II, Intersession) $32
Workshop participants $2.50 per day
Other Fees
Thesis, dissertation, and binding fees
- binding per volume $3.50
- microfilming (Ph.D./Ed.D. only) Up to $70.00
Copyright fee Up to $45
Graduate Foreign Language Reading Proficiency Exam $50
Miller Analyses Test (Counseling, Testing, and Career Center) $43
Late graduation application fee $10
Delayed registration fee $10
Late registration fee $100
(changed to students who have not paid fees by the final payment date, and charged to Continuing students who register after the first payment date)

* Administrative fee replaces these fees previously charged for schedule changes, transcripts, and for application for graduation.
** Effective Fall 2000

Course Materials Fees:
For the following graduate courses, the fee notes will be assessed to cover the cost of instructional materials.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
<th>Course Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>3100 502</td>
<td>Food Plants</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>3100 503</td>
<td>Seminar Environmental Studies</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>3100 521</td>
<td>Tropical Field Biology</td>
<td>4</td>
<td>175</td>
</tr>
<tr>
<td>3100 502</td>
<td>Conservation of Biological Resources</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>3100 524</td>
<td>Freshwater Ecology</td>
<td>4</td>
<td>50</td>
</tr>
<tr>
<td>3100 526</td>
<td>Applied Aquatic Ecology</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>3100 533</td>
<td>Pathogenic Bacteriology</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td>3100 535</td>
<td>Virology</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td>3100 537</td>
<td>Immunology</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td>3100 540</td>
<td>Mycology</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td>3100 541</td>
<td>Plant Development</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>3100 542</td>
<td>Plant Anatomy</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>3100 543</td>
<td>Physiolgy</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td>3100 545</td>
<td>Plant Morphology</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>3100 547</td>
<td>Plant Physiology</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>3100 548</td>
<td>Economic Botany</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>3100 551</td>
<td>General Entomology</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>3100 553</td>
<td>Invertebrate Zoology</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>3100 554</td>
<td>Parasitology</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>3100 555</td>
<td>Ichthyology</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>3100 556</td>
<td>Ornithology</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>3100 558</td>
<td>Vertebrate Zoology</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>3100 561</td>
<td>Human Physiology</td>
<td>4</td>
<td>25</td>
</tr>
</tbody>
</table>

3100 562 Human Physiology 4 $25
3100 564 General and Comparative Physiology 4 $50
3100 566 Vertebrate Embryology 4 $30
3100 567 Comparative Vertebrate Morphology 4 $25
3100 571 Physiological Genetics 4 $50
3100 585 Cell Physiology 4 $60
3100 625 Basic DNA Techniques 3 $50
3100 682 Eucaryotic Techniques DNA 3 $15
3100 684 Eucaryotic Techniques RNA 3 $15
3100 686 Animal Cell Culture 4 $15
3100 686 Principles of Transmission Electron Microscopy 3 $20
3100 689 Principles of Scanning Electron Microscopy 3 $20
3100 695 Biochemistry Laboratory 2 $25
3100 696 Comparative Vertebrate Morphology 4 $25
3100 726 Environmental Methods and Applications 3 $10
3100 736 Ecosystems 3 $10
3100 748 Seminar Research Methods 3 $10
3100 750 Geographic Information Systems 3 $10
3100 756 Urban Land Use Analysis 3 $10
3100 757 Thematic Cartography 3 $10
3100 744 Application in Cartography and GIS 3 $10
3100 764 Remote Sensing 3 $10
3100 776 Advanced Cartography 3 $10
3100 757 Advanced Remote Sensing 3 $10
3100 796 Soil and Water Field Studies 3 $20
3100 798 Micromorphology 3 $20
3100 791 Soil Microscopy 3 $20
3100 792 Nonresident student per credit $200.10
3100 793 Resident student per credit $11 per credit hour
3100 794 All other graduate courses (numbered 500-899) $750 per credit hour
3100 795 Master of Public Health Program Tuition and fees $289.00 per semester
3100 796 Parking $25.00 per semester
3100 797 Joint Ph.D. in Nursing Program (UA and KSU) Tuition and fees $236.60 per credit hour
3100 798 Non-resident surcharge $200.00 per credit hour
3100 799 Dissertation fee First semester of study, Dissertation I (flat rate) $1,353.00
3100 800 Subsequent semesters, Dissertation I (flat rate) $15.00
3100 801 Dissertation II $15.00
3100 802 Parking Permit Fee Per semester, Fall and Spring (enrolled for any number of credits) $80
3100 803 Summer Session (one permit Summer I, II, Intersession) $32
3100 804 Workshop participants $2.50 per day
3100 805 Other Fees Thesis, dissertation, and binding fees - binding per volume $3.50
- microfilming (Ph.D./Ed.D. only) Up to $70.00
3100 806 Copyright fee Up to $45
3100 807 Graduate Foreign Language Reading Proficiency Exam $50
3100 808 Miller Analyses Test (Counseling, Testing, and Career Center) $43
3100 809 Late graduation application fee $10
3100 810 Delayed registration fee $10
3100 811 Late registration fee $100
(changed to students who have not paid fees by the final payment date, and charged to Continuing students who register after the first payment date)
Financial Aid

Financial aid programs are developed by the federal and state governments as well as by institutions of higher education to assist students from families with limited resources to meet educational expenses. The primary purpose of financial aid is to ensure that no one is denied the opportunity of a college education because of financial need.

When applying for financial aid at The University of Akron, the Office of Student Financial Aid determines a budget that best suits the needs of the student. The budget includes direct costs that must be paid to the University (i.e., instructional and general fees and room and board in the residence halls) and variable expenses such as transportation and personal expenses.

A graduate student who has already received a bachelor's degree can apply for the Federal Subsidized and Unsubsidized Stafford Loans. The Federal Pell Grant, Ohio Institutional Grant and/or Ohio Student Incentive Grant cannot be received. Postbaccalaureate students may only apply for Subsidized and Unsubsidized Stafford Loans.

To apply for the Federal Subsidized and Unsubsidized Stafford Loans, the student must complete and submit the Free Application for Federal Student Aid (FAFSA) or the Renewal Application to the Federal Processor. Applications are available in March for the following school year. Applications can be completed on the World Wide Web at www.fafsa.ed.gov. For technical assistance, call 1-800-4-FAFSA. Inquiries may be directed to the Office of Student Financial Aid, Spicer 119, (330) 972-7032 or (800) 621-3847.

Installment Payment Plan

This plan is designed to spread registration and University housing fees into as many as four installments during a summer term depending on when the application is received. An Application Service Charge of $23 per semester/session for registration fees and $23 per semester/session for University housing fees is assessed for the Installment Payment Plan (IPP). If a payment is not received on the due date, a late payment penalty is assessed at $20 per installment for registration fees or $40 per installment if University housing is included. These fees are subject to change.

For applications received up to and including the published semester fee deadline, a 25 percent down payment is required with three follow-up installments at 25 percent, 25 percent and 25 percent respectively. Applications received after the deadline will be applied to the first day of classes will require a 50 percent down payment with two follow-up installments of 25 percent each. For summer terms, the down payment is 30 percent plus one installment at 70 percent or less, depending on the amount of direct application. If the direct application of financial aid for the fall or spring semester is greater than 30 percent and is used as a down payment, the remaining balance will be billed in one, two or three equal payments, depending on when the student registers. Installments are billed monthly starting approximately 30 days after the start of classes.

Financial aid may be used to pay the down payment. If the amount of aid is greater than the required down payment, the entire aid amount must be used as the down payment. The remaining installment balance will be billed either in two or three equal payments, depending on the registration period.

Application forms are included with the Student Fee Invoice or may be obtained in Spicer Hall 105 or by calling (330) 972-4100.

Graduate Assistantships

Graduate assistantships may be available through various graduate degree-granting academic units. Graduate assistantships and other graduate awards are distributed to the colleges through the Graduate School; therefore, a separate application is required. For further information, contact the Graduate School, Polsky Building, room 469, (330) 972-7883.

International Students

A student in the United States on a student or other temporary visa is not eligible for any state or federal financial aid. Application for scholarships, short-term loans, graduate assistantships, and some types of employment may be made.

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 carry with it the right of a refund or reduction of indebtedness in cases of failure or inability to attend classes or in cases of withdrawal. The student assumes the risk of all changes 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.
- Residence hall Fees (note: subject to special policy).
- Technology fee.

Amount of Refund

Amount of refund is to be determined in accordance with the following regulations and subject to course instructor/advisor 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 except for disciplinary reasons. No refund will be granted to a student dismissed or suspended for disciplinary reasons;
  - 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 required if the student is called to active duty. A student who enlists voluntarily for active duty should see "in part" below.

- In part
  - 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:

<table>
<thead>
<tr>
<th>Period of Withdrawal</th>
<th>Refund Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>During the second week of the semester</td>
<td>70%</td>
</tr>
<tr>
<td>During the third week of the semester</td>
<td>50%</td>
</tr>
<tr>
<td>During the fourth week of the semester</td>
<td>30%</td>
</tr>
<tr>
<td>During the fifth week of the semester</td>
<td>20%</td>
</tr>
<tr>
<td>Thereafter</td>
<td>0%</td>
</tr>
</tbody>
</table>

- If the student requests official withdrawal after the Sunday (Midnight) which begins the second week of the semester of any Summer Session the following refund percentages apply:

<table>
<thead>
<tr>
<th>Period of Withdrawal</th>
<th>Refund Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>During the second week of the summer session</td>
<td>40%</td>
</tr>
<tr>
<td>Thereafter</td>
<td>0%</td>
</tr>
</tbody>
</table>

- Refunds for course sections which have not been scheduled consistent with either the standard 15-week fall/spring semester or the five-week summer term scheduling pattern will be handled on a pro rata basis according to the number of days of the section missed (i.e., class, institute, or workshop) which have passed compared to the number of days said section has been scheduled to meet.

- Refunds will be determined as of the date of formal withdrawal unless proof is submitted that circumstances beyond control of the student, e.g., hospital confinement, prevented the filing of formal withdrawal earlier, in which case the refund will be determined as of said circumstance. The student assumes responsibility for filing for a refund.

- Refunds will be mailed as soon as possible. Refund checks are subject to deduction for any amount owed to The University of Akron by the student.
Section 3

Academic Requirements
Academic Requirements

MASTER'S DEGREE REQUIREMENTS

Admission
When a student is admitted to graduate study, an advisor is appointed by the chair 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 post-baccalaureate level. This may be recommended prior to beginning graduate work, or in some cases, can be done simultaneously.

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

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

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

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. Such credits must be relevant to the degree program, recommended by the student's advisor, and approved by the dean of the Graduate School.

It should be noted that the requirements listed by department elsewhere in this section refer to the minimum necessary for a degree. It is entirely within the 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 500-numbered courses previously taken at the 400-number level as an undergraduate without advance approval from the dean of the Graduate School. "Repeat for change of grade" is not available at the graduate level.

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 the total credits required for a master's degree may come from a prior or concurrent degree at The University of Akron. 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 chair of the major department.

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

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

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

If a thesis is required, two copies, properly prepared, are due in the Graduate School at least three weeks prior to commencement. These copies must be signed by the advisor, faculty reader, department chair, school director and college dean prior to submission to the dean of the Graduate School. A manual entitled Guidelines for 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. Department 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 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 specified by the assistantship agreements. The summer sessions may count as one semester, provided that the candidate is enrolled for a minimum of 10 consecutive weeks of full-time study and for a minimum of six semester credits per five-week session. Individual programs may have additional residence requirements such as credits or courses to be completed, proper time to fulfill the residence requirement, and the extent to which a resident may hold outside employment.

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

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

Time Limit

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

Credits

A doctorate is conferred in recognition of high attainment and productive scholarship in some special field of learning as evidenced by the satisfactory completion of a prescribed program of study and research; 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-number courses previously taken at the 400-number course level as an undergraduate without advance approval from the dean of the Graduate School. "Repeat for change of grade" is not available at the graduate level.

Transfer Credits

Up to 50 percent of the total credits above the baccalaureate required in a doctoral program may be transferred from accredited colleges or universities. Departments and colleges may set more restrictive limits. The credits must be relevant to the student's academic program as determined by the student's academic department, and must fall within the 10-year limit to complete degree requirements 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 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 college-level courses 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 computers) may be substituted for one of the two foreign languages. Under the last option, each department should define competence and publicize.
- Plan B: Comprehensive knowledge of one approved foreign language, including reading without the aid of a dictionary and such additional requirements as the department may impose.
- Plan C: In certain doctoral programs (counseling and guidance, elementary education, psychology, secondary education, urban studies and public affairs) the demonstration of competence in appropriate research skills may serve as a substitute for the foreign language requirements.

Optional Department Requirements

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

Advancement to Candidacy

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

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

Dissertation and Oral Defense

The ability to do independent research and demonstrate competence in scholarly exposition must be demonstrated by the preparation of a dissertation on some topic related to the major subject. It should represent a significant contribution to knowledge, be presented in a scholarly manner, reveal the candidate's ability to do independent research and indicate experience in research techniques.

A doctoral dissertation committee supervises and approves the dissertation and administers an oral examination upon the dissertation and related areas of study. This examination is open to the graduate faculty. The dissertation and oral examination must be approved by the committee before the dissertation is submitted to the Graduate School.

To be eligible to graduate during any given term, a candidate must meet both the preliminary and final dissertation submission deadlines. Each candidate is responsible for consulting the Schedule of Classes, their advisor, or the Graduate School to determine these deadlines.

A draft copy of the dissertation is due in the Graduate School prior to the preliminary deadline. Two copies of the dissertation are due in the Graduate School prior to the final deadline. These copies must be signed by the advisor, department chair and college dean prior to submission to the dean of the Graduate School.

A manual entitled 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; met preliminary dissertation deadline; 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.
Section 4

Graduate Studies
Buchtel College of Arts and Sciences

Mission Statement
The Buchtel College of Arts and Sciences serves the objectives of the University which state that learning may be procured, preserved and enlarged. More particularly, the college seeks to foster:

The commitment to humanity—that loyal devotion to the heritage contained in those disciplines growing out of the ancient liberal arts which teach ambitions and potentialities. The college seeks to provide an appropriate environment for students to acquire an ability to evaluate, integrate and understand the conditions of human existence, to judge themselves in the natural world and in a particular civilization or society. No course or combination of courses can ensure such understanding, there is no schooling that can guarantee wisdom. Therefore, the college requires the student to study ideas and experiences that are the subject matter of a variety of disciplines:

- the nurture of civility—those actions whereby virtue, the advancement of society, and wise and humane government are encouraged;
- the advancement of learning—that substantial knowledge discovered and cultivated by critical curiosity, tested by experimentation, propagated by instruction and capable of affecting lives so that all may in a free society exercise responsible liberty. The most enduring contribution which the college can make is to help individuals acquire the skill, motivation and breadth of knowledge to continue their intellectual development throughout their lives.
- The college recommends each student for the appropriate bachelor’s, master’s or doctoral degrees in accordance with the level of accomplishment.

Buchtel College is one of 10 degree-granting college at The University. Its name truthfully implies that its traditions date back farther than those of the undergraduate colleges, since the University itself is an outgrowth of Buchtel College, a liberal arts institution founded in 1870.

When Buchtel College became the Municipal University of Akron, the original name was retained in the College of Liberal Arts which was subsequently renamed the Buchtel College of Arts and Sciences. Then and now, the liberal arts goal has been to offer broad training to the college student so that the student can prosper in life and sustain a creative appreciation of the arts and sciences.

The college is composed of the following three administrative divisions: Humanities (English, modern languages), Natural Sciences (biology, chemistry, geology, mathematics and computer science, statistics, and physics), and Social Sciences (economics, geography and planning, history, political science, public administration and urban studies, psychology, sociology).

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 and Public Affairs 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 oral examination requirement.
- Complete seminar requirement.
- Defend dissertation in an oral examination.
- Complete all general requirements for the doctor of philosophy degree.

Interdisciplinary Option in Chemical Physics

The faculty in the Departments of Chemistry and Physics jointly offer an option leading to a Ph.D. in Chemistry for students who elect the interdisciplinary field of chemical physics.

Admission Requirements

Applicants for the Chemical Physics Option may be admitted with either a baccalaureate or a master’s degree, in chemistry or physics. All applicants must have their graduate application and credentials evaluated by the Chemistry Department. All admission requirements for the Doctor of Philosophy in Chemistry, as given in this Graduate Bulletin, shall apply to applicants for admission to the Chemical Physics Option.

Graduate students in good standing in the Physics Department may apply for admission as above. Successful applicants should have some advanced chemistry coursework indicated in the Department and approval by the chair of the Physics Department.

Degree Requirements

The applicable degree requirements for the Chemical Physics option are those of the Doctor of Philosophy in Chemistry, as stated in the Graduate Bulletin. These degree requirements consist of the following:

- Complete a course of study designed in consultation with an advisor or advisory committee, consisting of at least 90 credits beyond the baccalaureate degree, including 24 credits of appropriate chemistry coursework and approved physics electives.
- Complete the requirements of the monthly cumulative exams, the oral, and the seminar.
- Defend the dissertation in an oral examination.
- Complete all general requirements for the Doctor of Philosophy degree.

Students entering with the endorsement of the Physics Department must choose an advisor in the Physics Department holding a joint appointment in Chemistry; other students must select as research advisor a participating faculty member in the Chemistry Department. Students entering the program with principle preparation in physics may be required to audit certain undergraduate prerequisites for chemistry graduate courses, and vice versa for students whose principle preparation is in chemistry.

Doctor of Philosophy in Counseling Psychology

The University of Akron offers a doctoral program in Counseling Psychology. The program offers 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 inclusion of psychology, the biological, social, cognitive-affective, and individual, as well as the professional, bases of human behavior. Practicum and internship experiences are also required of all students and range from building in basic psychological assessment and counseling, to actual work with clients, to a yearlong, 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. 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 theory, research, and practice of Counseling Psychology. Academic preparation includes theories of individual and group psychotherapy, supervision, diversity issues in counseling psychology, vocational development theory, testing theory and practice, 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 Psychology Department, in consultation 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 interdepartmental blend of the Collaborative Program in Counseling Psychology. Electives and other courses are to be planned along with the student’s advisor.

- Psychology core courses (600, 620, 630, 640, 650) 10
- Counseling psychology core courses (707, 710, 711, 712, 713, 714, 715, 718, 780) 35
- Practicum sequence (672) 28
- Advanced Psychological Tests and Measures (750) 4
- Electives (minimum) 8
- Statistics (601, 602) 8
- A statistics sequence that may be substituted for the doctoral language requirement 8
- Thesis credits (minimum) 1
- Dissertation credits (minimum) 12

**The comprehensive written examination is prepared, administered and graded by program faculty. 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 of 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 maintain a 3.50 GPA in their content courses each year in the Department of Psychology.**

Doctor of Philosophy in History

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

- Fulfill admission requirements of the School.
- Complete the Graduation Program of the History Department.
- Complete the specific dissertation requirements of the student.

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 3.2 or better at the M.A. level from an accredited institution. Those holding a Master’s degree from The University of Akron or other accredited institutions should be aware that they will 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 a 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 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 the applications on their 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-topical field within one of the general fields listed above. The fourth field will be designed by the student and the student’s advisor, 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 or applied cognitive aging 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 (GP A) of 3.25;
  - Completion of Graduate Record Examination (GRE) or 3.25, or 3.25, or 3.25;
  - Securing of three letters of recommendation;
  - Major field:
    - A minimum of 90 graduate credits including 30-credit master’s program. A student may be required to complete additional credits beyond the 90 minimum credit requirement;
    - Completion of Ph.D. core courses in the student’s specialty area: industrial/organizational or applied cognitive aging. Core courses are specified in the Department of Psychology Graduate Student Manual. The student is required to maintain at least a 3.5 GPA in core courses and overall courses;
    - Completion of additional required and elective courses to be planned in conjunction with the student’s advisor and subject to approval by the industrial/organizational or applied cognitive aging committees.

- Written comprehensive examinations:
  - Satisfactory performance on doctoral written and oral comprehensive examinations in the student’s major area of industrial/organizational psychology or applied cognitive aging (refer to the department’s graduate student manual).

- Dissertation research:
  - Completion of 3750:899 Doctoral Dissertation (minimum 12 credits);
  - Satisfactory performance on final examination and defense of dissertation research.

- Other requirements:
  - Refer to the department’s graduate student manual or other requirements or guidelines;
  - Complete and fulfill general doctoral degree requirements of the Graduate School.

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

Doctor of Philosophy in Sociology

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

Admission to the Program

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

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

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

...
The program is designed to train professionals interested in policy analysis, methods and statistics, and a special area (medical sociology, sociology of family, social psychology, or social inequalities).

Full residency requirements of the Graduate School.

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 and Public Affairs

The Department of Public Administration and Urban Studies of the University of Akron offers a program leading to the Ph.D. in Urban Studies and Public Affairs (joint with Cleveland State University). Students admitted to the program may take courses at either campus and all doctoral committees must 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 are applied together and represent 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 do 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, and 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). There is also 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 equivalents) before formal admission:

- 3350:630 Basic Quantitative Research
- 3350:610 Advanced Research and Statistical Methods
- 3860:611 Introduction to the Profession of Public Administration
- 3350:630 Introduction to Planning Theory

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

A minimum of 63 credits beyond the master's degree is required, 48 hours of coursework, and 15 hours of dissertation.

Course work consists of a required core of 27 credits and an area of specialization consisting of 21 credits.

- Core Courses:
  - 3980:200 Advanced Research Methods I
  - 3980:201 Advanced Research Methods II
  - 3980:202 Urban Theory I
  - 3980:203 Urban Theory II
  - 3980:205 Economics of Urban Policy
- 3980:206 Urban Policy: The Historical Perspective
- 3980:711 Seminar in Public Policy
- 3980:714 Seminar in Policy Analysis and Evaluation
- 3980:715 Seminar in Urban and Regional Planning

Specialization:

The department offers specialization in the following areas:
- Policy Analysis and Evaluation
- Public Administration
- Urban and Regional Planning

Students will develop a specialization consisting of 21 credits in consultation with their advisors and committees.

- Examinations:
  - Students must pass written and oral comprehensive examinations on the program core and on their area of specialization. Students must also successfully defend their dissertations.
- Other requirements:
  - Refer to departmental graduate student handbook for other requirements or guidelines. Complete general doctoral degree requirements of the Graduate School.

MASTERS DEGREES

Programs of advanced study leading to the master's degree are offered by the departments of biology, chemistry, economics, English, geography, geology (earth science), history, mathematics and computer science, modern languages (Spanish), physics, political science, psychology, sociology, statistics 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 study 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.
- Must have at least one semester of organic chemistry.
- Submit three letters of recommendation.
- Submit scores for Graduate Record Examination (aptitude and advanced biology tests).
- Submit a letter of proposed area of specialization within biology.
- Non-active speakers of English must submit a TSE score of 220 or above (minimum score of 50 on TSE, revised 1995) to be considered for a graduate assistantship.

Master of Science

Thesis Option 1

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.

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.

**Thesis Option II**

The program is intended for Medical Doctors and Doctors of Osteopathic Medicine who have graduated from an accredited U.S. medical school.

- Course work in addition to the master's research and seminars must be approved by the graduate officer—16 credits (no transfer credits are allowed for this option).
- Research and thesis – minimum of 12 credits.
- Participation in seminars – a maximum of two credits.

**Nonthesis Option**

This program is designed exclusively for secondary school teachers for whom the M.S. preferably 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 cooperating 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*.

**Chemistry**

**Master of Science**

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

**Economics**

**Master of Arts**

**Thesis Option**

A minimum of 30 credits of 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:
  - 3250:627 Microeconomic Analysis I
  - 3250:675 Microeconomic Theory II
  - 3250:630 Applications of Mathematical Models to Economics
  - 3250:626 Statistics for Econometrics

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

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

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

**English**

**Master of Arts - Literature Track**

**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 36 credits is required, of which 24 must be at the 600 level and 24 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 Stylistics and Literary Research

**Master of Arts - Composition Track**

The Composition Track is intended for students interested in teaching English in secondary schools, two-year colleges, 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 Curriculum and Instructional Studies 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, rhetoric, and linguistics) 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, rhetoric, and linguistics) 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:**
  - 3300:673 Theories of Composition
  - 3300:674 Research Methodologies in Composition
  - 3300:676 Theory and Teaching of Basic Composition
  - 3300:689 New Rhetorics

- **Students must also choose one of the following two courses:**
  - 3300:689 Grammatical Structures of Modern English
  - 3300:670 Modern Linguistics

- **And one of the following three courses:**
  - 3300:625 Autobiographical Writing
  - 3300:689 Management Reports
  - 3300:679 Scholarly Writing

**Optional courses:**

- 3300:689 Contemporary Reading Theory
- 3300:689 Composition and Rhetoric
- 3300:689 Cultural Studies in Composition Theory
- 3300:689 Literature and Composition

**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: Advanced 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 is required for Teaching Assistants. This does not count toward the degree requirements.

1. Unless the student has passed a comparable course at the undergraduate level with a grade of "B" or better.
Master of Arts in Geography

Thesis Option
- A minimum of 45 graduate credits, to include no more than 3 credits of independent study (3350:698).

Core Requirements (21 credit hours)
- 3350:505 Geographic Information Systems
- 3350:581 Research Methods in Geography and Planning
- 3350:583 Spatial Analysis
- 3350:590 Field Research Methods
- 3350:597 History of Geographic Thought
- 3350:600, 601, 602 Seminar (6 credits)
- Thesis

Electives
Courses to total at least 45 credits.

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

Nonthesis Option
- A minimum of 45 graduate credits.

Core Requirements (18 credits)
- 3350:581 Research Methods in Geography and Planning
- 3350:583 Spatial Analysis
- 3350:590 Field Research Methods
- 3350:597 History of Geographic Thought
- 3350:600, 601, 602 Seminar (6 credits)

Electives
Courses to total at least 45 credits.

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

Master of Science in Geography

Thesis Option
- A minimum of 45 graduate credits, to include no more than 3 credits of independent study (3350:698).

Core Requirements (15 credits)
- 3350:581 Research Methods in Geography and Planning
- 3350:583 Spatial Analysis
- 3350:590 Field Research Methods
- 3350:597 History of Geographic Thought
- 3350:600, 601, 602 Seminar (6 credits)

Electives
Courses to total at least 45 credits.

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

Nonthesis Option
- A minimum of 45 graduate credits.

Core Requirements (18 credits)
- 3350:581 Research Methods in Geography and Planning
- 3350:583 Spatial Analysis
- 3350:590 Field Research Methods
- 3350:597 History of Geographic Thought
- 3350:600, 601, 602 Seminar (6 credits)

Electives
Courses to total at least 45 credits.

Any course taken outside the department must be approved in advance by the student's Graduate Advisor or the Department Chair.
Concentrated 3400:689 G.I.S./Remote Sensing

The minimal background for admission without deficiency should include the equivalent of the current geology courses for the University's B.A. in geology. Students should have completed the equivalent of a minimum of six semester credits in geology, mineralogy, and geophysics. Those who wish to study the writing seminar paper of the student's choice read and approved by two faculty members.

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.
- In all geology M.S. degree programs except Engineering Geology, at least 22 graduate credits shall be geology courses.
- 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 formal thesis work until he/she has successfully passed the proficiency examination and has corrected deficiencies from same.
- Field camp can be taken for graduate credit; however, it will not count toward the 30 credits for the M.S. in the geology or geophysics options.
- Core Requirements:
  - 3370:690 Seminar in Geology 2
  - 3370:699 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

The minimal background for admission without deficiency should include a six-credit geology field course and equivalents to courses in mineralogy, petrology, structural geology, sedimentology/stratigraphy, and any two upper level geology courses.

Students should have completed the equivalent of a minimum of six semester courses in introductory chemistry, physics, biology, calculus or equivalents; including at least one semester of calculus, physics and chemistry. All courses should be taught for science/mathematics/engineering majors.

The academic background of each incoming graduate student will be reviewed during the student's first semester by the graduate advisor, thesis advisor, and department chair to determine whether background deficiencies exist for his/her planned program of study.

Earth Science

Equivalents of the current geology courses for the University's B.A. in geology are required. Course work will be selected to provide the student with a well-rounded background in lithosphere, hydrosphere and atmosphere. Those who will be teachers must take 5500:780 Seminar in Curricular and Instructional Studies: 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 his/her education in the other field. The entering student who has some deficiencies in either engineering or geology may have to satisfy one or more of the following requirements while proceeding with graduate studies. A committee of engineering geology faculty will determine appropriate coursework on an individual basis.

- 3370:101 Introductory Physical Geology 3
- 3370:210 Geomorphology 3
- 3370:350 Structural Geology 4
- 3450:221,2,3 Analytical Geometry-Calculus I, II, III 12
- 4300:201 Statics 3
- 4300:202 Introduction to Mechanics of Solids 3
- 4300:313 Soil Mechanics 3
- 4300:341 Geotechnical Engineering 3

- Required courses:
  - Graduate Geology Courses 18
  - Graduate Engineering Courses 8

Environmental Geology

Equivalents of the University's B.S. degree in natural science (biology, chemistry, geology, mathematics, or physics) or engineering, plus the equivalent of the University's minor in geology and Geology Field Camp I and II are required. As many as eight credits may be selected from engineering, biology and/or geography with the approval of a geology advisor.

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) and 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
    - Europe, Renaissance to 1750
    - Europe, 1750 to the Present
    - England and the Empire
    - East Asia
    - 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 at least 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.
  - 3400:689 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.
Mathematics and Computer Science

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
    - 3450:511 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

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 (3470), 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 to provide that this is approved beforehand by the student's advisory committee.

Additionally, the student must successfully complete the comprehensive examinations in the two courses selected from among 3450:510, 512 or 611 and in the courses 3450:621, 622 and 625.

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 (3470), 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.

Additionally, the student must successfully complete 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 – Computer Science

Option I

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

- Core:
  - 3450:510 Advanced Linear Algebra
  - 3450:621 Real Analysis
  - 3450:625 Analytic Function Theory
  - 3450:626 Seminar in Mathematics

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 (3470), 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 (3470), 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. Additionally, the student must successfully complete a 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 (3450:521,522) and Mathematical Models (3450:536). If the student fails any part of this review, then that course will be added to the required courses for the student and the total number of credits required for the degree will reflect this.

- Core:
  - 3450:510 Advanced Linear Algebra
  - 3450:621 Real Analysis
  - 3450:627 Advanced Numerical Analysis I
  - 3450:635 Optimization
  - 3450:636 Advanced Combinatorics and Graph Theory
  - 3470:650 Advanced Probability and Stochastic Process
  - 3470:651 Probability and Statistics
  - 3450:692 Seminar in Mathematics

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 (3470) 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 (3470), 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. Additionally, the student must successfully complete a Comprehensive Examination in the courses 3450:621, 627, 633, 636, and 3470:651.

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 (Aptitude and Advanced Computer Science Tests) 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: (626, 626), (540, 640), (655, 665)
  - Group 2: (655, 665), (557, 657), (560, 660), (570, 670), (575, 675)

- 3460:692 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.
- With prior consent, up to 3 credits of approved graduate-level work outside the department may be substituted for elective courses in both the thesis and nonthesis options.

Thesis Option (30 credits of graduate work)

In addition to the core curriculum, 3-5 credits in approved 500/600-level departmental courses and 2-4 credits in 3460:698 Master's Thesis must be completed. The thesis must be of publishable quality and must be successfully presented at
a public defense moderated by three full time Graduate Faculty in Computer Science.

Non-thesis Option (33 credits of graduate work)
In addition to the core curriculum, 9-10 credits in approved 500/600-level depart­mental courses must be completed. A written comprehensive examination, tak­ing the form suggested by the department, must be completed. The examination will cover four areas of computer science chosen by the student and the student's advisor. Two of the areas will be based on the two-course sequences (listed in Group 2) above.

Coordinated Program
Coordinated Engineering Applied Mathematics program for the Doctor of Philosophy in Engineering degree between the College of Engineering and the Department of Mathematics and Computer Science
The faculty in the College of Engineering and the Department of Mathematics and Computer Science 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 Mathematics and Computer Science. The Admission Requirements for the Doctor of Philosophy in Engineering, as given in the Graduate Bulletin (see page 43, College of Engineering), shall apply to all applicants for the Engineering Applied Mathematics Program.

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>3650:551</td>
<td>Advanced Laboratory I</td>
<td>3</td>
</tr>
<tr>
<td>3650:615</td>
<td>Electromagnetic Theory I</td>
<td>3</td>
</tr>
<tr>
<td>3650:626</td>
<td>Quantum Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>3650:641</td>
<td>Lagrangian Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>3650:661</td>
<td>Statistical Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>3650:685</td>
<td>Solid State Physics I</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>
<td>3650:581-2</td>
<td>Methods of Mathematical Physics I, II</td>
<td>6</td>
</tr>
<tr>
<td>3650:616</td>
<td>Electromagnetic Theory II</td>
<td>3</td>
</tr>
<tr>
<td>3650:626</td>
<td>Quantum Mechanics II</td>
<td>3</td>
</tr>
<tr>
<td>3650:652</td>
<td>Advanced Laboratory II</td>
<td>3</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course 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>3650:588</td>
<td>Digital Data Acquisition</td>
<td>3</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 an original research project, submitted in a form suitable for publication and approved by a physics faculty committee.

Option C: A master’s thesis.

• Graduate research participation is strongly encouraged. Up to five credits may be earned in 3650:687 Graduate Research upon the completion of a graduate research project. One additional credit may, upon approval by the department, be permitted in 3650:689 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.

Interdisciplinary Option: Chemical Physics
The faculties in the Departments of Physics and Chemistry offer a cooperative option leading to the Ph.D. in chemistry for those graduate students wishing to specialize in the interdisciplinary field of chemical physics.

Admission Requirements
Applicants may be admitted with either a baccalaureate or a master’s degree in either chemistry or physics. Students pursuing this option are subject to all admiss­ion and degree requirements for the Ph.D. in chemistry, as outlined in page 32 of this Graduate Bulletin. The Chemical Physics option is described in detail on page 32.

Students entering the Chemistry Ph.D. program under the auspices of the Physics Department will be expected to have taken some advanced undergradu­ate chemistry course work (200-Level and above), and must be recommended by the chair of the Physics Department. These students must select as research advis­or a faculty member in the Physics Department holding a joint appointment in Chemistry. Students with principle preparation in physics may be required to audit certain undergraduate prerequisites for graduate chemistry courses.

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. Two of the letters of recommendation (at least one from a faculty member who has worked with the student in the past two years, if applicable) and a personal statement out­lining the expected fit between the student’s skills and objectives and the depart­ment’s programs and resources are required. The Graduate Record Examination (GRE) is recommended, but not required.

The Master of Arts in Political Science allows students to focus their study in one of six concentrations: American Government Institutions, American Linkage Institutions, The Politics of Criminal Justice, International Politics, Comparative Politics, or Political Theory.

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

Degree Requirements
• Complete 30 credits of graduate work, including 18 credits at the 600 level, as follows:

Two required core courses:
3700:600 Scope and Theory of Political Science 3
3700:601 Research Methods in Political Science 3

Three additional departmental seminars, 9 credits (either independent research, thesis, or internship is considered a graduate seminar).
Six credits of Topics in Master’s Research (3700:696).
Nine additional credits at the graduate level.

• Pass a comprehensive written examination covering one concentration: Ameri­can Government Institutions, American Linkage Institutions, The Politics of Criminal Justice, International Politics, Comparative Politics, or Political Theory.

• Complete the following writing requirement:
An Essay of Distinction is a single, article-length, scholarly essay. This writing requirement will ensure our students to learn how to participate in the debates central to our discipline and complete the program with a superb writing sample that can serve as a foundation for continued graduate work, a con­ference presentation, a published article, or a deliverable policy analysis.

To complete an Essay of Distinction, students shall take six credit hours of Top­ics in Master’s Research with the chair of their three-member Faculty Advisory Committee. Those credits must be completed in the form of two consecutive three-credit courses (3700:696) taken in the student’s third and fourth semes­ters. The student’s Faculty Advisory Committee must approve the topic and completed essay.

Master of Applied Politics
The Master of Applied Politics, in cooperation with the Ray C. Bliss Institute of Applied Politics, is one of the few programs in the United States focusing on prac­tical politics. It is designed for students interested in efforts to influence policy decisions. This includes activities to capture elective public office in partisan con­tests, influencing legislation, and political organization.

Admission
Admission is open to students who have completed a four-year undergraduate degree and who fulfill the admission requirements of the Graduate School. No specific field of undergraduate major is required for admission. The Graduate Record Examination (GRE) is not required. The program is designed to accom­modate students taking course work on a part-time basis.

Degree Requirements
• Complete 30 credits of graduate work, including the following:
• Core courses - 27 credits:
  3700:570 Campaign Management I 3
  3700:571 Campaign Management II 3
  3700:572 Campaign Finance 3
  3700:540 Survey Research Methods 3
  3700:600 Scope and Theory of Political Science 3
  3700:651 Research Methods in Political Science 3
  3700:658 Internship in Government and Politics 3
  3700:672 Seminar in Political Inference and Organizations 3
  4600:681 Advanced Communication Studies: Communication in Political Campaigns 3

• Elective courses - 12 credits. 6 credits must be at the 600-level selected from the following courses:
  3700:502 Politics and the Media 3
  3700:531 Political Behavior and Electoral Politics 3
  3700:573 Voter Contact and Elections 3
  3700:575 American Interest Groups 3
  3700:576 American Political Parties 3
  3700:620 Seminar in Comparative Politics 3
  3700:622 Seminar in National Politics 3
  3700:688 Seminar in Policy Agendas and Conclusions 3
  3700:690 Special Topics in Political Science (applied focus) 3
  3700:697 Independent Research and Readings (applied focus) 3
  3980:614 Ethics and Public Service 3
  7600:696 Themes of Argument and Persuasion 3

• Prepare an applied politics portfolio containing:
  - At least two major papers prepared for required courses.
  - An applied politics capstone project assigned by the student's advisor.

• Pass an oral defense of the applied politics portfolio.

Psychology

Master of Arts

• Fulfill admission requirements of the Graduate School and the following departmental requirements:
  - psychology major or minimally the equivalent of psychology undergraduate minor 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 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 3.0 grade-point average in M.A. content courses as well as overall.

• 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 credits of graduate work, including thesis, as follows: Applied Cognitive Aging program, 39 credits; Counseling program, 49 credits; and Industrial/Organizational program, 41 credits.

Nonthesis Option

Completion of coursework, practicum and examinations into thesis required, with a minimum of credits of graduate work for each program as follows: Applied Cognitive Aging program, 37 credits; Counseling program, 44 credits; and Industrial/Organizational program, 39 credits.

Public Administration and Urban Studies

Master of Arts in Urban Studies

Admission

Admission is open to students who have completed a four year undergraduate degree and whose application is approved by the Program Coordinator. No specific field of undergraduate major is required for admission. GPA requirements for consideration of full admission requires a four year GPA of 2.8 or greater or a 3.05 or better for the last 60 hours (two years of course work). GPA requirements for consideration of provisional admission requires a GPA between 2.5 and 2.75 for the last two years (60 hours) of course work. Additionally, students must submit the following to the department:

- A standardized test score from GRE, GMAT, LSAT, or MAT, as appropriate for the area of undergraduate degree.
- A copy of their current resume. (Especially important for in-service students to ascertain professional experience.)

A personal essay stating why they are seeking admission in the MA program. Admission decisions will be based on the GPA and competitive evaluation of the standardized test scores, essay, and resume. If a student is deficient in one or two of the areas, he/she may be admitted provisionally depending on GPA. Provisional students must take 15 credits as specified in the department Master's Handbook and must secure recommendations on courses to be taken from his/her advisor.

In order to ensure competitive admissions, applicants are encouraged to observe the following deadlines in submitting their applications. Consideration of admission will be made following these dates depending upon availability of space in the program:

- Fall admissions April 15
- Spring admissions October 15
- Summer July 15

The department will no longer grant deferred admissions.

Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3980:600</td>
<td>Basic Quantitative Research</td>
<td>3</td>
</tr>
<tr>
<td>3980:601</td>
<td>Advanced Research and Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>3980:602</td>
<td>History of Urban Development</td>
<td>3</td>
</tr>
<tr>
<td>3980:611</td>
<td>Urban Economic Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>3980:543</td>
<td>Introduction to Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>3980:689</td>
<td>Master's Thesis (optional)</td>
<td>3</td>
</tr>
</tbody>
</table>

Basic Program

Complete 33 credits of course work 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 advisor.

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 and whose application is approved by the Program Coordinator. No specific field of undergraduate major is required for admission. GPA requirements for consideration of full admission requires a four-year GPA of 2.8 or greater or 3.05 or better for the last 60 hours (two years of course work). GPA requirements for consideration of provisional admission requires a GPA between 2.5 and 2.75 or between 2.75 and 3.05 for the last two years (60 hours). Additionally, students must submit the following to the Department:

- A standardized test score from GRE, GMAT, LSAT, or MAT.
- A copy of their current resume. (Especially important for in-service students to ascertain professional experience.)
- A personal essay stating why they are seeking admission in the MPA program. Admission decisions will be based on the GPA and competitive evaluation of the standardized test scores, essay, and resume. If a student is deficient in one or two of the areas, he/she may be admitted provisionally depending on GPA. Provisional students must take 15 credits as specified in the department Master's Handbook and must secure recommendations on courses to be taken from his/her advisor.

In order to ensure competitive admissions, applicants are encouraged to observe the following deadlines in submitting their applications. Consideration of admission will be made following these dates depending upon availability of space in the program:

- Fall admissions April 15
- Spring admissions October 15
- Summer July 15

The department will no longer grant deferred admissions.
Degree Requirements

- The number of graduate credits required for the MPA will be as follows:
  Master's Degree in Public Administration 45 credits

- Core requirements (36-39 credits):
  3980:600 Basic Quantitative Research 3
  3980:601** Advanced Research and Statistical Methods 3
  3980:610 Legal Foundations of Public Administration 3
  3980:611 Introduction to the Profession of Public Administration 3
  3980:614 Ethics and Public Service 3
  3980:615 Public Organization Theory 3
  3980:616 Personnel Management in the Public Sector 3
  3980:640* Fiscal Analysis 3
  3980:642* Public Budgeting 3
  3980:643 Introduction to Public Policy 3
  3980:697 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
  3980:621 Program Evaluation 3

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 a 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.

Areas of Concentration:

Public 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 multidisciplinary knowledge of a given area of concentration.

Advanced Elective Courses (6-9 credits):

3250:639 Public Employee Labor Markets 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
3850:690 Workshop 1-3
3850:612 National Urban Policy 3
3850:613 Intergovernmental Management 3
3850:618 Citizen Participation 3
3850:620 Social Services Planning 3
3850:621 Urban Society and Service Systems 3
3850:622 Urban Planning and Health Care 3
3850:623 Public Works Administration 3
3850:631 Parks and Recreation 3
3850:641 Urban Economic Growth and Development 3
3850:660 Comparative Urban Systems 3
3850:670 Research for Futures Planning 3
3850:671 Program Evaluation in Urban Studies 3
3850:672 Alternative Urban Futures 3
3850:673 Computer Applications in Public Organizations 3
3850:674 Analytical Techniques for Public Administration 3
3850:680 Selected Topics in Urban Studies 3
3850:681 Selected Topics in Urban Studies 3
3850:687 Individual Studies 1-3

*Students may take 3250:606 Economics of the Public Sector and 3350:530 State and Local Public Finance to fulfill the requirements of 3980:640 Fiscal Analysis and 3980:642 Public Budgeting. Students must, however, take both 3250:606 and 3250:596 or both 3850:640 and 3850:642.

**Students may take either 3980:674 or 3980:673 in lieu of 3980:621. Students may also take either 3980:602, 3980:617 or 3950:630 in lieu of 3980:643.

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

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 requirements 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 45 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 96 to 74, 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, 3850:698, 3850:696 and 3850:697). In meeting these requirements the student must:

- Complete five required core courses with at least a 3.0 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

- Complete at least six hours of thesis work (3850:699). No more than six credits will count toward the degree.

- Completion of master’s thesis and successful oral defense of thesis.

Nonthesis Option

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

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

- Complete four required core courses with at least a 3.0 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

- Completion of at least 15 credits in a contracted specialty area. This area must be defined in consultation with the student’s advisor 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.

Research Paper 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, 3850:698, and 3850:696). In meeting these requirements the student must:

- Complete five required core courses with at least a 3.0 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

- Complete at least six hours of Master’s Research Paper work (3850:699). No more than six credits will count toward the degree, but a student may register for more than six (6) hours.

- Completion of Master’s Research Paper and successful oral defense of paper.
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 advisor.
• Final comprehensive examinations: the candidate will be required to submit an essay, and pass an oral exam on the essay.

Statistics

Master of Science – Statistics

• Entrance into the program will require the initial completion of the following prerequisites:
  3450:223 Analytic Geometry-Calculus III, four credits; or equivalent.
  3450:312 Linear Algebra, three credits; or equivalent.
  3470:461/561 Applied Statistics I, four credits; or equivalent.
• Core curriculum:
  3470:651 Probability and Statistics 4
  3470:652 Advanced Mathematical Statistics 3
  3470:655 Linear Models 3
  3470:663 Experimental Design 3
  3470:665 Regression 3
  Total 16

Statistical Computer Science option
(Addition to existing master’s program).
• Other required courses:
  3460:501 Fundamentals of Data Structures 3
  3460:506 Introduction to C and UNIX 3
  3460:575 Data Base Management 3
  3470:580 Statistical Computer Applications 3
  Total 12

Thesis requirements (30 credits of graduate work)
In addition to the core curriculum, 2-4 credits in 3470:699 Master’s Thesis and 10-12 other approved elective graduate credit hours must be completed.
Successful completion of the comprehensive examinations in the core curriculum.

Nonthesis requirements (33 credits of graduate work)
In addition to the core curriculum, 2-4 credits in 3470:692 Seminar in Statistics and 13-15 other approved elective graduate credit hours must be completed. The Statistical Computer Science option requirements may be applied toward the elective courses.
Successful completion of the comprehensive examinations in the core curriculum.
Mission of the College

The College of Engineering at the University is committed to excellence in undergraduate and graduate education as well as excellence in innovative research. The College of Engineering was founded in 1914 and is the second oldest college at the University. The college embraces the departments of Biomedical Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering, and Mechanical Engineering. The current research units include the Institute of Biomedical Engineering Research (IBERI) and the Microscale Physicochemical Engineering Center (MPCEC). During the academic year 1989-90, the college adopted Interdisciplinary Procedures for the doctoral program in the college. This interdisciplinary program has led to two additional collaborative doctoral programs: Engineering Applied Mathematics which is jointly run by the Applied Mathematics Division of the Department of Mathematics and Computer Science in the Buchtel College of Arts and Sciences, and the M.D./Ph.D. program with the Northeastern Ohio Universities College of Medicine (NEUCOM). In addition, there is also a coordinated program, the Doctor of Philosophy in Engineering at The University of Akron and Youngstown State University. The doctoral program offered by the college is truly interdisciplinary in nature.

Engineering graduate programs are designed to prepare for careers in industry, governmental laboratories, colleges and universities. The current research emphases for the doctoral program is reflected by the focus areas of each of the engineering departments.

The graduate educational missions of the college are to train engineers and scientists to solve state of the art technological problems; develop theory, methodology and necessary experimental skills to address problems that are of state-wide and national interest; provide excellence in presenting their findings via theses, doctoral dissertations and research papers; and where appropriate, train students to become future educators, industrial researchers, or to work on interdisciplinary teams.

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’s degree must provide satisfactory evidence of an equivalent 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 graduate 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 in a discipline other than engineering shall have completed undergraduate coursework in calculus, differential equations, and have one year of classical physics. These students may be required to take additional bridge-up courses depending on their background. Necessary bridge-up coursework will be determined by the admitting department/program graduate committee.

Transfer Credits

A student who has a master’s degree from another university or from one of the departments in the College of Engineering may, upon recommendation of the Interdisciplinary Doctoral Committee, transfer up to 24 credits of course work. The course comprising the transfer credits must be identified and itemized on the Plan of Study and must be substantiated by an official transcript from the educational institution that offered the courses.

A student who has completed a non-thesis master’s degree, or has graduate credits but has not completed the degree requirements for the master’s degree, can transfer a maximum of 24 credits of course work toward the doctoral course requirements.

No more than six credit hours of research or complete thesis credits can be transferred.

Degree Requirements

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

- An entering doctoral student will have the chair of the Interdisciplinary Doctoral Committee (IDC) in his/her home department/program.
- Student’s plan of study should include 96 credit hours and be in accordance with the guidelines established by the student’s admittance department/program.
- A Plan of Study will be established by the IDC satisfying guidelines established by the home department/program.
- Identify an interdisciplinary field of study, a dissertation director, and an interdisciplinary Doctoral Committee before completion of 18 credits of coursework.
- Pass a departmental Qualifying Examination. The purpose of the qualifying examination is to determine admisibility to the doctoral program and any technical weakness.
- 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 pass (no “fail” 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.

Doctoral Student’s Responsibilities

Doctoral students are completely responsible for all aspects of their graduate education. Specifically, these responsibilities include:

- Understanding, adhering to, and implementing the procedures of the Graduate School, as described in the University of Akron Graduate Bulletin, and the Interdisciplinary Doctoral Procedures of the College of Engineering.
- Selecting an interdisciplinary program, Dissertation Director, and Interdisciplinary Doctoral Committee.
- Arranging, through the Dissertation Director, all Interdisciplinary Doctoral Committee meetings.
- Initiating, through the Dissertation Director, the forms that monitor their progress toward the doctoral degree.
- Proposing and executing an accepted Plan of Study.
- Proposing a Research Proposal and executing the proposed research.
- Preparing a scientifically acceptable and comprehensive dissertation whose format meets all the accepted standards of the interdisciplinary Doctoral Committee, the College of Engineering, and the Graduate School.

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 Engineering, Mechanics, Systems Engineering, and Transport Processes. The objectives of the proposal were to allow doctoral students access to the infrastructure resources of the entire college and permit the interdisciplinary programs to adapt to the changing research and funding environment. Since the approval of the proposal, the interdisciplinary areas have expanded from the original five programs to ten 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 various materials, mechanics of solids, fluids, solid, 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 Engineering studies the materials from the physical, chemical, and engineering standpoints. 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 biomaterials.

Polymer Engineering combines fundamental engineering principles with the structure and theoretical properties of polymers to design and analyze polymer processes and equipment.

Engineering Applied Mathematics applies advanced mathematics to technologically significant engineering problems.

Chemical Reactions and Process Engineering studies chemical reactions, homogeneous chemical reactions, heterogeneous chemical reactions, and catalysis as applied to process engineering.

Microscale Physicochemical Engineering studies small particles, surface science, agglomeration, and separation as applied to process engineering.

The interdisciplinary doctoral program has succeeded in providing doctoral students access to the resources of the entire college while providing an economically sound administration for a program that deals with a doctoral population that is much smaller than those for undergraduate or master's 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 Mathematics and Computer Science

#### Admission Requirements

Applicants for the Engineering Applied Mathematics Program must have their graduate application and credentials evaluated by the College of Engineering Dean's Office and the Department of Mathematics and Computer Science. 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. These 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, preparing an acceptable Dissertation Proposal, writing a dissertation, and publicly and successfully in "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 Mathematics and Computer Science and the participating faculty from one of the five departments in the College of Engineering. The Interdisciplinary Doctoral Committee shall consist of at least six members. It shall consist of: a number of faculty with primary appointments in the College of Engineering and participating program faculty from the Department of Mathematics and Computer Science. The participating faculty from the Department of Mathematics and Computer Science must hold joint appointments in the College of Engineering.

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 at least 50 percent of minimum coursework from the College of Engineering and at least 50 percent of minimum coursework from the Department of Mathematics and Computer Science.

### 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 counseling 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 of the coursework and one-half 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 Ph.D. 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 NEOMC provide a coordinated program for those desiring both the M.D. and Ph.D. 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 NEOMC.

#### Admission Requirements

Applicants with a bachelor's or master's degree in a discipline other than engineering or 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:
Degree Requirements
To obtain an M.D. degree from NEUCOM and a Doctor of Philosophy 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 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 chair.

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 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.

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

- Identify a three-member Advisory Committee including a major advisor 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 in 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 pass the exam 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
Applicants with a bachelor's degree in a discipline other than engineering shall have completed coursework in calculus, differential equations, have one year of classical physics, and must complete:

4200:225 Equilibrium Thermodynamics
4200:321 Transport Phenomena
4200:330 Reaction Engineering

An overall GPA of 3.0 must be maintained for these courses. 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.

Thesis Option

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>4200:600</td>
<td>Transport Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>4200:605</td>
<td>Chemical Reaction Engineering</td>
<td>3</td>
</tr>
<tr>
<td>4200:610</td>
<td>Classical Thermodynamics</td>
<td>3</td>
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Nonthesis Option

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<th>Title</th>
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<tbody>
<tr>
<td>4200:697</td>
<td>Chemical Engineering Report</td>
<td>3</td>
</tr>
<tr>
<td>4200:698</td>
<td>Chemical Engineering Electives*</td>
<td>6</td>
</tr>
<tr>
<td>4200:699</td>
<td>Approved Electives**</td>
<td>6</td>
</tr>
<tr>
<td>4200:700</td>
<td>Approved Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>4200:701</td>
<td>Master's Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

Total 36

*Chemical Engineering students in both degree options are expected to attend and to participate in the department seminars.

**Students without BS in Chemical Engineering are required to take 4200:535, 4200:541.

Five Year BS/MS Chemical Engineering Program
The five year BS/MS program in Chemical Engineering provides superior undergraduate students with the opportunity to complete an M.S. in Chemical Engineering with one additional year of study beyond their B.S. Chemical Engineering degree at The University of Akron. The program is only available to B.S. Chemical Engineering students at The University of Akron. Applications are accepted in the spring of the junior year.

Master of Science in Civil Engineering
Applicants with a bachelor's degree in a discipline other than engineering shall have completed coursework in calculus, differential equations, have one year of classical physics, and must select and complete undergraduate coursework from one of four undergraduate disciplines. 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.

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<tr>
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<tbody>
<tr>
<td>4300:306</td>
<td>Theory of Structures</td>
<td>3</td>
</tr>
<tr>
<td>4300:313</td>
<td>Soil Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>4600:310</td>
<td>Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>4600:323</td>
<td>Water Supply and Wastewater Disposal</td>
<td>4</td>
</tr>
<tr>
<td>4300:341</td>
<td>Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>4300:361</td>
<td>Transportation Engineering</td>
<td>3</td>
</tr>
<tr>
<td>4300:401</td>
<td>Steel Design</td>
<td>3</td>
</tr>
<tr>
<td>4300:403</td>
<td>Reinforced Concrete Design</td>
<td>3</td>
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</tbody>
</table>

Total 25

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

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<tr>
<td>4400:360</td>
<td>Physical Electronics</td>
<td>3</td>
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<tr>
<td>4400:361</td>
<td>Electronic Design</td>
<td>4</td>
</tr>
<tr>
<td>4400:363</td>
<td>Switching and Logic</td>
<td>4</td>
</tr>
<tr>
<td>4400:394</td>
<td>Energy Conversion I</td>
<td>3</td>
</tr>
<tr>
<td>4400:385</td>
<td>Energy Conversion Lab</td>
<td>2</td>
</tr>
<tr>
<td>4400:445</td>
<td>Analog Communications</td>
<td>3</td>
</tr>
<tr>
<td>4400:493</td>
<td>Antenna Theory</td>
<td>3</td>
</tr>
<tr>
<td>4400:472</td>
<td>Control Systems II</td>
<td>4</td>
</tr>
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Total 26

Master of Science in Electrical Engineering
Applicants with a bachelor's degree in a discipline other than engineering shall have completed coursework in calculus, differential equations, have one year of classical physics, and must select and complete undergraduate coursework from one of four undergraduate disciplines. 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.

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Total 26

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

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Total 36

*Chemical Engineering students in both degree options are expected to attend and to participate in the department seminars.

**Students without BS in Chemical Engineering are required to take 4200:535, 4200:541.
**Nonthesis Option**

| Electrical Engineering Courses** | 18 |
| Approved Mathematics | 6 |
| Approved Electives | 3 |
| **Total** | **33** |

Electrical engineering students pursuing the nontthesis option must pass a graduate level oral comprehensive examination which may be taken after 24 credits have been completed.

*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.

**Master of Science in Mechanical Engineering**

Applicants with a bachelor's degree in a discipline other than engineering shall have completed coursework in calculus, differential equations, and have one year of classical physics, and must select and complete undergraduate coursework from one of four undergraduate disciplines. These undergraduate courses may be taken prior to graduate admission, or concurrently if the student has completed coursework in the department.

**Nonthesis Option**

| Mechanical Engineering Courses* | 15 |
| Approved Mathematics | 3 |
| Approved Electives | 6 |
| Master's Thesis | 6 |
| **Total** | **30** |

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**

| Mechanical Engineering Courses* | 15 |
| Approved Mathematics | 3 |
| Approved Electives | 6 |
| Master's Thesis | 6 |
| **Total** | **30** |

**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.

**Admissions**

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.

**Thesis Option**

| Engineering Courses | 12 |
| Approved Mathematics or Science | 3 |
| Approved Electives | 9 |
| Master's Thesis | 6 |
| **Total** | **30** |

The thesis must be successfully (no “fail” votes) defended before the Advisory Committee.

**Nonthesis Option**

| Engineering Courses | 18 |
| Approved Mathematics or Science | 3 |
| Approved Electives | 9 |
| Engineering Report | 2 |
| **Total** | **32** |

The engineering report must receive the approval of the Advisory Committee.

**Biomedical Engineering Specialization**

| 4800:601 | Biomedical Instrumentation | 4 |
| 4800:611 | Biomechanics | 3 |
| 3100:695 | Physiology for Engineers and Lab | 5 |
| Approved Electives | 15 |
| Master's Thesis | 6 |
| **Total** | **33** |

The thesis must be successfully (no “fail” votes) defended before the Advisory Committee.

**Polymer Engineering Specialization**

| Polymer Engineering Core | 12 |
| Polymer Engineering Electives | 11 |
| Approved Engineering and Science Elective | 3 |
| Thesis | 6 |
| **Total** | **32** |

The thesis must be successfully (no “fail” votes) defended before the Advisory Committee.

**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.

| Engineering Courses | 21 |
| Management Courses | 15 |
| Engineering Management Report | 2 |
| **Total** | **38** |

The engineering report must receive the approval of the Advisory Committee.

**Required Courses**

| 6200:601 | Financial Accounting* | 3 |
| 6400:602 | Managerial Finance** | 3 |
| 6500:601 | Management and Organizational Behavior* | 3 |
| 6600:600 | Marketing Concepts* | 3 |

**Elective**

Choose three credits of 600-level College of Business Administration courses.

*More advanced graduate business courses shall be required of students who have completed similar undergraduate courses. This determination shall be made by the Assistant Dean and Director of Graduate Business Programs, College of Business Administration.

**6300:602 is a prerequisite for 6400:602.**
**College of Education**

Elizabeth J. Stroble, Ph.D., Dean
James T. Hardy, Ph.D., Associate Dean

**Mission Statement**

The University of Akron College of Education offers a comprehensive slate of programs for school and community professionals, with teacher education programs entitled “Educator as Decision Maker” as the cornerstone. Our faculty is a community of learners with wide-ranging specialties and strengths but firmly committed to a common goal: to prepare and support educators at all levels and across a range of school, community and agency settings for the challenges of the 21st century. The College holds primary responsibility within the University of Akron for producing educational personnel for Ohio schools and colleges, contributing to the positive reform of education, and strengthening the research and knowledge base of the discipline.

The College provides initial and advanced preparation and continuing professional development and support of educators from early childhood through adult. Educators include classroom teachers, teacher educators, and other personnel such as administrators, counselors, and school nurses. The College meets this comprehensive charge through teacher education programs as well as programs in counseling, technical education, athletic training for sports medicine, and a few teacher education programs that are housed outside the College of Education.

**DOCTOR OF PHILOSOPHY DEGREE**

The program leading to the Doctor of Philosophy degree in the Department of Curricular and Instructional Studies is offered through the College of Education. Two degrees are offered: the Ph.D. in Elementary Education, and the Ph.D. in Secondary Education. The degree will be awarded to the student who, in addition to fulfilling the general requirements of the Graduate School, has met the following specific requirements:

- Successful completion of all Departmental Admission Requirements.
- Completion of the Miller Analogies Test or the Graduate Record Examination (GRE).
- A minimum of 92 graduate credits including the doctoral dissertation. A student considered deficient in any area may be required to take additional courses.
- Completion of a foundation studies program designed to prepare the student before specialization.
- Successful completion of a test in a language judged not to be the student's native tongue and excluding English:
  - a student in the Department of Curricular and Instructional Studies may elect to develop appropriate research skills prescribed by the advisor, subject to review by the department chair, in lieu of the foreign language requirement. (See section on Additional Research Competency.)
- Completion of a least six credits in cognate area.
- Completion of a comprehensive written and oral examination.
- Completion of a dissertation comprising not more than 20 credits. Credits beyond the 20 hours may not be applied to the degree. The oral examining committee must be constituted of at least five full-time graduate faculty members, one of whom must be from outside the College.
- Pass the general requirements for the Doctor Philosophy degree.

**Doctor of Philosophy Degree in the Department of Curricular and Instructional Studies**

The Doctor of Philosophy degrees offered by the Department of Curricular and Instructional Studies are designed to meet the needs and interests of persons in pre-K, elementary, middle, secondary, postsecondary, higher education, and other institutions or agencies that might have educational/learning programs. A qualified student can, through consultation with an advisor and within the expertise and resources of the department, design a specialization to meet higher career objectives.

**Program Description**

The program is predicated on the belief that an effective instructor evolves from a well-planned program containing exposure in three basic areas:

1. Common core foundational studies
2. A specialization
3. Professional education in Curricular and Instructional Studies
4. Other contributing disciplines (cognate)

With this philosophy in mind, the program provides study in a common core of study, a selected discipline, professional education, and cognate fields. Listed below and of particular significance are the two sequential steps necessary in the program:

1. **Written and Oral Comprehensive**
   
   These Comprehensive Examinations should be taken after the completion of the first two-thirds of work and prior to the completion of three-fourths of the program with the approval of the student's advisor. Written comprehensive examinations are offered each semester.

2. **Dissertation**
   
   The dissertation proposal must receive approval of the Dissertation Committee prior to advancement to candidacy.

**Admission Requirements**

Admission to the Curricular and Instructional Studies Ph.D. program is limited to a select number of students each Fall or Spring Semester. More candidates apply for admission than the Department has the resources and capacity to admit. Therefore, applying for admission to the doctoral program is no guarantee of admission, and applicants to the program must recognize the possibility of denial. Criteria for admission to the Curricular and Instructional Studies Ph.D. program are as follows:

1. Graduate and undergraduate degrees from accredited universities and in programs considered to offer adequate preparation for the Ph.D. in Curricular and Instructional Studies (Ph.D., Elementary Education; Ph.D., Secondary Education).
2. Acceptable grade point averages in a completed graduate degree (at least 3.50 GPA on a scale of 4.0).
3. Demonstration of doctoral level writing ability as evidenced by a Miller Analogies Test score of 45 or higher, or a 550 on the verbal portion of the GRE, and a prescribed and evaluated written assignment.

The following statements govern the use of the Miller Analogies Test/GRE and a controlled writing sample as part of the Admissions criteria:

a. Applicants who score less than 45 on the MAT or 550 on the verbal portion of the GRE and receive three or more failing evaluations on the controlled writing assignment shall be denied admission to the program.

b. Applicants who score less than 45 on the MAT or 550 on the verbal portion of the GRE, but receive passing evaluations on the writing assignment will have their application deferred pending a faculty interview and reevaluation. The MAT may be repeated subject to the Psychological Corporation's rules for repeated testing.

c. Applicants who score 45 or higher on the MAT or 550 on the verbal portion of the GRE will receive three or more failing evaluations on the controlled writing assignment shall have their application deferred pending a faculty interview and reevaluation.

d. All doctoral applicants must take the MAT or the GRE. This includes those persons who took the test upon entry into a master's program.

4. Intended area of specialization is compatible with departmental resources and goals.

5. Obtain faculty sponsorship through completion of the “Agreement to Advise” form that is included with this information.

All doctoral applicants must do the following:

1. Complete all admission materials, as specified in Requirements and Procedures of the Doctoral Programs in Education by October 1 for Fall admits or March 1 for Spring admits.

2. Complete the Miller Analogies Test or Graduate Record Exam. This includes applicants who may have taken either of their tests as a Master's level applicant.

3. Complete a controlled writing assignment offered the third Saturday in October for Fall and the second Saturday in March.

4. Complete the “Agreement to Advise” form and secure faculty signatures by October 1 for Fall and March 1 for Spring. The major advisor must be from the Department of Curricular and Instructional Studies; the minor advisor must be from the College of Education.

5. If requested by the Department, interview with committee of departmental Graduate Faculty. Candidates may also be judged on depth and breadth of
knowledge, pose, thinking ability, ability to communicate verbally, relevant educational work experience, uniqueness, potential success in desired field and motivation and commitment to a position of educational leadership.

6. In certain cases an applicant may be required to take course work on the graduate level at The University of Akron before a final decision on his/her application for admission is made.

7. Candidates must have at least three years of teaching experience. (This does not apply to postsecondary/technical adult education area candidates.)

Additional Research Competency

In addition to successfully completing the approved program of courses, the Ph.D. student must display competency in one of the following areas: Course work taken to develop the competency may not be applied to the total number of hours required in the Ph.D. program.

a. Foreign Language
   A reading knowledge of one foreign language. The Department will work cooperatively with the Department of Modern Languages to determine that the student does in fact demonstrate the ability to read in a foreign language i.e., a language other than the student’s native language and excluding English.

b. Statistics/Research Methods
   Students will successfully complete a minimum of 9 hours of additional advanced statistical/research methods courses approved by student’s advisor.

c. Professional Publication
   The preparation of a research or position paper accepted for publication by a refereed professional journal. The student may serve as senior or co-author. The advisor must write a letter of approval of the published writing. This letter shall present the advisor’s review of the academic integrity of the published article in terms of adequacy in meeting this requirement. A letter of acceptance for publication shall be considered as published.

Doctoral Residency Requirements

The minimum residency requirement for a doctoral candidate is that the student complete a minimum of 90 semester hours of graduate work in residence at The University of Akron.

Curricular and Instructional Studies Ph.D.

Course Requirements

Social-Philosophical Foundations (15)

5100:600 Philosophy of Education (or 600 or 602) 3
5100:620 Psychology of Teaching and Learning (or 624 or 5400.500) 3
5100:703 History of Education in American Society (or 703) 3
5100:705 Seminar in Social-Philosophical Foundations of Education 3
5100:725 Teaching Behavior and Instruction (or 721 or 710) 3

Research Foundations (18)

5100:640 Techniques of Research 3
5100:740 Research Design 3
5100:761 Data Collection Methods 3
5100:762 Statistics in Education 3
5100:781 Seminar I: Exploratory/Qualitative 3
5100:781 Seminar II: Ethnographic/Historical or Case Study Research or Legal Research and Writing or other advisor- approved course 3

Curricular and Instructional Studies Core (15)

5500:900 Professional Doctoral Seminar in Curricular and Instructional Studies 3
5500:980 Seminar in Curricular and Instructional Studies 3
5500:602 Concepts of Curriculum & Instruction 3
5500:625 Seminar in Trends and Issues in Curriculum & Instruction 3

Three additional hours will be selected in the area of Curricular and Instructional Studies with advisor approval.

Area of Specialization: 18 credit hours

Cognate Area Outside of Education: 6 credit hours

Dissertation: 20 credit hours

Total Program: 92 credit hours

Additional coursework taken to develop a competency area may not be applied to the total number of hours required in the Ph.D. program.

Doctoral Programs in Counseling

Collaborative Ph.D. Program in Counseling Psychology

The Collaborative Program in Counseling Psychology allows the students 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 theses of counseling and psychotherapy, supervision, vocational psychology, ethics, assessment, and research design. Practica and internship experiences are required of students in both tracks and range from skill building in basic 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 enter 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 (3750:6500) under their home department code.

• The comprehensive written examination is prepared, administered, and graded by a Comprehensive Examination Committee composed of four faculty members, two from each track. At least one faculty member from each track participates in the oral portion of the Comprehensive Examination.

• Dissertation - at least one faculty member from each track is required on the student's dissertation committee.

• Internship - 2,000 hours post-master's with 1,700 hours over no more than two years. The internship site must be listed in the Association of Psychology Post-doctoral and Internship Centers (APPIC) Directory.

• Language and residency requirements are to be completed in accordance with the guidelines from the Graduate School and student's home department.

• 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.

Admission Requirements - Education Track Ph.D.

• Undergraduate GPA of 2.75 or above on a 4.00 scale on all undergraduate work completed as part of the baccalaureate degree, or

• A 3.0 or above on a 4.00 scale on all undergraduate work completed as part of the baccalaureate degree, or

• A 3.0 or above on a 4.00 scale must have been earned on the last 64 semester hours of undergraduate coursework completed as part of the baccalaureate degree from an accredited college or university. If, in counting back, only part of a semester quarter, or summer session's coursework is needed to reach 64 semester hours, courses in that grading period with the highest quality points will be used.

• A 3.25 or above on a 4.00 scale must have been earned on all graduate work completed up to the time of screening. (A completed master's degree is not required to make application, however, a minimum of 20 semester hours of graduate work must be completed prior to the application deadline. Acceptance is contingent upon completion of a master's degree and submission of a degree conferral transcript. Workshop credits are excluded from all applications.)

• Graduate Record Examination General Scores — A minimum combined score of 1100 (verbal and quantitative) is recommended. In addition, the applicant's Graduate Record Examination Subject Score in Psychology will be considered when the applicant's materials are evaluated.

Course Requirements

5100:640 Techniques of Research 3
5500:633 Counseling: Theory and Philosophy 3
5500:645 Tests and Appraisal in Counseling 4
5500:697 Career Development and Counseling Across the Lifespan 3
5500:951 Techniques of Counseling 3
In order to be admitted into the doctoral program, a student must have completed a master's degree in Guidance and Counseling or a master's degree in a related field. Students must have completed graduate coursework in each of the following areas prior to enrolling in courses in the Ph.D. major of Guidance and Counseling: (1) an introductory course in school counseling, student personnel services, individual counseling, and group counseling; (2) an internship; (3) research in counseling; (4) individual counseling; (5) group counseling; (6) research in counseling; (7) research techniques.

A minimum of one academic year of full-time internship is required. An internship taken as part of a master's degree program may account for up to 50% of this requirement. If this is the case, the student is required to complete only three semester hours of 5000-6995 after admission to the doctoral program.

Selected with the approval of the student's major and the student's specialty area of (1) Counseling Education, (2) Marriage and Family Counseling.

For further program details and specific admission requirements, contact the Department of Counseling and Special Education.

DOCTORATE IN EDUCATIONAL ADMINISTRATION

Overview

The Department of Educational Foundations and Leadership bears a special responsibility for preparing school leaders to the degree that its graduates have unique opportunities to shape organizational goals, to influence the character of educational programs, and to affect institutional performance. Those departments programs are based on the strengths of the total College and University. The professional skills of administration are developed as they relate to larger issues of educational policy and educational purpose. At all degree levels there is emphasis upon research and clinical inquiry as a means of enhancing administrative performance.

The curriculum in this Doctor of Education program is delivered in a sequential, cohort model. The program is designed around four categories of standards found in the National Council for the Accreditation of Teacher Education (NCATE) Curricular Guidelines for Advanced Programs in Educational Leadership approved by NCATE in October 1995, namely, (1) strategic leadership, (2) instructional leadership, (3) organizational leadership, and (4) political and community leadership. The courses are built upon the 21 domains outlined by the National Policy Board for Educational Administration (NPBEA).

Behavioral, Historical, and Social-Philosophical Studies (12)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:701 History of Education in American Society</td>
<td>3</td>
</tr>
<tr>
<td>5100:705 Seminar: Social-Philosophical Foundations of Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:710 Adult Learning, Development and Motivation</td>
<td>3</td>
</tr>
<tr>
<td>5100:721 Learning Processes</td>
<td>3</td>
</tr>
</tbody>
</table>

Research (22)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5170:699 Doctoral Dissertation</td>
<td>10</td>
</tr>
</tbody>
</table>

Students will select any combination of the following research courses for a minimum of 12 semester hours depending upon their research interest and career goals.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:340 Research Design</td>
<td>3</td>
</tr>
<tr>
<td>5100:341 Data Collection Methods</td>
<td>3</td>
</tr>
<tr>
<td>5100:342 Statistics in Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:343 Advanced Educational Statistics</td>
<td>3</td>
</tr>
<tr>
<td>5100:360 Research Seminar: Exploratory/Quasi</td>
<td>3</td>
</tr>
<tr>
<td>5100:361 Research Seminar: Ethnographic/Historical</td>
<td>3</td>
</tr>
<tr>
<td>5100:360 Research Seminar: Case Study Research</td>
<td>3</td>
</tr>
<tr>
<td>5100:361 Research Seminar: Legal Research and Writing</td>
<td>3</td>
</tr>
<tr>
<td>5100:361 Research Seminar: Empirical Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

Educational Administration (29)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5170:704 Advanced Study of Educational Leadership</td>
<td>3</td>
</tr>
<tr>
<td>5170:705 Decision Making in Educational Leadership</td>
<td>3</td>
</tr>
<tr>
<td>5170:708 Economics in Education</td>
<td>3</td>
</tr>
<tr>
<td>5170:716 Advanced Evaluation of Educational Organizations</td>
<td>3</td>
</tr>
<tr>
<td>5170:730 Residency Seminar</td>
<td>3</td>
</tr>
<tr>
<td>5170:732 Public and Media Relations in Educational Organizations</td>
<td>3</td>
</tr>
<tr>
<td>5170:745 Seminar: Urban Issues</td>
<td>3</td>
</tr>
<tr>
<td>5170:746 Politics of Education</td>
<td>3</td>
</tr>
<tr>
<td>5170:710 Advanced School Law</td>
<td>3</td>
</tr>
<tr>
<td>5170:795 Internship</td>
<td>3</td>
</tr>
</tbody>
</table>

Curriculum and Supervision (8)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5170:340 Theories of Educational Supervision</td>
<td>3</td>
</tr>
<tr>
<td>5170:709 Advanced Principles of Curriculum</td>
<td>3</td>
</tr>
</tbody>
</table>

Cognate (12)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5170:699 Doctoral Dissertation</td>
<td>15</td>
</tr>
</tbody>
</table>

Minimum Total Semester Credits: 90

Classified as a Professional Doctoral Degree. The graduate student's primary objective is the pursuit of professional competence as an educational administrator. The degree is granted in recognition of the student's achievement of advanced educational leadership and the successful completion of a program of courses, seminars, and a dissertation, or a comprehensive research paper. The student successfully completes an Ed.D. degree within a minimum of two years from the date of entering the program.
Continuous Doctoral Program Enrollment

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

MASTER’S DEGREE

Programs leading to the degree of M.A. in education, M.S. in education, and M.S. in technical education are offered.

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

The Graduate Record Examination (General Test) should be taken before or other than the new master’s Comprehensive Exam if required. No more than six credits of workshops or institutes can be used to satisfy degree requirements.

The student must complete a minimum of nine credits in foundation studies in education.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:600</td>
<td>Philosophies of Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:602</td>
<td>Comparative and International Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:604</td>
<td>Topical Seminar in the Cultural Foundations of Education</td>
<td>3</td>
</tr>
<tr>
<td>6100:620</td>
<td>Psychology of Instruction for Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>6100:624</td>
<td>Seminar in Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>6100:640</td>
<td>Techniques of Research</td>
<td>3</td>
</tr>
</tbody>
</table>

*Students in some counseling programs may choose other options – see advisor.

Certification/Licensure Standards

New Teacher Education and Licensure Standards for the State of Ohio became effective January 1, 1998. However, students admitted to certification programs under the old 1987 Certification Standards may receive initial Provisional Certificates until September 2, 2002. This is the last date the Ohio Department of Education will issue initial four-year Provisional Certificates. Students failing to complete programs before that date will automatically fall under the new Licensure Standards.

Outreach Master’s in Education Programs

The University of Akron’s College of Education and Continuing Education believe that improvement in teacher education and continuing professional development is the direct result of collaboration among varying levels and sites with school personnel. This collaboration evolves through a wide variety of cooperative activities, including master’s in education cohort programs currently offered at Akron Public Schools, Medina County Schools, Nordonia City Schools, and Aurora City Schools.

The goal of the outreach master’s program is to offer graduate-level courses leading to a master’s degree for teachers on-site or via distance learning, specifically in the areas of elementary education, literacy, secondary education, educational administration, school counseling, special education, and instructional technology. For more information, please send e-mail to <outreach@uakron.edu>.

Programs

Counseling and Special Education

Selected program offerings in the Department of Counseling and Special Education are available to a person with or without a teaching certificate. Interdisciplinary programs offered lead to certification by the Ohio State Department of Education and/or a master’s degree. Program areas include counseling, school psychology, and special education. The person who meets program prerequisites and who has earned a master’s degree may matriculate as a non-degree graduate student and pursue a program that leads, in selected areas, to a program. The Graduate Record Examination (General Test) will be used as the qualifying examination in all Counseling master’s programs. The Miller’s Analogies Test will be used as the qualifying examination in all Special Education master’s programs. Admissions to the master’s programs will be twice a year (application deadline of March 15 for summer and fall semesters and October 1 for spring semester). The Council for Accreditation of Counseling and Related Educational Programs (CACREP), a specialized accrediting body recognized by the Commission on Recognition of Postsecondary Accreditation (CORPA), has conferred accreditation on the Community, Counselor, Human, Family, and School Counseling programs.

Classroom Guidance for Teachers

This course of study leads to an expanded knowledge of how guidance and counseling services benefit students and others in public school settings. Note that various areas of concentration are available to students. This is not a certification program. Any changes in the agreed-upon program must be approved by the student’s advisor.

- Foundations Courses (Select one course from each area)
  - Behavioral Foundations
    - 5100:620 Psychology of Instruction for Teaching and Learning 3
    - 5100:624 Seminar in Educational Psychology 3
    - 5600:648 Individual and Family Development Across the Life Span 3
  - Humanistic Foundations
    - 5100:600 Philosophy of Education 3
    - 5100:604 Topical Seminar in the Cultural Foundations of Education 3
    - 5600:610 Multicultural Counseling 3
  - Research
    - 5100:640 Techniques of Research 3
    - Minimum Foundation Hours Required 9

- Required Departmental Courses
  - 5100:631 Elementary/Secondary School Counseling 3
  - 5100:647 Career Development and Counseling Across the Life Span 3
  - 5200:645 Tests and Appraisal in Counseling 4
  - 5100:610 Counseling Skills for Teachers 3
  - 5100:663 Seminar in School Counseling 3
  - 5100:695 Field Experience (MUST be taken before or concurrently with 663) 9
  - 5100:640 Developmental Characteristics of Exceptional Individuals 3
  - 5610:604 Education and Management Strategies for Parents of Exceptional Individuals 3
  - Minimum Department Hours Required 20

- Area of Concentration
  - An area of concentration with a minimum of six (6) hours may be selected from one of the following areas (the student may, with advisor approval, propose an area of concentration not listed):
    - Middle School Education
    - Early Childhood Education
    - School and Community Relations
    - Curriculum and Instruction
    - Physical Fitness and Wellness
    - Special Education
    - Computers in Education
    - Family Ecology
    - Communicative Disorders
    - Outdoor Education
  - Total Area of Concentration Hours Required 6
  - Minimum Semester Hours Required for Graduation 35

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 license elsewhere in this handbook. Any changes in the agreed-upon program must be approved by the student’s advisor.

- Foundations (Select one course from each area)
  - Behavioral Foundations
    - 5100:648 Individual and Family Development 3
  - Humanistic Foundations
    - 5100:648 Multicultural Counseling 3
  - Research
    - 5100:640 Techniques of Research 3
    - 5100:741 Statistics in Education 3
    - Minimum Foundation Hours Required 9

Manchester Community College

Programs

Counseling and Special Education

Selected program offerings in the Department of Counseling and Special Education are available to a person with or without a teaching certificate. Interdisciplinary programs offered lead to certification by the Ohio State Department of Education and/or a master’s degree. Program areas include counseling, school psychology, and special education. The person who meets program prerequisites and who has earned a master’s degree may matriculate as a non-degree graduate student and pursue a program that leads, in selected areas, to a program. The Graduate Record Examination (General Test) will be used as the qualifying examination in all Counseling master’s programs. The Miller’s Analogies Test will be used as the qualifying examination in all Special Education master’s programs. Admissions to the master’s programs will be twice a year (application deadline of March 15 for summer and fall semesters and October 1 for spring semester).

The Council for Accreditation of Counseling and Related Educational Programs (CACREP), a specialized accrediting body recognized by the Commission on Recognition of Postsecondary Accreditation (CORPA), has conferred accreditation on the Community, Counselor, Human, Family, and School Counseling programs.
### Required Counseling Department Courses

- **Professional Orientation**
  - 5600:600 Seminar in Counseling 1
  - 5600:635 Community Counseling 3
  - Subtotal 4

- **Counseling Theory**
  - 5600:643 Counseling Theory & Philosophy* 3
  - 5600:647 Career Development and Counseling Across the Lifespan 3
  - Subtotal 6

- **Appraisal**
  - 5600:645 Tests and Appraisal in Counseling Prerequisite: 5600:640 4
  - Subtotal 4

- **Counseling Process (all required)**
  - 5600:651 Techniques of Counseling* 3
  - 5600:653 Group Counseling Prerequisite: 5600:651 and 5600:643 4
  - 5600:675 Practicum in Counseling** 5
  - Subtotal 12

- **Internship**
  - 5600:686 Internship in Counseling** (minimum 6 hours) Prerequisite: 5600:675 6-7
  - Subtotal 6-7

- **Minimum Department Hours Required** 32-33

- **Specialized Studies (required)**
  - 5600:620 Issues in Sexuality for Counselors 2

- **Clinical Counseling Component**
  - 5600:720 Topic Seminar: Guidance and Counseling - Personality & Abnormal 3
  - 5600:714 Objective Personality Evaluation 4
  - 5600:720 Topic Seminar: Guidance and Counseling - DSM-IV 3
  - 5600:720 Topic Seminar: Guidance and Counseling - Treatment in Counseling 3
  - Also, choose one of the following three courses:
    - 5600:655 Manage and Family Therapy: Theory and Techniques 3
    - 5600:670 Addiction Counseling I: Theory and Practice 3
    - 5600:732 Addiction Counseling II: Assessment and Treatment Planning 3
  - Minimum Semester Hours Required for Program 60

*Note: Counseling Theory and Philosophy and Techniques of Counseling may be taken concurrently.

**Must sign up with secretary one year in advance.

### 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/licensed as a teacher and possess two 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
    - 5600:600 Seminar in Counseling*** 1
    - Subtotal 1
  - Counseling Theory
    - 5600:651 Techniques of Counseling* 3
    - 5600:653 Group Counseling Prerequisite: 5600:651 and 5600:643 4
    - 5600:675 Practicum in Counseling** 5
    - Subtotal 12
  - Internship
    - 5600:686 Internship in Counseling** (minimum 6 hours) Prerequisite: 5600:675 6-7
    - Subtotal 6-7

- **Minimum Department Hours Required** 32-33

- **Specialized Studies**
  - Family Studies
    - 7400:651 Family and Consumer Law 3
  - 7400:602 Family with Life Span Perspective 2
  - Addictions
    - 7400:605 Developmental Parent-Child Interactions 3
  - Conceptual Frameworks
    - 7400:675 Conceptual Frameworks in Family Ecology 3
  - Sexualities
    - 5600:620 Issues in Sexuality for Counselors 2
    - 7400:542 Human Sexuality 3

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### 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
  - Statistics in Education 3
  - Minimum Foundation Hours Required 9

- **Required Counseling Department Courses (all required)**
  - Professional Orientation
    - 5600:600 Seminar in Counseling*** 1
    - Subtotal 1
  - Counseling Theory
    - 5600:651 Techniques of Counseling* 3
    - 5600:653 Group Counseling Prerequisite: 5600:651 and 5600:643 4
    - 5600:675 Practicum in Counseling** 5
    - Subtotal 12
  - Internship
    - 5600:686 Internship in Counseling** (minimum 6 hours) Prerequisite: 5600:675 6-7
    - Subtotal 6-7

- **Minimum Department Hours Required** 36-39

- **Specialized Studies**
  - Family Studies
    - 7400:651 Family and Consumer Law (choose two of the following) 3
    - 7400:602 Family with Life Span Perspective 2
  - Addictions
    - 7400:605 Developmental Parent-Child Interactions 3
    - 7400:675 Conceptual Frameworks in Family Ecology 3
  - Sexualities
    - 5600:620 Issues in Sexuality for Counselors 2
    - 7400:542 Human Sexuality 3

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**Note:** Any changes in the agreed upon program must be approved by the student's advisor.
human development and individual differences (chose one)  3
3750:530 Personality  4
3750:520 Abnormal Psychology  4
3750:530 Psychological Disorders of Children  4
3750:550 Learning and Cognition  4
5100:721 Learning Processes  3
5620:665 Development in Infancy and Early Childhood  3

Minimum Specialized Studies Required  51-16
Minimum Hours for Marriage and Family Therapy  60-64

**A minimum of 500 client contact hours must be completed by the end of internship.
**Must be taken no later than the second year 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*
(admissions temporarily suspended)

- College requirements:
  5100:640 Techniques of Research  3
  5620:694 Research Project  2
  5620:698 Master's Problem  2-4
  or
  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
  3750:712 Principles and Practice of Individual Intelligence Testing  4
  5100:604 Topical Seminar in the Cultural Foundations of Education  3
  5100:624 Seminar in Human Learning  3
  5100:631 Statistics in Education  3
  5620:600 Seminar: Role and Function of School Psychology  3
  5620:602 Behavioral Assessment  3
  5620:610 Educational Diagnosis for the School Psychologist  3

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

- Foundations requirements:
  5100:604 Topical Seminar in the Cultural Foundations of Education  3
  5100:664 Seminar: Educational Psychology  3
  5100:694 Techniques of Research  3
  5100:741 Statistics in Education  3

- Professional requirements:
  3750:700 Survey of Projective Techniques  4
  3750:730 Psychological Disorders of Childhood  4
  3750:712 Principles and Practice of Individual Intelligence Testing  4
  5600:642 Counseling Theory and Philosophy  3
  5620:602 Seminar: Role and Function of School Psychology  3
  5620:602 Behavioral Assessment  3
  5620:610 Educational Diagnosis for the School Psychologist  3
  5620:634 Research Project in Special Area  2-3
  or
  5620:638 Master's Problem  2-4
  or
  5620:639 Master's Thesis  4-6

The student completing the master's program who desires Ohio certification must additionally complete the following listed certification/professional course requirements including the full academic year internship experience:

3750:500 Personality  4**
5610:543 Developmental Characteristics of Learning Disabled Individuals  3
5500:626 Reading Diagnosis for School Psychologists and Support Personnel  3
5610:540 Developmental Characteristics of Exceptional Individuals  4**
5310:320 Abnormal Psychology  3**
5620:601 Cognitive Function Models: Principles of Educational Planning  3
5620:603 Consultation Strategies for School Psychology  3
5620:611 Practicum in School Psychology
  (this course is repeated once for a total of eight credits)  4

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

5620:630 Internship: School Psychology  3
5620:631 Internship: School Psychology  3
5620:640 Field Seminar II: Professional Topics/Issues in School Psychology  3
5620:641 Field Seminar III: Low Incidence/Related Inquiries  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
5620:693 Field Experience: Master's  3
5700:651 Elementary School Administration  3
or
5710:621 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.

**Program admission is competitive, based upon state internship allocations. Selection procedures and criteria are available upon request by calling the school psychology program director in the Department of Counseling and Special Education. For recommendation for certification as a school psychologist in Ohio, the master's student must additionally complete the program prescribed under "Certification."
**Required as part of Special Education masters.

Special Education

The 36-hour graduate program in special education is designed for those individuals who currently hold an undergraduate degree in special education. The 36-hour master's program contains no electives. It is designed to provide school personnel with an in-depth knowledge base and advanced skills needed to work effectively in inclusive schools and/or other educational settings providing instructional services for individuals with special needs and their families. An inclusive approach is used with emphasis on collaboration/consultation, curriculum design, evaluation/research applications, supervision, legal and ethical issues in special education, and other clinical experiences (see master's program for specific courses). Pre-requisites for professionals who do not hold an undergraduate degree in special education

- Professionals who do not hold an undergraduate degree in special education must take 20 prerequisite hours in special education courses in order to be admitted into the master's program. Individuals already possessing specific coursework will not need to retake them. A review of the individual's previous transcript and coursework will determine the specific prerequisite courses and corresponding hours. The 20 prerequisite hours include the following courses:
  5610:540 Developmental Characteristics of Exceptional Individuals  3
  5610:547 Developmental Characteristics of Individuals with Mild/Moderate Educational Needs  3
  5610:640 Developmental Characteristics of Individuals with Moderate/Intensive Educational Needs  3
  5610:550 Special Education Programming: Early Childhood  3
  5610:562 Special Education Programming: Secondary/Vocational  3
  5610:563 Assessment in Special Education  3

- Students lacking the above prerequisite coursework should apply for the Special Non-Degree admission (SNDA). Upon successful completion (B or better) of the prescribed prerequisite coursework, students may reapply for admittance into the master's program. The prerequisite special education courses may be taken at the same time as the 5100 foundation core, but prior to the required 27 hours of departmental coursework.

A signed program plan specifying the student's program, the sequence of course offerings, and timeline for completion must be completed with the student's advisor upon completion of 9 hours of graduate credit. As part of the program degree requirements, the student must pass a written comprehensive examination. All degree requirements must be completed within 6 years after beginning graduate level coursework at The University of Akron or elsewhere. Completion of the master's program at The University of Akron does not lead to licensure in special education. Additional hours are necessary for teacher licensure in special education as an intervention specialist for mild/moderate educational needs or mild/moderate educational needs.

- Foundations core (9 credits):
  5100:600 Philosophies of Education  3
  5100:620 Psychology of Instruction for Teaching and Learning  3
  5100:640 Techniques of Research  3

- Special Education core: (27 credits)
  5600:610 Counseling Skills for Teachers  3
  5610:601 Seminar Special Education Curriculum Planning  3
  5610:602 Supervision of Instruction  3
  5610:604 Collaboration and Consultation Skills for Special Educators  3
  5610:605 Inclusion Models and Strategies  3
  5610:611 Seminar: Legal Issues in Special Education  3
  5610:621 Seminar: Social/ethical Issues in Special Education  3
  5170:700 Topical Seminar: Educational Administration (Disability Law for Education)  3

Total Program  36
Educational Foundations and Leadership

Educational Administration

The Department of Educational Foundations and Leadership offers a master's degree program in general administration which is not directed toward a particular administrative license. With the approval of an advisor 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** – 12 credits:
  - 5100:600 Philosophies of Education
  - 5100:604 Topical Seminar in the Cultural Foundations of Education
  - 5100:620 Psychology of Instruction for Teaching and Learning
  - 5100:624 Seminar: Educational Psychology
  - 5100:636 Topical Seminar in Educational Technology
  - 5100:640 Techniques of Research

- **Educational Administration** – 15:
  - 5170:601 Principles of Educational Administration
  - 5170:604 School-Community Relations
  - 5170:606 Evaluation in Educational Organizations
  - 5170:610 Administration of Pupil Services

- **Curriculum and Supervision** – 6:
  - 5170:609 Principles of Curriculum Development
  - 5170:610 Principles of Educational Supervision

Total: 33 credits

The student will be required to pass a portfolio assessment by a three-member faculty panel in order to qualify for graduation.

The Principalship

The Principalship is a program option in educational administration built on two components: the general administration master's and those post-master's courses listed below.

Master's Degree in Educational Administration

- **Foundation** – 12 credits:
  - 5100:600 Philosophies of Education
  - 5100:604 Topical Seminar in the Cultural Foundations of Education
  - 5100:620 Psychology of Instruction for Teaching and Learning
  - 5100:624 Seminar: Educational Psychology
  - 5100:636 Topical Seminar in Educational Technology
  - 5100:640 Techniques of Research

- **Educational Administration** – 15:
  - 5170:601 Principles of Educational Administration
  - 5170:604 School-Community Relations
  - 5170:606 Evaluation in Educational Organizations
  - 5170:610 Administration of Pupil Services

- **Curriculum and Supervision** – 6:
  - 5170:609 Principles of Curriculum Development
  - 5170:610 Principles of Educational Supervision

Total: 33 credits

Post-Master's Requirements – 16 credits:

- 5170:622 Management of Physical Resources
- 5170:633 Management of Human Resources
- 5170:638 School Finances and Economics
- 5170:640 The Principalship
- 5170:650 Internship (fall and spring)

Administrative Specialists

The Department of Educational Foundations and Leadership offers programs leading to Educational Administrative Specialist licenses granted by the Ohio Department of Education.

Each of these specialist licensure programs consists of a general administration master's degree and a post-master's block of required courses.
Administrative Specialist:  
 **Pupil Personnel Administration**

- Foundation Studies – 12 credits:
  - 5100:600 Philosophies of Education 3
  - 5100:604 Topical Seminar in the Cultural Foundations of Education 3
  - 5100:620 Psychology of Instruction for Teaching and Learning 3
  - 5100:624 Seminar: Educational Psychology 3
  - 5100:636 Topical Seminar in Educational Technology 3
  - 5100:640 Techniques of Research 3

- Educational Administration – 21 credits:
  - 5170:601 Principles of Educational Administration 3
  - 5170:603 Management of Human Resources 3
  - 5170:606 Evaluation in Educational Organizations 3
  - 5170:607 School Law 3
  - 5170:608 School Finance and Economics 3
  - 5170:613 Administration of Pupil Services 3
  - 5170:707 The Superintendent 3

- Post-Master’s Requirements – 16 credits:
  - 5600:631 Elementary/Secondary School Counseling 3
  - 5600:653 Group Counseling 3
  - 5600:659 Organization and Administration of Guidance Services 3
  - 5170:704 Advanced Principles of Educational Administration 3
  - 5170:7956 Internship 4

**Administrative Specialist:**

**School and Community Relations**

- Foundation Studies – 12 credits:
  - 5100:600 Philosophies of Education 3
  - 5100:604 Topical Seminar in the Cultural Foundations of Education 3
  - 5100:620 Psychology of Instruction for Teaching and Learning 3
  - 5100:624 Seminar: Educational Psychology 3
  - 5100:636 Topical Seminar in Educational Technology 3
  - 5100:640 Techniques of Research 3

- Educational Administration – 21 credits:
  - 5170:601 Principles of Educational Administration 3
  - 5170:603 Management of Human Resources 3
  - 5170:606 Evaluation in Educational Organizations 3
  - 5170:607 School Law 3
  - 5170:608 School Finance and Economics 3
  - 5170:620 The Principalship 3
  - 5170:707 The Superintendent 3

- Post-Master’s Requirements – 16 credits:
  - 5170:604 School-Community Relations 3
  - 5170:605 Advanced Principles of Educational Administration 3
  - 7600:625 Theories of Mass Communication 3
  - 7600:628 Contemporary Public Relations Theory 3
  - 5170:7956 Internship 4

**Superintendent Program**

Both teaching and administrative experience is required for the superintendent certification.

- Foundation Studies – 12 credits:
  - 5100:600 Philosophies of Education 3
  - 5100:604 Topical Seminar in the Cultural Foundations of Education 3
  - 5100:620 Psychology of Instruction for Teaching and Learning 3
  - 5100:624 Seminar: Educational Psychology 3
  - 5100:636 Topical Seminar in Educational Technology 3
  - 5100:640 Techniques of Research 3

- Educational Administration – 15 credits:
  - 5170:601 Principles of Educational Administration 3
  - 5170:604 School-Community Relations 3
  - 5170:606 Evaluation in Educational Organizations 3
  - 5170:607 School Law 3
  - 5170:613 Administration of Pupil Services 3

- Curriculum and Supervision – 6 credits:
  - 5170:609 Principles of Curriculum Development 3
  - 5170:610 Principles of Educational Supervision 3

- Post-Master’s Requirements – 22 credits:
  - 5170:602 Management of Human Resources 3
  - 5170:603 Management of Human Resources 3
  - 5170:608 School Finance and Economics 3
  - 5170:620 The Principalship 3
  - 5170:704 Advanced Principles of Educational Administration 3

- Electives (15 credits), to bring the program to a total of 60 graduate semester hours.

**Higher Education Administration**

**Specialized Option**

All applicants to the program should have previously earned a bachelor’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 admission should first meet with the program coordinator. Persons wishing to pursue a master’s degree in Educational Administration-Higher Education Option must, however, also apply to the Graduate School for admission to the program. Applicants wishing to pursue only the certificate program must apply to the Graduate School for admission as a special non-degree student.

- Foundation studies – nine credits:
  - 5100:638 Introduction to the Study of Higher Education 3
  - 5100:651 Administration in Higher Education 3
  - 5100:622 Law and Higher Education 3
  - 5100:620 Finance and Higher Education 3
  - 5100:656 Student Services and Higher Education 3
  - 5100:527 The American College Student 3

- Total Hours Required: 34.

Students must successfully complete a master’s comprehensive examination for the Educational Administration-Higher Education Option.

**Educational Foundations**

Specialized Options:

- Instructional Technology
- Educational Psychology
- Social/Philosophical Foundations of Education
- Research Methodology and Evaluation

This Master’s degree program area is designed for either the student interested in improving present educational skills or the student interested in educational or institutional positions in business, industry, and social services. The student’s program of study will be determined jointly by the student and advisor. The program consists of:

- College Core Foundation Studies (nine hours)
- Program Requirements for the specialization selected above (minimum of 21 hours)
- Outside Department (minimum of six hours except for Instructional Technology option)
- Master’s Comprehensive Examination (electronic portfolio for Instructional Technology)
- Election of master’s thesis (5100:698), or master’s problem (5100:699), or an additional six semester hours of coursework

An example of Program Requirements: The Instructional Technology Option

- 5100:512 Design and Production of Instructional Materials
- 5100:590 Workshop: Instructional Technology (may be repeated for up to 6 credits)
- 5100:630 Topical Seminar: CBE (Computers for Professional Educators)
- 5100:630 Topical Seminar: CBE (Instructional Design)
- 5100:630 Topical Seminar: Educational Technology (may be repeated for up to 9 cr.)
- 5100:695 Field Experience: Master’s
- 5100:695 Master’s Technology Project
- 5100:695 Independent Study: Master’s
- 5100:695 History and Culture of Technology
- 5100:742 Statistics in Education
- 5170:609 Principles of Curriculum Development
Master’s Emphasizing Instructional Technology

The graduate program in Education Foundations emphasizing Instructional Technology has been designed to assist its students in becoming competent, employable professionals, capable of making a significant contribution to the field. The graduate curriculum provides its students with exposure to a wide range of emerging technologies, while still ensuring the basic competencies required of all practitioners. In this way, the program directly addresses the rapidly accelerating changes in the field of interactive and distance learning technologies while still recognizing its roots in instructional design, media, and computer-mediated education.

Master’s degree graduates of the Instructional Technology program have found employment as technology coordinators in school districts, technology resource personnel, or in K-16 educational institutions, training specialists and instructional designers in business, education, and government, as well as multimedia developers and specialists.

- **Foundation Studies** (9 credits)
  - 5100:600 Philosophies of Education 3
  - 5100:604 Topical Seminar in the Cultural Foundations of Education 3
  - 5100:620 Psychology of Instruction for Teaching and Learning 3
  - 5100:624 Seminar: Educational Psychology 3
  - 5100:640 Techniques of Research 3

- **Program Requirements** (21-27 credits)
  - 5100:520 Introduction to Instructional Computing 3
  - 5100:512 Design and Production of Instructional Materials 3
  - 5100:500 Workshop: Instructional Technology (may be repeated for up to 6 credits) 3
  - 5100:530 Topical Seminar: CBE (Computers for Professional Educators) 3
  - 5100:630 Topical Seminar: CBE (Instructional Design) 3
  - 5100:650 Topical Seminar: Educational Technology (may be repeated for up to 9 cr) 3
  - 5100:614 Planning for Technology 3
  - 5100:695 Field Experience: Master’s 1-3
  - 5100:696 Master’s Technology Project 2-3
  - 5100:697 Independent Study: Master’s 1-3
  - 5100:698 Master’s Problem 3
  - 5100:705 Seminar: Social/Philosophical Foundations (Web-Based Learning Systems) 3
  - 5100:706 Seminar: Social/Philosophical Foundations (History & Culture of Technology) 3
  - 5100:707 Statistics in Education 3
  - 5100:699 Principles of Curriculum Development 3

### Elementary Education

#### Elementary Education (M.A.)

This program leading to a Master of Arts in Elementary Education is for elementary school teachers. Students complete foundation courses in education and in curriculum and instruction and an area of concentration such as reading, multicultural, middle, or elementary education. As a culminating activity, students apply theory to practice in their area of concentration through creative critical thinking.

- **Foundation studies** – nine credits.
  - 5500:650 Concepts of Curriculum and Instruction 3
    - basic curriculum and instruction course in one’s concentration area in curriculum and instruction.
  - 5500:605 Seminar in Trends and Issues in Curriculum and Instruction 3
    - seminar in trends and issues in one’s concentration area in curriculum and instruction or a course that cuts across curriculum and instruction (e.g., 5500:570 Multicultural Education in the United States, 5500:575 Instructional Technology Applications, or 5100:614 Planning for Technology).

- **Area of concentration within curriculum and instruction approved by the advisor** – 15 credits.
  - 5500:696 Master’s Project 6
  - 5500:699 Master’s Thesis 6

- **36 total hours are required.**

- **A comprehensive exam is required.**

The reading endorsement (or additional endorsements) may be pursued as part of this degree, but coursework beyond the required 36 hours may be necessary in order to be eligible for the endorsements.

#### Elementary Education with Certification (M.S.)

(admissions temporarily suspended)

This program is open to highly qualified students who hold the B.A. or B.S. degree in certain fields (see program advisor or department chair). All requirements for certification must be met including the field and clinical/diagnostic experience.

- **Foundation Studies** – 10 credits:
  - 5100:600 Philosophies of Education 3

### Master’s Emphasizing Physical Education

This program leading to a Master of Arts in Elementary Education is for elementary school teachers. Students complete foundation courses in education and in curriculum and instruction and an area of concentration such as reading, multicultural, middle, or elementary education. As a culminating activity, students apply theory to practice in their area of concentration through creative critical thinking.

- **Foundation studies** – nine credits.
  - 5100:650 Concepts of Curriculum and Instruction 3
    - basic curriculum and instruction course in one’s concentration area in curriculum and instruction.
  - 5500:605 Seminar in Trends and Issues in Curriculum and Instruction 3
    - seminar in trends and issues in one’s concentration area in curriculum and instruction or a course that cuts across curriculum and instruction (e.g., 5500:570 Multicultural Education in the United States, 5500:575 Instructional Technology Applications, or 5100:614 Planning for Technology).

- **Area of concentration within curriculum and instruction approved by the advisor** – 15 credits.
  - 5500:696 Master’s Project 6
  - 5500:699 Master’s Thesis 6

- **36 total hours are required.**

- **A comprehensive exam is required.**

The reading endorsement (or additional endorsements) may be pursued as part of this degree, but coursework beyond the required 36 hours may be necessary in order to be eligible for the endorsements.

#### Sports Science and Wellness Education

The student who expects to earn a master’s degree in the Department of Sports Science and Wellness Education is expected to meet the criteria for admission of the Graduate School. In addition, the criteria includes completion of the MAT or GRE prior to acceptance into the Department of Sports Science and Wellness Education.

#### Outdoor Education

The outdoor education program, requiring 32 credits, is designed for those students having an undergraduate background in elementary or secondary education, biology, environmental studies, health, physical education or recreation. Students may become involved with existing outdoor education programs in the public schools, metropolitan, state and national park programs, or private and public agencies which conduct outdoor/environmental education programs.

- **Foundation Studies** – nine credits.
  - 5100:640 Techniques of Research 3

- **Required Foundation Courses:**
  - 5100:640 Techniques of Research 3

- **Remaining six (6) credits to be chosen with approval of advisor, from 5100:520 or 5100:600 course offerings or 5550:605 Statistics: Qualitative and Quantitative Methods.**

- **Required courses:**
  - 5550:550 Application of Outdoor Education to the School Curriculum 4
  - 5560:552 Resources and Resource Management for the Teaching of Outdoor Education 4
  - 5560:666 Outdoor Pursuits 4
  - 5560:605 Outdoor Education: Special Topics 2-4
  - 5560:695 Outdoor Education: Rural Influences 3
  - 5560:699 Field Experience 2-4
    - at least 2 credits if only one option selected
  - 5560:699 Master’s Thesis 4-6

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

#### Physical Education

The graduate program in physical education, requiring 33 credits, is designed for post-baccalaureate and in-service physical educators. The theme of the program is “physical educator as decision-maker.” Trained in this program comes from two (2) areas: the foundations (6 cr) and the program studies area of physical education (25 cr). The emphasis in this curriculum is to provide answers to the questions “what I can learn about teaching and what decisions do I face as a professional educator.” Successful completion of this program would meet a teacher requirement for Ohio public schools as well as for other states. Each student will be assigned an advisor who should be consulted with on a regular basis. In fact, advisor approval is required on certain course work.

- **Required Foundation Courses:**
  - 5100:600 Philosophies of Education 3
  - 5100:604 Topical Seminar in the Cultural Foundations of Education 3
  - 5100:620 Psychology of Instruction for Teaching and Learning 3
  - 5100:624 Seminar: Educational Psychology 3
  - 5100:640 Techniques of Research 3

- **Total Program:** 32 credits

- **A minimum of 28 additional undergraduate credits will be required for certification (licensure).** A comprehensive exam is required. See Department of Curricular and Instructional Studies for complete list of requirements.
This graduate program, requiring a minimum of 34 credits, is designed to prepare the student for leadership and management roles in American adult fitness, corporate fitness and cardiac rehabilitation programs. Special attention is given to the needs of teachers and practicing/prospective coaches. Because this program leads to a Master's of Science with Licensure, it is open to highly qualified students who hold the BA or B.S. degree. All requirements for admission begin with the approval of an advisor, the student may select additional courses and/or workshops related to the graduate program.

**Option: Exercise Physiology/Adult Fitness**

This graduate program, requiring a minimum of 34 credits, is designed to prepare the student for leadership and management roles in American adult fitness, corporate fitness and cardiac rehabilitation programs. Special attention is given to the needs of teachers and practicing/prospective coaches. Because this program leads to a Master's of Science with Licensure, it is open to highly qualified students who hold the BA or B.S. degree. All requirements for admission begin with the approval of an advisor, the student may select additional courses and/or workshops related to the graduate program.

**School Nurse Program**

**Admission Requirements—Option 2**

- R.N. License
- B.S.N. Degree
- Admittance to Graduate School
- Admittance to College of Education (Special/Non-Degree)
- Admittance to College of Nursing (Special/Non-Degree)

To satisfy the requirements, an applicant must complete at least the following courses or their equivalents:

**Courses**

- 5500:620 Community Health
- 5570:523 Comprehensive School Health
- 5570:523 Methods and Materials of Teaching Health Education
- 5570:520 Physical Education for Youth
- 5570:521 Comprehensive School Health
- 5500:699 College Level Statistics course
- 8200:658 Pathophysiological Concepts
- 8200:660 Advanced Preventive Assessment
- 8200:660 Pharmacology Child and Adolescent Health Nursing
- 8200:613 Nursing Inquiry

**Total**

29

**Admission Requirements—Option 3**

A school nurse license will be issued to an R.N. who holds a Master's degree in Nursing (M.S.N.) along with the following requirements:

- Admittance to the College of Nursing MSN Program—Child and Adolescent Track
- Admittance to College of Education (Special/Non-Degree)
- College of Education core courses
- Elective within College of Education

**Total**

12

**Secondary Education**

**Secondary Education (M.A.)**

This program leading to a Master's of Arts in Secondary Education is for secondary school teachers. Students complete foundation courses in education and in curriculum and instruction and an area of concentration such as English, mathematics, or secondary education. As a culminating activity, students apply theory to practice in their area of concentration through creative critical thinking.

- Foundation studies – nine credits.
- 5500:660 Concepts of Curriculum and Instruction
- 5500:665 Seminar in Trends and Issues in Curriculum and Instruction

**Area of concentration within curriculum and instruction approved by the advisor**

- 5500:696 Master's Project
- 5500:699 Master's Thesis

**Total**

36 total hours are required.

**A comprehensive exam is required.**

**Secondary Education with Licensure (M.S.)**

This program, which leads to a Master's of Science with Licensure, is open to highly qualified students who hold the B.A. or B.S. degree. All requirements for
licensure must be met including the 600 hours of field and clinical/diagnostic experience.

- Foundation Courses (90 credits):
  5100:604 Topical Seminar in the Cultural Foundations of Education 3
  5100:620 Psychology of Instruction for Teaching and Learning 3
  5100:642 Topical Seminar in Measurement and Evaluation 3
  5100:695 Field Experience: Master’s 1

- Curricular and Instructional Studies (19):
  5500:575 Instructional Technology Applications 3
  5500:617 Elementary and Secondary Licensure Seminar 3
  5500:619 Advanced Instructional Techniques 3
  5500:619 Instructional and Management Practices 3
  5500:629 Reading Programs in Secondary Schools 3
  or
  5500:780 Seminar: Curriculum Studies (Reading in K-12 Programs [Multi-age]) 3
  5500:693 Field Experience: Master’s with Licensure 1
  5500:693 Field Experience: Master’s with Licensure 1
  5500:xxx Elective in curriculum or teaching practices approved by advisor 2

- Area of Concentration (9):
  Select 9 credits at 500-level or above.
  5500:694 Field Experience: Classroom Teaching 6
  5500:692 Field Experience: Colloquium 1

- A comprehensive examination is required.

Total Program: 45

### Technical Education

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

### Program

- Foundation Studies – 12 credits:
  5100:520 Introduction to Instructional Computing 3
  5100:602 Comparative and International Education 3
  or
  5100:691 Topical Seminar in Cultural Foundations 3
  5400:500 Postsecondary Learner 3
  5100:640 Techniques of Research 3
  or
  5100:642 Topical Seminar in Measurements and Evaluation 3

- Professional Technical Education Courses – 16 credits:
  5400:501 Learning with Technology (prerequisite for all courses) 1
  5400:505 Workforce Education for Youth and Adults 3
  5400:630 Systematic Curriculum Design for Technical Education 3
  5400:535 Instructional Techniques in Technical Education 3
  5400:605 Advanced System Design: Needs Assessment and Evaluation 3
  5400:690 Internship in Technical Education 3

- A comprehensive examination must be passed.

- A cumulative portfolio will be evaluated as an exit requirement during the internship course.

### Options (Select one for a minimum total of 37 credits.)

**Teaching Option (9 credits)**

An approved schedule of career-related elective graduate courses will be determined by the student’s academic and professional background with advisor approval.

5400:600 The Two-Year College 3
Electives (with advisor’s approval) 6

**Training Option (9 credits)**

An approved schedule of career-related elective graduate courses will be determined by the student’s academic and professional background with advisor approval.

5400:515 Training in Business and Industry 3
5400:620 Supervision of Technical Instruction 3
Electives (with advisor’s approval) 3

**Instructional Technology Option (9 credits)**

An approved schedule of career-related elective graduate courses will be determined by the student’s academic and professional background with advisor approval.

5100:630 Topical Seminar in Computer-Based Education 3
or
5100:636 Topical Seminar in Educational Technology 3
5100:614 Planning for Technology 3
5400:690 Postsecondary Distance Learning 3

### Guidance Option (6 credits)

An approved schedule of career-related elective graduate courses selected from the Graduate School offerings. Course selection will be determined by the student’s academic and professional background with advisor approval.

5600:635 Community Counseling 3
5600:647 Career Development and Counseling 3
Electives (with advisor’s approval) 3

Graduate Studies 57
Mission Statement

The MBA program is the principle graduate program of UA's College of Business Administration. The objective of the MBA program is to provide a diverse group of men and women with the skills, leadership, vision, and innovative spirit needed to rise to positions of organizational leadership in a global business environment characterized by intense competition and rapid rates of technological change. Graduates of UA’s MBA program should possess:

- The analytical and conceptual abilities needed to identify and cope successfully with ambiguous and unstructured business problems.
- A solid grounding in the basic business functions, with an emphasis on the integration of those functions and an understanding of how those functions are linked in the formulation and execution of business strategy.
- A strong ethical perspective, an appreciation of cultural diversity, and an ability to communicate in an effective, persuasive manner.
- An understanding of the global, political, regulatory, economic and technological environment.
- An awareness of the global economy in which business operates and an understanding of the forces that shape competitiveness in that economy.

In order to accomplish these goals, the graduate faculty of the College of Business Administration commits itself to providing a quality graduate business experience. That experience will have a strong professional focus, characterized by teamwork among students. The faculty is dedicated to creating an intense and stimulating environment that emphasizes the application of theory to real managerial problems and that is permeated by the basic concepts of globalization, ethics, leadership, and planned change.

We recognize that there are many skills students need to acquire in their MBA program in addition to technical competencies in their field of concentration. These include communication and interpersonal skills, analytical reasoning and leadership skills. Eight of these “expanded” competencies to be intervened throughout the program are as follows:

Communication
1. Ability to present views and concepts clearly in writing;
2. Ability to read, critique, and judge the value of written work;
3. Ability to present views and concepts clearly through oral communication.

Group work and people skills
4. Ability to understand group dynamics and work effectively with people from diverse backgrounds;
5. Ability to manage conflict;
6. Ability to organize and delegate tasks;

Critical thinking and creative and effective problem solving
7. Ability to solve diverse, structured and unstructured problems;
8. Ability to deal effectively with imposed pressures and deadlines.

The basics for most of these skills may be taught in prior bachelor degree programs and are taught in the foundation core courses. Experiences are provided to students throughout the program in a variety of ways to develop these skills. A student’s progress is to be documented and evaluated by self evaluation, peer evaluation, and faculty evaluation.

MASTER’S DEGREE

The College of Business Administration (CBA) offers graduate programs which lead to the degrees of Master of Business Administration, Master of Science in Management, Master of Taxation, and Master of Science in Accountancy. The University has offered programs of study in business since 1959, initially through the Department of Commerce and since 1963 through the College of Business Administration. In 1998, graduate studies in business were begun. Both the undergraduate and master’s programs are accredited by the American Assembly of Collegiate Schools of Business (AACSB).

During its long tradition, the college has sought to fulfill the educational and professional needs of its 450 graduate students, the community and regional business organizations. To meet its urban objectives, the college offers most graduate courses only between 5:20 p.m. and 10:40 p.m. The master’s programs are designed to serve those who work full-time and wish to pursue a master’s program on a part-time basis. However, many students enroll full-time to complete the master’s program in a shorter period.

Admission

Policy

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

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

Even though an applicant is eligible for consideration, an offer of admission is not guaranteed. Since staff, facilities and resources are limited, a determination must be made as to the number of applicants who can be adequately served among those eligible. As a result, offers of admission may be limited to only the most qualified of the eligible applicants as determined by the CBA Graduate Admissions Committee. The committee will consider the following in making decisions: the difficulty of the applicant's undergraduate program; the length of time and activities since graduation; and the percentile ranking on the GMAT. For example, students admitted into the graduate business programs since January 1, 1999, had an average GMAT of 592 and an average point index of 1224.

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 status” who have not attained an overall 3.00 GPA upon the completion of 12 graduate credits will be dismissed from the program.

Procedure

GMAT scores should be sent to the Director of Graduate Programs in Business, College of Business Administration, The University of Akron, Akron OH 44325-4806 (Institution code 1923). The GMAT test is administered world-wide and the applicant should register for it sufficiently in advance to the filing of the graduate application, so evaluation for admission will not be delayed. GMAT registration bulletins can be obtained from the Graduate Programs in Business Office or the Educational Testing Service, Box 96641, Princeton, NJ 08541. Those who have taken the GMAT more than five years ago are normally required to retake it.

All applications and accompanying documentation are evaluated simultaneously by the Graduate Admissions Committee (GAC). The GAC meets 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:

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

Questions regarding these Policies, Procedures, and Requirements may be sent via e-mail to gradcba@uakron.edu. Further information may be found at the College of Business Administration website: http://www.uakron.edu/cba.
Transfer Policy
The College of Business Administration will permit nine credits of comparable graduate courses to be transferred into any of the graduate business programs (10 law school credits into the J.D./M. Taxation program). These credits must be pre-approved by the director of graduate programs in the C.B.A. This nine 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 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 13 following areas: accounting, electronic business, entrepreneurship, finance, global sales management, health care management, international business, international finance, management, management of technology, marketing, quality management, or supply chain management. 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 can be taken concurrently provided that all prerequisites have been met. Beginning with the Fall 1999 semester, all foundation level courses are available over the World Wide Web. Students should contact the graduate programs office for more information about web-based courses.

• Foundation Courses:
  All required unless waived at the time of admission. Foundation courses may not be used as concentration or elective courses.
  3250:600 Foundation of Economic Analysis
  6200:601 Financial Accounting
  6400:602 Managerial Finance
  6400:605 Government and Business
  6500:600 Management and Organizational Behavior
  6600:601 Quantitative Decision Making
  6500:602 Computer Techniques for Management
  6800:601 Financial Markets

• Functional Core (9 credits):
  6200:610 Process Analysis and Cost Management
  6400:634 Financial Decision Making
  6500:670 Management of Operations
  6500:630 Strategic Marketing Management
  6700:696 Special Topics in Professional Development: Leadership
  6800:605 International Business Environments

• Concentration (12 credits):
  The student must select 12 credits in a field of concentration (accounting, electronic business, entrepreneurship, finance, global sales management, health care management, international business, international finance, management, management of technology, marketing, quality management, or supply chain management).

• Free Electives (3 credits):
  The student must select 3 credits of free electives outside the area of concentration. 500-level courses may be used but the student may not count more than 6 credits of 500-level courses in total toward the fulfillment of degree requirements. Approval of Director is required.

• Integrative (3 credits)
  6500:695 Business Strategy and Policy: Domestic and International

Program Summary
  Total Program

Foundation Core
Functional Core
Concentration
Free Electives
Integrative

If the Foundation Core Courses are all waived, the program is 34 credits in length.

Concentration in Accounting
The MBA (Accounting Concentration) is designed to allow students to take courses in one of three broad areas of accounting—financial reporting, taxation, and accounting information systems. The area that a student selects will depend on the student’s undergraduate background. Details relating to each area are provided below.

Students with an interest in financial reporting will complete 12 credits from the following courses:
  • Required:
    6200:621 Corporate Accounting and Financial Reporting I
    6200:622 Corporate Accounting and Financial Reporting II

  • Three credits from:
    6200:620 Advanced Accounting
    6200:640 Auditing
    6200:670 Corporate Performance Evaluation and Control Systems

Students with an interest in taxation will complete 12 credits from the following courses:
  • Required:
    6200:628 Basic Tax Research
    6200:631 Corporate Taxation I
    6200:632 Taxation of Transactions in Property
    6200:633 Estate and Gift Taxation

Students with an interest in accounting information systems will complete 12 credits from the following courses:
  • One additional graduate taxation elective selected from the following list of courses:
    6200:643 Tax Accounting
    6200:644 Income Taxation of Decedents, Trusts, and Estates
    6200:646 Consolidated Tax Returns
    6200:648 Tax Practice and Procedures
    6200:649 State and Local Taxation
    6200:650 Estate Planning
    6200:651 United States Taxation and Transnational Operations
    6200:652 Tax Exempt Organizations
    6200:653 Business Planning
    6200:656 Nonqualified Executive Compensation

Concentration in Electronic Business (E-Business)

• Required:
  6500:620 E-Business Foundations
  6500:652 E-Business Technologies

• Choose 6 credits from the following:
  6200:656 E-Business Risks, Controls, and Assurance Services
  6400:656 E-Business Legal Issues
  6500:658 E-Business Strategic Planning
  6600:635 E-Business Marketing Strategies and Tactics

• Recommended free elective (3 credits):
  select additional course from the list above

Concentration in Entrepreneurship
This program prepares potential entrepreneurs. It provides students with exposure to entrepreneurial activities and builds critical skills needed for entrepreneurial initiatives.

• Required:
  6500:663 Data Analysis for Managers
  6500:508 Entrepreneurship
  6500:640 Financing the Entrepreneurial Venture
  6600:670 Managing Entrepreneurial Growth

Concentration in Finance
Choose 12 graduate credits from 6400

Concentration in Global Sales Management
• Required (complete all 6 credits):
  6600:580 Sales Management
  6600:585 Global Sales Strategy

• Electives (choose 6 credits from the following):
  6600:654 Management of International Operations
  6600:655 Marketing Communications
  6600:630 International Marketing Policies

Graduate Studies
### Concentration in Health Care Management

- **Required:**
  - 6500-688 Health Services Systems Management 3
  - 6500-683 Data Analysis for Managers 3

- **Choose 6 credits from the following:**
  - 6500-682 Health Services Operations Management 3
  - 6500-566 Special Topics in Health Services Administration 3
  - 6500-698 Health Services Research Project 3
  - 6500-688 Independent Study in Health Services Administration 3
  - 3068-690 Interdisciplinary Seminar in Life Span Development and Gerontology 3
  - 3250-540 Special Topics: Economics (Medical) 3
  - 3850-615 Epidemiologic Methods in Health Research 3
  - 3850-616 Medical Sociology 3
  - 3850-617 Urban Planning and Health Care 3
  - 4800-630 Biomedical Computing 3
  - 6200-632 Fiscal Management in Nursing Administration 3

  or three graduate credits approved by the Director.

### Concentration in International Business

- **Required (choose one of the following courses):**
  - 6200-664 Research and Quantitative Methods in Accounting 3
  - 6200-660 Techniques of Financial Analysis 3
  - 6600-662 Applied Operations Research 3
  - 6600-663 Data Analysis for Managers 3
  - 6600-640 Business Research Methods 3

- **Plus any 6 credits in International Business:**
  - 6800-680 International Marketing Policies 3
  - 6800-685 Multinational Corporations 3
  - 6800-690 Seminar in International Business 3
  - 6800-697 Independent Study in International Business 3
  - 6200-650 International Accounting 3
  - 6400-538 International Banking 3
  - 6400-681 Multinational Corporate Finance 3
  - 6400-691 International Markets and Investments 3
  - 6500-668 Management of International Operations 3
  - 6600-659 International Human Resource Management 3
  - 6600-661 Comparative Systems of Employee and Labor Relations 3

International Business students must ALSO select one of the following options:

1. Foreign Language Option: demonstrate reading and conversational proficiency in a language other than English.

2. Cross-Cultural Option: select one course (3 credits) from the following courses:
   - 3250-560 Comparative Economic Systems 3
   - 3250-566 Economic Development and Planning for Underdeveloped Countries 3
   - 3250-670 International Monetary Economics 3
   - 3250-671 International Trade 3
   - 3350-536 World Marketplace Areas 3
   - 3350-550 Development Planning 3
   - 3350-633 Comparative Planning 3
   - 3460-516 Modern India 3
   - 3400-573 Latin America: The Twentieth Century 3
   - 3400-575 Mexico 3
   - 3700-526 Politics in the Middle East 3
   - 3700-511 Theories of International Political Economy 3
   - 3700-512 Global Environment Politics 3
   - 3700-525 Latin American Politics 3
   - 3870-561 Language and Culture 3
   - any cross-cultural course approved by the CBA Graduate Programs Director.

*Cross-cultural courses may be used for free elective credits.

### Concentration in International Finance

This program prepares students for careers in international finance with emphasis in corporate, banking, or investment areas. With the globalization of business, international finance has emerged as a major program for students interested in international business operations.

- **Required (9 credits):**
  - 6400-661 Multinational Corporate Finance 3
  - 6400-691 International Markets and Investments 3
  - 6400-538 International Banking 3

- **Choose three credits from the following:**
  - 6400-633 Management of Financial Institutions 3
  - 6400-645 Investment Analysis 3
  - 6400-647 Derivatives 3
  - 6400-649 Portfolio Management 3
  - 6400-676 Management of Financial Structure 3
  - 6400-678 Capital Budgeting 3
  - 6400-690 Techniques of Financial Analysis 3

### Concentration in Management

- **Required:**
  - 6500-682 Applied Operations Research 3
  - 6500-663 Data Analysis for Managers 3

- **Choose 9 graduate credits from 6500. No more than 6 credits at the 500 level:**

### Concentration in Management of Technology

- **Required:**
  - 6500-662 Applied Operations Research 3
  - 6500-663 Data Analysis for Managers 3
  - 6500-666 Management of International Operations (6500-663 3)
  - 6500-665 Management of Technology 3
  - 6900-642 Product and Brand Management 3

- **Recommended free elective (3 credits):**
  - Select one course from the following courses.
    - 6500-598 Entrepreneurship 3
    - 6500-640 Management Information Systems 3
    - 6500-653 Fundamentals of Human Resource Administration 3
    - 6500-676 Project Management 3
    - 6500-579 Business Negotiation 3

### Concentration in Marketing

- **Required:**
  - 6800-640 Business Research Methods 3

- **Choose 9 credits from the following:**
  - 6900-640 Product and Brand Management 3
  - 6500-650 Strategic Retail Management 3
  - 6500-653 Marketing of Services 3
  - 6900-650 Consumer Behavior 3
  - 6900-655 Marketing Communications 3
  - 6900-670 Competitive Business Strategy 3
  - 6900-680 Applications of Marketing Theory 3
  - 6900-630 International Marketing Policies 3

### Concentration in Supply Chain Management

- **Required:**
  - 6500-676 Supply Chain Management 3
  - 6900-662 Applied Operations Research 3

- **Choose 6 credits from the following:**
  - 6500-676 Management of Production and Operations 3
  - 6500-677 Project Management 3
  - 6500-673 Quality and Productivity Techniques 3
  - 6500-653 Productivity and Quality of Worklife Issues 3
  - 6500-642 Systems Simulation 3
  - 6500-641 Data Management and Communication 3

  or three graduate credits approved by the Director.

### Concentration in Quality Management

- **Required:**
  - 6500-673 Quality and Productivity Techniques 3

- **Choose 9 credits from the following:**
  - 6500-651 Management of Organizational Transformation 3
  - 6500-662 Data Analysis for Managers 3
  - 6500-664 Applied Industrial Statistics 3
  - 6500-674 Advanced Quality and Productivity Techniques 3
  - 3470-676 Response Surface Methodology 3

  or three graduate credits approved by the Director.

### Master of Science in Accountancy

The Master of Science in Accountancy (MSA) program is designed to provide students with a professional accounting education which will enable the student to sit for the Uniform CPA Examination under the Ohio 150-hour Legislation. For students with undergraduate degrees in areas other than accounting, the MSA will allow the student to pursue career options which combine their undergraduate interests with professional accounting credentials.

- **Foundation Courses:**
  - 6600-600 Financial Accounting and Reporting 3
  - 6600-601 Managerial Finance 3
  - 6600-602 Management and Organizational Behavior 3
  - 6200-601 Financial Accounting 3
  - 6200-602 Business Systems with Processing Applications 3
  - 6500-601 Quantitative Decision Making 3
  - 6500-625 Legal Aspects of Business Transactions 3
  - 3750-000 Foundations of Economic Analysis 3

- **Foundation courses will be waived for students with recent study in the subject areas:**

- **Required of all MSA Students:**
  - 6200-655 Advanced Information Systems 3
  - 3300-675 Writing for MSAs 3

- **Required of MSA Students without undergraduate degrees in Accounting:**
  - 3700-621 Corporate Accounting and Financial Reporting I 3
  - 3700-622 Corporate Accounting and Financial Reporting II 3
  - 6200-610 Financial Statement Analysis and Cost Management 3
Master of Science in Management

The Master of Science in Management program allows students to concentrate their advanced study in one of two areas: human resource management or information systems management. Because of the complex nature of these specializations, they are not normally offered as options in traditional MBA programs. They are designed for individuals who know what they want to do or to help them apply what they already know more effectively. For example, computer science majors may choose to concentrate in information systems while psychology majors would benefit from the human resource management option. The introductory coursework for this program is termed a foundation core and consists of 34 credits which may be waived if the student has completed prior study in the area. The remaining 33 credits of coursework consists of 12 credits of general management coursework, 18 credits of specialization courses and one 3-credit free elective. If all foundation courses are waived, the program is 33 credits in length.

- Foundation Core.
  All are required unless waived at time of admission.
  3250:600 Foundations of Economic Analysis
  6200:601 Financial Accounting
  6400:602 Managerial Finance
  6400:655 Government and Business
  6500:600 Management and Organizational Behavior
  6500:601 Quantitative Decision Making
  6500:602 Computer Techniques for Management
  6500:603 Marketing Concepts

- Management Core Courses (12 credits):
  6500:640 Management Information Systems
  6500:663 Data Analysis for Managers
  6500:652 Organizational Behavior
  6500:653 Organizational Theory
  6500:662 Advance Operations Research
  6500:670 Operations Management

- Free Elective (3 credits).
  The student must select 3 credits of free electives from outside the area of concentration. A 500-level course may be used but the student may not count more than 6 credits of 500-level courses in total toward the fulfillment of degree requirements. Approval of the Director is required.

Options:
Choose a concentration from the following:

- Information Systems Management (ISM)
  - ISM Required Concentration Courses (12 credits):
    6500:641 Business Database Systems
    6500:643 Analysis and Design of Business Systems
    6500:648 Management of Telecommunications
    6500:645 Advanced Management Information Systems

- ISM Restricted Electives (6 credits):
  6500:605 Business Applications Development
  6500:620 E-Business Foundations
  6500:622 E-Business Technologies
  6500:642 Systems Simulation
  6500:644 Knowledge Management
  6500:646 Process Redesign with Enterprise Resource Planning
  6500:651 Management of Organizational Transformation
  6500:665 Management of Technology
  6500:678 Project Management

- Human Resource Management (HRM)
  - HRM Required Concentration Courses (12 credits):
    6500:650 Fundamentals of Human Resource Administration
    6500:652 Organizational Behavior
    6500:653 Organizational Theory
    6500:654 Labor Management Relations
    6500:655 Compensation Administration

- HRM Restricted Electives (6 credits):
  6500:651 Management of Organizational Transformation
  6500:658 Strategic Human Resource Management
  6500:659 International Human Resource Management
  6500:660 Employment Regulation
  6500:661 Comparative Systems of Employee and Labor Relations

Total concentration: 31
Total program: 33

*Has to be taken if business application development proficiency requirement has not been satisfied. If proficiency is satisfied, a different elective must be taken for credit.
**57 total credits if foundation courses are required; see Graduate Director.
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.

Materials Management

The Department of Management has made the Master of Science in Management—Materials Management program inactive. No students will be admitted to this program until further notice.

Quality Management

The Department of Management has made the Master of Science in Management—Quality Management program inactive. No students will be admitted to this program until further notice.

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. 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 44325-2901. A baccalaureate degree is required.

Degree Requirements

A student is required to fulfill the requirements of the School of Law, 87 credits, which includes 10 credits transferred from the CBA. The requirements of the CBA may be met by fulfilling the requirements previously listed which include the common body of knowledge (Foundation) courses (unless waived because of prior undergraduate credits earned), and 26 credits for M.B.A. of advanced courses in the CBA. No more than nine 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 Administration. Six credits transferred from 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)
9200:639 Estate and Gift Taxation
9200:640 Individual Taxation
9200:641/642 Corporate Taxation I, II
9200:655 Taxation of Partnerships
9200:674 Current Problems in Taxation
9200:676 Special Problems in Estate Planning
9200:680 Qualified Pensions and Profit Sharing
9200:685/686 Wills, Trusts and Estates I, II

Finance (choose 6 credits)
9200:629 Commercial Law I
9200:635 Bankruptcy Law
9200:639 Estates and Gift Taxation
9200:642 Land Use Planning
9200:671 Securities Regulation
9200:675 Special Problems in Estate Planning
9200:680 Qualified Pensions and Profit Sharing
9200:685/686 Wills, Trusts and Estates I, II
9200:681 International Investments

International Business (choose 6 credits)
9200:649 International Law
9200:656 International Trade
9200:661 International Investments and the European Economic Community

Management (choose 6 credits)
9200:637 Equal Opportunity Law
9200:660 Labor and Employment Law
9200:661 Labor Arbitration and Collective Bargaining
9200:669 Lawyer as Negotiator
9200:670 Workers' Compensation
9200:672 Seminar in Business Planning
9200:679 Labor Law

Marketing (choose 6 credits)
9200:627 Commercial Law I
9200:669 Lawyer as Negotiator
9200:662 Media Law
9200:667 Patent, Trademark and Copyright Law
9200:672 Seminar in Business Planning
9200:683 Seminar in Product Liability
9200:684 Sports and Entertainment Law
College of Fine and Applied Arts

Mark S. Auburn, Ph.D., Interim Dean
James M. Lynn, Ph.D., Interim Associate Dean

Mission Statement

The College of Fine and Applied Arts is dedicated to enhancing the quality of life of the individual, the University, and the community. Through instruction, research, creative activity, and outreach programs, the College fosters artistic and social inquiry and direct application of knowledge to self, family, and society. Students are supported in their quest for knowledge of their chosen fields and encouraged to shape their artistic and social environments.

MASTER’S DEGREE

Family and Consumer Sciences

A program of study is offered leading to the Master of Arts in Family and Consumer Sciences degree. The program offers options in child development, child life, clothing, textiles and interiors, family development, and food science. Students must meet the following admission requirements for acceptance in the program:

- Minimum GPA of 2.75 for four years of undergraduate study or 3.00 for the last two years of undergraduate study.
- Completion of general Record Examination within the five years preceding application, with a minimum total score of 1200 on the three parts of the GRE.
- Submission of a letter of personal career goals to the director of graduate studies.
- Two letters of recommendation may be submitted, if desired.

The graduate faculty of the School of Family and Consumer Sciences may require an interview with any applicant. Accepted students will be expected to comply with the following requirements:

- Complete the course of study in one of the five options, with a minimum of 40 credits.

These credits will include:
- Foundation courses to prepare for research in family and consumer sciences as an interdisciplinary field;
- Core courses in the area of specialty;
- Option electives and cognate electives, selected in consultation with academic advisor, from within the School or in another discipline. These are chosen to strengthen student's professional goals;
- Pass a written comprehensive examination over major and minor areas after the completion of at least 24 credits of graduate work;
- Complete a master's thesis or a master's project. The thesis option involves the design and evaluation of original research in an appropriately related area, with the written thesis examined by the student's professional advisor and a panel of outside examiners. The project option involves the design, development, implementation, and evaluation of an original and creative program and/or resource materials. A written proposal for the thesis or project cannot be submitted until successful completion of the comprehensive examination;
- Apply for advancement to candidacy upon successful completion of 24 credits of graduate study, the written comprehensive examination, and an approved prospectus or proposal for a thesis or project;
- Pass an oral examination covering the thesis or project report.

Foundation Courses

- Required by all program options:
  - 7400:654 Orientation to Graduate Studies in Family and Consumer Sciences
  - 7400:660 Historical and Conceptual Bases of Family and Consumer Sciences
  - 7400:665 Research Methods in Family and Consumer Sciences

Child Development Option

- Core Courses:
  - 7400:665 Developmental Parent-Child Interactions
  - 7400:670 Child Development Theories
  - 7400:685 Development in Infancy and Early Childhood

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
- 7400:504 Adolescence in the Family Context
- 7400:542 Human Sexuality
- 7400:549 Before and After School Child Care
- 7400:560 Organization and Supervision of Child and Family Centers
- 7400:566 Parent Education
- 7400:607 Family Dynamics
- 7400:616 Infant and Child Nutrition
- 7400:651 Family and Consumer Law
- 7400:660 Programming for Child and Family Centers
- 7400:689 Practicum in Family and Consumer Sciences

Cognate Electives

Select 7 credits with approval of advisor from within the School of Family and Consumer Sciences or from a cognate area outside the School, OR from a combination of the two.

- Thesis or Project (select one):
  - 7400:694 Master's Project
  - 7400:699 Master's Thesis

Child Life Option

- Core Courses:
  - 7400:551 Child in the Hospital
  - 7400:555 Practicum Experience in Child Life Program
  - 7400:585 Orientation to the Hospital Setting
  - 7400:695 Child Life Internship

- Option Electives:
  Select 10 credits with approval of advisor 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
  - 7400:504 Adolescence in the Family Context
  - 7400:560 Organization and Supervision of Child and Family Centers
  - 7400:566 Parent Education
  - 7400:569 Seminar in Family and Consumer Sciences (Child Life topics)
  - 7400:585 Orientation to the Hospital Setting
  - 7400:586 Family Context
  - 7400:589 Child Life Internship
  - 7400:660 Programming for Child and Family Centers
  - 7400:689 Practicum in Family and Consumer Sciences

Clothing, Textiles and Interiors Option

- Core Courses:
  - 7400:634 Material Culture Studies
  - 7400:639 Theory of Fashion
  - 7400:677 Social Psychology of Dress and the Environment

- Options Electives:
  - 7400:518 History of Interior Design I
  - 7400:519 History of Interior Design II
  - 7400:523 Professional Image Analysis
  - 7400:525 Advanced Textiles
  - 7400:527 Global Issues in Textiles and Apparel
  - 7400:535 Principles and Practices of Interior Design
  - 7400:536 Textile Conservation
  - 7400:537 Historical Costume
  - 7400:538 History of Fashion
  - 7400:539 Principles and Practices of Interior Design

- Cognate Electives:
  Select 6 credits with approval of advisor from within the School of Family and Consumer Sciences OR from a cognate area outside the School, OR from a combination of the two.

- Thesis or Project (select one):
  - 7400:694 Master's Project
  - 7400:699 Master's Thesis

Total Credits

40
Food Science Option

- Core Courses:
  - 7400:575 Analysis of Food
  - 7400:576 Developments in Food Science
  - 7400:520 Experimental Foods (if taken at the undergraduate level, choose additional credits from option electives)

- 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
    - 7400:504 Approaches in the Family Context
    - 7400:506 Family Financial Management
    - 7400:540 Family Crisis
    - 7400:542 Human Sexuality
    - 7400:546 Culture, Ethnicity and the Family
    - 7400:560 Parex Education
    - 7400:603 Family Relationships in Middle and Later Years
    - 7400:605 Developmenal Parent-Child Interactions
    - 7400:670 Child-Development Theories
    - 7400:688 Practicum in Family and Consumer Sciences

- Cognate Electives:
  - Select 7 credits with the approval of advisor from within the School of Family and Consumer Sciences OR from a cognate area outside the School OR a combination of the two.

  - Thesis or Project (select one):
    - 7400:694 Master's Project
    - 7400:699 Master's Thesis

  - Total 40

Food Science Option

- Core Courses:
  - 7400:575 Analysis of Food
  - 7400:576 Developments in Food Science
  - 7400:520 Experimental Foods (if taken at the undergraduate level, choose additional credits from option electives)

- 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):
    - 3100:540 Food Plants
    - 2350:540 Special Topics: Economics/World Food Problems
    - 7400:511 Cultural Dimensions of Foods
    - 7400:515 Seminar in Family and Consumer Sciences (Food Science topic)
    - 7400:570 The Food Industry: Analysis and Field Study
    - 7400:583 Advanced Food Preparation
    - 7400:524 Nutrition in the Life Cycle
    - 7400:624 Advanced Human Nutrition I
    - 7400:625 Advanced Human Nutrition II
    - 7400:688 Practicum in Family and Consumer Sciences

- Cognate Electives:
  - Select 3-6 credits with approval of advisor from the School of Family and Consumer Sciences OR a cognate area outside the School OR a combination of the two.

  - Thesis or Project (select one):
    - 7400:694 Master's Project
    - 7400:699 Master's Thesis

  - 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 into 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 Family and Consumer Sciences 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 family and consumer sciences as a discipline;
  - Core courses in the area of specialty;
  - Electives selected from within the department or from another discipline to strengthen the 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:
  - 7400:564 Orientation to Graduate Studies in Family and Consumer Sciences
  - 7400:565 Historical and Conceptual Bases of Family and Consumer Sciences
  - 7400:685 Research Methods in Family and Consumer Sciences

- Core Courses:
  - 7400:624 Advanced Human Nutrition I
  - 7400:625 Advanced Human Nutrition II

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 I
- 3100:562 Human Physiology II
- 3100:565 Cardiac Physiology
- 3100:569 Pharmacology
- 3100:670 Medical Physiology, Pathophysiology, and Pharmacology
- 3100:686 Research in the Biology of Aging
- 3150:521 Biochemistry Lecture I
- 3150:522 Biochemistry Lecture II
- 7400:500 Nutrition Communication and Education Skills
- 7400:520 Experimental Foods
- 7400:524 Nutrition in the Life Cycle
- 7400:570 Cultural Dimensions of Foods
- 7400:576 Developments in Food Science
- 7400:583 Community Nutrition I - Lecture
- 7400:582 Community Nutrition II - Lecture
- 7400:587 Sports Nutrition
- 7400:588 Practicum in Dietetics
- 7400:589 Professional Preparation for Dietetics
- 7400:640 Nutrition in Diminished Health

Cognate Electives (8 to 11 credits required)

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

- 3470:562 Statistics for the Health Sciences
- 3650:515 Social Gerontology
- 5600:662 Techniques of Counseling
- 6500:650 Management and Organizational Behavior
- 5500:602 Computer Techniques for Management

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.
**Music Education Option: Instrumental Emphasis**

**Thesis Option – 32 credits**

- **Required Music Education Core Courses – 13-15 credits**
  - 7500:611 Foundations of Music Education (summer) 3
  - 7500:612 Practices and Trends in Music Education (fall) 3
  - 7500:614 Measurement and Evaluation in Music Education (spring) 3
  - 7500:699 Master's Thesis/Project 4-6

- **Additional music/education courses – select 17-19 credits with approval of music education and graduate advisors. Choices may include the following:**
  - 7500:675 Seminar in Music Education* 6
  - 7500:697 Advanced Problems in Music Education* 6
  - 7500:699 Master's Thesis/Project 6

**Non-Thesis Option – 34 credits**

- **Required Music Education Core Courses – 9 credits**
  - 7500:611 Foundations of Music Education (summer) 3
  - 7500:612 Practices and Trends in Music Education (fall) 3
  - 7500:614 Measurement and Evaluation in Music Education (spring) 3
  - 7500:699 Master's Thesis/Project 6

- **Additional music/education courses – select 17-19 credits with approval of music education and graduate advisors. Choices may include the following:**
  - 7500:675 Seminar in Music Education* 6
  - 7500:697 Advanced Problems in Music Education* 6
  - 7500:699 Master's Thesis/Project 6

**Music Education Option: General Music Emphasis**

**Thesis Option – 32 credits**

- **Required Music Education Core Courses – 13-15 credits**
  - 7500:611 Foundations of Music Education (summer) 3
  - 7500:612 Practices and Trends in Music Education (fall) 3
  - 7500:614 Measurement and Evaluation in Music Education (spring) 3
  - 7500:699 Master's Thesis/Project 4-6

- **Additional music/education courses – select 17-19 credits with approval of music education and graduate advisors. Choices may include the following:**
  - 7500:675 Seminar in Music Education* 6
  - 7500:697 Advanced Problems in Music Education* 6
  - 7500:699 Master's Thesis/Project 6

**Non-Thesis Option – 34 credits**

- **Required Music Education Core Courses – 9 credits**
  - 7500:611 Foundations of Music Education (summer) 3
  - 7500:612 Practices and Trends in Music Education (fall) 3
  - 7500:614 Measurement and Evaluation in Music Education (spring) 3

- **Additional music/education courses – select 17-19 credits with approval of music education and graduate advisors. Choices may include the following:**
  - 7500:675 Seminar in Music Education* 6
  - 7500:697 Advanced Problems in Music Education* 6
  - 7500:699 Master's Thesis/Project 6

* Topics related to general music.
Music Education Option: Choral Emphasis

**Thesis Option – 32 credits**

- **Required Music Education Core Courses – 13-15 credits**
  - 7500:611 Foundations of Music Education (summer) 3
  - 7500:612 Practices and Trends in Music Education (fall) 3
  - 7500:614 Measurement and Evaluation in Music Education (spring) 3
  - 7500:699 Master’s Thesis/Project 4-6

- **Additional music/education courses – select 13-19 credits with approval of music education and graduate advisors. Choices may include the following:**
  - 7500:675 Seminar in Music Education* 6
  - 7500:677 Advanced Problems in Music Education* 6
  - 7500:680 Music Workshops* 6
  - 7500:695 – 697 Applied 8
  - 7510:695 – 697 Ensemble 8
  - 7510:695 – 697 Other music courses 8
  - 7510:695 – 697 Educational Foundations and Leadership 4
  - 7510:695 – 697 General Administration 4
  - 7520:695 – 697 Curricular and Instructional Studies 4

* Topics related to choral music

**Non-Thesis Option – 34 credits**

- **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 15-20 credits with approval of music education and graduate advisors. Choices may include the following:**
  - 7500:675 Seminar in Music Education* 6
  - 7500:677 Advanced Problems in Music Education* 6
  - 7500:680 Music Workshops* 6
  - 7500:695 – 697 Applied 8
  - 7510:695 – 697 Ensemble 8
  - 7510:695 – 697 Other music courses 8
  - 7510:695 – 697 Educational Foundations and Leadership 4
  - 7510:695 – 697 General Administration 4
  - 7520:695 – 697 Curricular and Instructional Studies 4

* Topics related to choral music

**Music Education Option: Choral Conducting**

- **Required Music Education Core (13 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/Performance* 4

- **Required Choral Options (17 credits)**
  - 7500:556 Advanced Choral Conducting 4
  - 7500:573 Studies in Choral Literature (20th Century) 2
  - 7500:574 Integrative Conducting Workshop 2
  - 7500:636 Workshop/Choral Music Education 2
  - 7510:200/202 Choral Ensemble 2
  - 7500:624 Applied Voice 2

- **Electives (6 credits)**
  - 7500:570 Studies in Choral Literature I (Medieval) 2
  - 7500:571 Studies in Choral Literature II (Baroque) 2
  - 7500:572 Studies in Choral Literature III (Classical) 2
  - 7500:615 Music Styles and Analysis I 2
  - 7500:616 Music Styles and Analysis II 2
  - 7500:617 Music Styles and Analysis III 3
  - 7500:680 Advanced Problems 1-2 credits 36

* Performance option may be exercised conducting a choral concert along with a major research paper which focuses on the repertoire to be performed in lieu of a thesis

**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: Choral through Palestrina 2
  - 7500:616 Musical Styles and Analysis II: Baroque through early 1800s 2
  - 7500:617 Musical Styles and Analysis III: Late 1800s through Mahler/Stravinsky 2
  - 7500:618 Musical Styles and Analysis IV: 20th Century 2
  - 7500:621 Music History Survey: Middle Ages and Renaissance 2
  - 7500:622 Music History Survey: Baroque 2
  - 7500:623 Music History Survey: Classic and Romantic 2
  - 7500:624 Music History Survey: Music Since 1900 2

- **Major required courses – 23-26 credits**
  - Select either 7500:562 or 7500:633
  - 7500:562 Repertoire and Pedagogy: Organ 3
  - 7500:563 Teaching and Literature: Piano and Harpsichord 3
  - 7500:540 Advanced Accompanying I 1
  - 7500:541 Advanced Accompanying II 1
  - 7500:542 Advanced Accompanying III 1
  - 7500:543 Advanced Accompanying IV 1
  - 7500:666 Advanced Voice (Literature) 3
  - 7500:698 Graduate Recital (to be completed in a minimum of two performances) 2
  - 7500:671 Keyboard Ensemble participation in two ensembles required** 2-4
  - 7500:672 Small Ensemble – Mixed 2
  - 7502:606 Applied Music (piano, organ, and harpsichord) 8

* Note: A minimum 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.

**Major required courses**

- **Music core courses – two to four credits**
  - 7500:695 Advanced Accompanying I 2
  - 7500:696 Advanced Accompanying II 2
  - 7500:697 Advanced Accompanying III 2
  - 7500:698 Graduate Recital (to be completed in a minimum of two performances) 2

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

**Music Technology Option**

The Master of Music Technology Option is designed to give the student additional exposure to the functional areas of music plus an advanced concentration in music technology and related business. The program provides a framework of conceptual, technical and professional knowledge which will assist the student in career opportunities for fields related to music technology. Students will leave the program with a portfolio of tutorials, recorded works, and/or computer software.

- **Music core courses – six credits (to be selected)**
  - 7500:555 Advanced Conducting: Instrumental 2
  - 7500:556 Advanced Conducting: Choral 2
  - 7500:557 Musical Styles and Analysis I 2
  - 7500:558 Musical Styles and Analysis II 2
  - 7500:559 Musical Styles and Analysis III 2
  - 7500:560 Musical Styles and Analysis IV 2

- **Major required courses – 25-28 credits**
  - 7500:565 Graduate Bibliography and Research in Music 2
  - 7500:553 Music Software Survey and Use 2
  - 7500:563 Instructional Programming in Music for the Microcomputer 2
  - 7500:564 Musical Styles and Analysis IV: 20th Century 2
  - 7500:569 Theory and Pedagogy 2
  - 7500:570 Advanced Problems in Music 4
  - 7500:699 Master’s Thesis/Project 4-6
  - 7510:55 Ensemble participation in two ensembles required** 2
  - 7500:572 Computer Studio Design 2

- **Electives – 0-2 credits**

To be selected by the student and advisor. Degree Total: 32-36 credits.
Performance Option in Winds, String Percussion

- Music core courses: eight credits to be selected:
  7500.555 Advanced Conducting: Instrumental 2
  7500.556 Advanced Conducting: Orchestral 2
  7500.615 Musical Styles and Analysis I (Choral 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/Stravinsky) 2
  7500.618 Music History Survey: Middle Ages and Renaissance 2
  7500.619 Music History Survey: Baroque 2
  7500.620 Music History Survey: Classic and Romantic 2
  7500.621 Music History Survey: Music Since 1900 2

- Major required courses - 16-18 credits:
  7500.618 Musical Styles and Analysis IV (20th Century)* 2
  7510.619 Ensemble (participation in two ensembles required)** 2-4
  7520.620 Applied Music (select appropriate instrument) 6

- Select one of the following as appropriate to major instrument:
  7500.630 Teaching and Literature: Brass Instruments 2
  7500.631 Teaching and Literature: Woodwind Instruments 2
  7500.632 Teaching and Literature: Percussion Instruments 2
  7500.634 Teaching and Literature: String Instruments 2
  7500.635 Graduate Recital

- Additional music courses - six credits.*
  Graduate-level (music) workshops, applied lessons, advanced problems and/or courses to be selected by student and advisor.

- 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 advisor.

Degree total: 34-36 credits.

Performance Option in Voice

- Music core courses: eight credits (to be selected):
  7500.555 Advanced Conducting: Instrumental 2
  7500.556 Advanced Conducting: Orchestral 2
  7500.615 Musical Styles and Analysis I (Choral 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/Stravinsky) 2
  7500.621 Music History Survey: Middle Ages and Renaissance 2
  7500.622 Music History Survey: Baroque 2
  7500.623 Music History Survey: Classic and Romantic 2
  7500.624 Music History Survey: Music Since 1900 2

- Major required courses - 25-22 credits:
  7500.618 Musical Styles and Analysis IV (20th Century) 2
  7500.635 Vocal Pedagogy 3
  7500.636 Advanced Song Literature 3
  7500.638 Graduate Recital 2
  7500.640-644 Ensemble participation in two ensembles required** 2-4
  7520.624 Applied Voice 8

- Additional music courses - two credits (suggested minimum).
  Graduate-level (music) workshops, applied lessons, advanced problems and/or applied lessons, to be selected by student and advisor.

- 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 advisor.

Degree total: 34-36 credits.
Theatre Arts

Graduate (music) workshops, applied music (other than composition), advanced problems, and/or courses to be selected by student and advisor.

Electives - zero to two credits.

To be selected by student and advisor. Areas include graduate-level courses in other disciplines in which student obtains permission of instructor or 7520:642 Applied Composition.

Degree total: 34-36 credits.*

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 36 credits, distributed as follows:
  - School core courses - 12 credits:
    - 7600:600 Introduction to Graduate Study in Communication 3
    - 7600:603 Empirical Research in Communication 3
    - 7600:624 Survey of Communication Theory 3
    - 7600:625 Themes of Mass Communication 3
    - 7600:670 Communication Criticism 3
  - Graduate electives - 6 credits.
    - Thesis (690) or Project/Production (698) - 6 credits.
  - Total - 36 credits.

- Comprehensive examination required for students not pursuing a thesis, project, or production after 24 credits of coursework, including all core courses.

- Advancement to candidacy. Registration for six (6) credits of Thesis (699) or Project/Production (698).

- Presentation and defense of a thesis/project/production.

The thesis, project, or production requirement is designed to be the culmination of the student's academic program and involves the conceptualization, design, and execution of an academic, practical, or aesthetic problem in a manner which requires a high level of substantive, methodological, technical, and written skills. These skills may be demonstrated in any of the three types of activities, depending on the student's background and career orientation.

Theatre Arts

The School of Dance, Theatre, and Arts Administration offers a master of arts degree. The following will qualify the student to 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.
- Complete an oral defense of the thesis or thesis project.

Theatre Option

Complete a minimum of 35 credits distributed as follows:

- School core courses - 24 credits:
  - 7800:600 Introduction to Graduate Studies 3
  - 7800:641 Problems in Directing 3
  - 7800:645 Seminar in Dramatic Literature 3
  - 7800:646 Graduate Acting Techniques 3
  - 7800:658 History of Theatre 3
  - 7800:662 Seminar in Scene Design 3
  - 7800:699 Master's Thesis 1-6

- Graduate electives:
  - 12 credits to be selected from Theatre Arts, English, Communication, Music, etc., in consultation with the student's advisor or the graduate program coordinator.

Arts Administration Option

- Complete a minimum of 45 credits.
- Required theatre arts courses (30-33 credits):
  - 7800:605 Introduction to Graduate Studies in Theatre Arts 3
  - 7800:635 Cohaus in the Arts 3
  - 7800:666 Audience Development 3
  - 7800:686 Principles of Arts Management 3
  - 7800:692 Art Business Administration 3
  - 7800:697 Fiscal Management in the Arts 3
  - 7800:698 Visual Arts Administration 3
  - 7800:699 Internship 3-6

- Required course (3 credits):
  - 6600:630 Electives in related fields (3-6 credits)

- Complete an oral defense of the thesis.

- General electives 6

Speech-Language Pathology and Audiology

This program leads to the Master of Arts degree in either speech-language pathology or audiology. It is designed to lead to professional certification by the American Speech-Language-Hearing Association (ASHA) in speech-language pathology and/or audiology 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 study. The School of Speech-Language Pathology and Audiology offers a one-year post-baccalaureate program for students who have completed an undergraduate degree in a different field. Students enrolled in the post-baccalaureate program can apply for admission to the Graduate School for the following year.
- Complete the department requirements for admission which include submission of three letters of recommendation and the Graduate Record Examination (GRE) Aptitude Test results.
- Declare intent to major in either speech-language pathology or audiology. Applications for admission are accepted and considered only once per year. 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 will write comprehensive examinations during their final semester. Academic requirements within the school include:

  For speech-language pathology majors:
  - 7700:654 Augmentative Communication 3
  - 7700:662 Early Intervention for Preschoolers 2
  - 7700:684 Teaching and Learning Strategies in SLP 3
  - 7700:691 Research Methods in Communication Disorders I 3
  - 7700:692 Articulation 2
  - 7700:693 Support Systems for Individuals and Families with Communication Disorders 2
  - 7700:694 Neurogenic Speech and Language Disorders 3
  - 7700:695 Voice and Cleft Palate 3
  - 7700:696 Stuttering: Theories and Therapies 2
  - 7700:697 Topics in Differential Diagnosis of Speech and Language Disorders 2
  - 7700:698 Clinical Issues in Child Language 3
  - 7700:699 Acquired Brain Injury 2
  - 7700:700 Aphasia 2
  - 7700:701 Professional Issues 2
  - 7700:702 Advanced Clinical Practicum: Speech-Language Pathology 4
  - 7700:703 Internship: Speech Pathology and Audiology (student must register twice)

  For audiology majors:
  - 7700:611 Research Methods in Communication Disorders I 3
  - 7700:612 Research Methods in Communication Disorders II 3
  - 7700:695 Research and Thesis 3-6
  - 7700:696 Advanced Clinical Practicum: Audiology 3
  - 7700:697 Internship: Speech Pathology and Audiology (student must register twice)

  Completion of 5610:693 Student Teaching in Speech Pathology or 5610:692 Student Teaching in Audiology may be substituted for one 7700:695 registration. The audiology student must take 4 credits in speech-language pathology, and the thesis-language pathology student must take 4 credits in audiology. It is recommended that the speech-language pathology major elect 7700:699 Advanced Clinical Practicum 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 coursework (including 7700:697)
- no more than 6 credits taken in disciplines other than speech-language pathology and audiology
- Students must be registered for clinical practicum, externship, or student teaching during any academic period in which they are involved in in-house practicum, externship, or student teaching.

Social Work
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 1985 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 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 the area (24 semester or 36 quarter credit hours completed in the social, behavioral and biological sciences, including one human biology course, and the humanities).
- 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
  7750:601 Foundation Field Practicum  
  7750:609 Social Work Practice with Small Systems  
  7750:612 Fundamentals of Research I  
  7750:631 Human Behavior and Social Environment: Small Social Systems  
  7750:646 Social Welfare Policy I
- Spring Semester
  7750:602 Foundation Field Practicum  
  7750:605 Social Work Practice with Large Systems  
  7750:611 Dynamics of Racism and Discrimination  
  7750:623 Fundamentals of Research II  
  7750:632 Human Behavior and Social Environment: Large Systems

Second Year Concentrations (Direct Practice):
- Fall Semester
  7750:603 Advanced Field Practicum  
  7750:607 Advanced Practice with Small Systems I  
  7750:647 Social Welfare Policy II  
  7750:663 Psychopathology and Social Work  
  One elective
- Spring Semester
  7750:604 Advanced Field Practicum  
  7750:608 Advanced Practice with Small Systems II  
  7750:664 Direct Practice Research  
  Two electives
College of Nursing

Cynthia F. Capers, R.N., Ph.D., Dean
Elaine Nichols, R.N., Ed.D., Associate Dean of Academic Affairs
Judith H. Lewis, R.N., Ed.D., Director, Nursing Education
Kathleen M. Ross-Apolon, R.N., Ph.D., Coordinator, Master's Program
N. Margaret Wineman, R.N., Ph.D., Coordinator, Joint Ph.D. in Nursing Program

Mission Statement

As an integral part of The University of Akron, the College of Nursing promotes the general mission of The University of Akron. The college offers diverse and comprehensive nursing education programs at the undergraduate and graduate levels. The programs of study, based on professional standards, prepare individuals to provide nursing care in a variety of settings. The College of Nursing supports research that contributes to the health and well-being of society. The college is committed to serving culturally, racially, and ethnically diverse populations. Through academic and community collaboration, the college promotes excellence in nursing education, research, practice, and service.

Goals

• Prepare generalist and advanced practice nurses who are eligible for initial licensure and for certification.
• Prepare scholars in nursing at the doctoral level, focusing on the conduct of nursing research and the dissemination of research findings with their implications for nursing practice and healthcare policy.
• Provide a foundation for lifelong commitment to professional development and scholarship through continuing education and advanced study at the master's and doctoral levels.
• Prepare nurses who are sensitive in caring for diverse populations in a variety of settings.
• Prepare professional practitioners who integrate leadership roles and ethical standards in a continuously changing health care arena and society.

Philosophy

The College of Nursing faculty believe that the role of professional nursing is individual, familial and community.

The Individual is seen as a whole whose existence involves patterns, dynamic change, transformation and interdependence. The individual interprets 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 in traditional and nontraditional family configurations.

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

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

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

Nursing is an art and a science. The discipline of nursing is concerned with individual, family and community and their responses to health within the context of the changing health care 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 role of the nurse involves the exercise of scientific, ethical, and political responsibilities, including accountability for professional actions, provision of quality nursing care, and community involvement.

Education is an individualized, life-long process. Learning includes the individual's interactions with the environment, knowledge and skill acquisition, development of critical thinking, and self-awareness. Self-expression enables 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 that 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 clinical decision-making. The student is prepared to function as nurse generalist in a variety of settings. Faculty and student continually seek to refine the commitment to and understanding of the relationship between theory and practice. Students are encouraged to become self-directed, collaborative, interdisciplinary and independent. These variables are the foundation for lifelong learning and professional development.

Nursing education at the master's level builds upon baccalaureate nursing education and provides a foundation for doctoral study. Graduate education at this level prepares advanced practice nurses with expertise in critical thinking and decision making, effective communication, and therapeutic interventions. Through a variety of learning experiences, master of science in nursing students analyze and use theoretical formulations and research findings in advanced practice.

Nursing education at the doctoral level prepares nurses for full participation in the discipline as scholars and researchers. Emphasis is placed on the development of nurses who are informed about the many dimensions of scholarship, including research, practice and teaching, and the integration of the three. Through various didactic, collaborative and research opportunities, doctoral students learn to develop and test knowledge about health, illness and nursing care, and how to use knowledge to enhance teaching, improve patient care, and influence healthcare policy.

Joint Program for the Doctor of Philosophy in Nursing

Kent State University and The University of Akron offer the Joint Ph.D. in Nursing (JPON). A single doctoral program with a single, unified nursing faculty and doctoral student body. Students may choose which university will grant their degree. The diploma will be issued from the student's university of record and will be recognized by The Joint Doctoral Program (JPON). JPON courses will be cross-listed and scheduled at each university.

Program Purpose and Description: Preparation of Scholars in Nursing

The JPON program is characterized by excellence through scholarship, integrity, and caring. The primary purpose of the JPON is to produce nurse scholars whose professional goal will be realized through the development and testing of theories and models of nursing science and practice, and a consideration of the social, political, legal, and economic implications of health care policies and practices, and the dissemination of knowledge.

Graduates will be characterized by the leadership and their ability to conducting research, to integrate and extend knowledge through teaching, and to develop and implement healthcare policy. Interdisciplinary collaboration and community outreach will be emphasized throughout the program.

Admission, Progression, and Graduation

Students may apply to the joint program through the Graduate Colleges at each university. Completed applications should be returned to the addresses indicated on the application forms. Applications will be reviewed by the JPON admissions committee with a single set of requirements. The joint program requires a minimum grade point average of 3.0 on a 4.0 scale.

Evidence of current licensure, or eligibility for licensure, by the Ohio Board of Nursing.

Official evidence of scores on the Graduate Record Examination.

A clear and succinct statement about the applicant's need for the doctorate and its application toward clearly defined career goals.

A sample of written work that indicates the logic and writing skills of the applicant, for example, by essay, term paper, thesis, published article, or professional report.

Three (3) letters of reference from professionals or professors who can adequately evaluate the applicant and the applicant's previous work of potential for success.

At the request of the JPON admission committee, successfully complete a personal interview with a faculty member who assesses research interests and motivation for successful completion of doctoral study in the JPON program.
the Students wishing to transfer into the admission criteria, international students must demonstrate a Language
Research methods, designs, and statistics: requ1rmen·s: The JPDN is a post master's degree, requiring 72 semester credit hours
For progression and graduation, students must meet the following degree • culminate into the
cumulative for the Doctoral Dissertation. • All stu·dents in the JPDN Program are required to successfully complete a qual·ifying examination before proceeding to conduct dissertation research. To be eligi­ble for candidacy for the dissertation, students must have completed 42 hours of
courses, have maintained a minimum GPA of 3.0 on a 4.0 scale in the doctoral program, have successfully completed the qualifying examination, and have been approved by the appropriate administrative bodies of the pro·gram.

Dissertation Prospectus. The dissertation prospectus is a written document that includes an outline of the parameters of the projected dissertation topic with a rationale and statement of the problem to be researched, the methodology and design of the study, a preliminary review of the literature substantiating the need for the study, and the principle sources of information for the dissertation. Approval of the prospectus permits the student to proceed with the thes·sis.

Dissertation. The dissertation is based upon original investigation and demonstration of mature scholarship and critical judgment in the theoretical and methodological approaches to develop·ment of nursing knowledge. The dissertation is expected to be the first step in the development of a program of research and scholarly activity. A minimum of 20 dissertation credit hours are required.

Oral defense. When the dissertation is completed a meeting will be scheduled for the student’s defense of the dissertation. The candidate is expected to respond to substantive and methodological questions related to the dissertation.

Dissertation committee. A five person doctoral dissertation committee will guide and approve the acceptability of the dissertation. The chair must be a member of the JPDN faculty, as must be two committee members. The remaining member must be selected from outside the program. Other qualifica·tions of members will be consistent with the student’s area of research and with the requirements for doctoral committees as stated in the policies and general catalogs of both universities.

## MASTER OF SCIENCE IN NURSING

Accreditation

The master’s degree programs are fully accredited by the National League for Nursing Accreditation Commission (NLNAC). NLNAC is a resource of information regarding tuition, fees, and length of program and can be contacted at 350 Hudson Street, New York, New York 10014, 1-866-688-9658 extension 153.

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 NLNAC-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.
The Master of Science in Nursing curriculum includes a minimum of 36 credit hours of study, including a thesis or for roles as administrators or educators. The curriculum is based on advanced theory, research, computers in nursing, health, and adolescent health nursing, and nurse anesthesia. Graduates are prepared for advanced practice as clinical nurse specialists, nurse practitioners, or nurse anesthetists, or for roles as administrators or educators. The curriculum is based on theory and research in both 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 45 credit hours of study and focuses on the master's preparation of certified registered nurse anesthetists (CRNA).

**Nursing Core**

The curriculum consists of a core of 17 credit hours. These courses encompass advanced theory, research, computers in nursing, health policy, and pathophysiological concepts.

**Nursing Research**

All students enroll in a research core for a total of 7 credits: 8200:500 Nursing Inquiry I and 8200:599 Master's Thesis or 8200:618 Nursing Inquiry II.

**Advanced Practice Roles**

Options are provided for advanced practice as clinical nurse specialist, nurse practitioner, or nurse anesthetist, or for advanced roles as an administrator or educator.

The graduate nursing curriculum requires between 36 and 45 credits, depending on the Advanced Practice option or role selected by the student.

Core courses required of all students:

<table>
<thead>
<tr>
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</tr>
<tr>
<td>8200:609</td>
<td>Theoretical Basis for Nursing</td>
<td>3</td>
</tr>
<tr>
<td>8200:655</td>
<td>Computer Applications in Nursing</td>
<td>2</td>
</tr>
<tr>
<td>8200:667</td>
<td>Policy Issues in Nursing</td>
<td>2</td>
</tr>
<tr>
<td>8200:613</td>
<td>Nursing Inquiry I</td>
<td>3</td>
</tr>
<tr>
<td>8200:618</td>
<td>Nursing Inquiry II</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>or</td>
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<tr>
<td>8200:619</td>
<td>Master's Thesis</td>
<td>1</td>
</tr>
</tbody>
</table>

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

**Nurse Anesthesia**

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

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
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<td>3100:361</td>
<td>Human Physiology I</td>
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</tr>
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<td>Human Physiology II</td>
<td>3</td>
</tr>
<tr>
<td>8200:641</td>
<td>Scientific Components of Nursing Anesthesia</td>
<td>3</td>
</tr>
<tr>
<td>8200:644</td>
<td>Pharmacology for Nurse Anesthesia I</td>
<td>3</td>
</tr>
<tr>
<td>8200:642</td>
<td>Introduction to Nurse Anesthesia</td>
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**CRNA/MSN Anesthesia Option**

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<td>8200:640</td>
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</tr>
<tr>
<td>8200:642</td>
<td>Introduction to Nurse Anesthesia</td>
<td>1</td>
</tr>
<tr>
<td>8200:643</td>
<td>Principles of Anesthesia I</td>
<td>4</td>
</tr>
<tr>
<td>8200:644</td>
<td>Pharmacology for Nurse Anesthesia II</td>
<td>2</td>
</tr>
<tr>
<td>8200:645</td>
<td>Principles of Anesthesia II</td>
<td>4</td>
</tr>
<tr>
<td>8200:646</td>
<td>Professional Role Seminar</td>
<td>2</td>
</tr>
<tr>
<td>8200:647</td>
<td>Anesthesia Residency IV</td>
<td>4</td>
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**Child and Adolescent Health (40 credits and meets eligibility requirement for certification)**

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</tr>
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</tr>
<tr>
<td>8200:655</td>
<td>Child and Adolescent Health Nursing II</td>
<td>6</td>
</tr>
<tr>
<td>8200:656</td>
<td>Child and Adolescent Health Nursing III</td>
<td>7</td>
</tr>
<tr>
<td>8200:657</td>
<td>Child and Adolescent Health Nursing IV</td>
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</table>

**Behavioral Health Nursing**

Behavioral Health Nurse Practitioner Track (44 credits and meets eligibility requirements for certification).

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<tbody>
<tr>
<td>8200:671</td>
<td>Adult/Behavioral Health Nursing CNS I</td>
<td>3</td>
</tr>
<tr>
<td>8200:675</td>
<td>Adult and Behavioral Health Counseling</td>
<td>2</td>
</tr>
<tr>
<td>8200:677</td>
<td>Adult and Gerontological Health Nursing</td>
<td>3</td>
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<tr>
<td>8200:679</td>
<td>Practicum; Adult and Gerontological Health Nursing</td>
<td>3</td>
</tr>
<tr>
<td>8200:681</td>
<td>Advanced Clinical Practice Seminar</td>
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**Adul t Gerontological Health Nurse Practitioner Track (43 credits and meets eligibility requirement for certification)**

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<td>8200:681</td>
<td>Clinical Practice Seminar</td>
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**Education**

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<tbody>
<tr>
<td>8200:682</td>
<td>Nursing Curriculum Development</td>
<td>3</td>
</tr>
<tr>
<td>8200:683</td>
<td>Evaluation in Nursing Education</td>
<td>3</td>
</tr>
<tr>
<td>8200:684</td>
<td>Practicum: The Academic Role of the Nurse Educator</td>
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**Admissions**

- **Applicants** for admission must satisfy the following criteria:
  - Three (3) letters of reference from a recent employer, a member of the nursing profession, or former faculty member.
  - 300-word essay describing professional goal.
  - Interview prior to admission to the program.
  - Current state of Ohio license to practice nursing and evidence of malpractice insurance.
  - Prerequisite course requirements: Undergraduate Statistics, Nursing Research, Basic Health Assessment and Computer Skills, Graduate Level Statistics.

A one year experience in an area where critical care and emergencies occur is required for all students admitted to the 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 Coordinator 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 Coordinator of the Program regarding the applicant’s status. The Coordinator will send a recommendation to the Dean of the Graduate School, which 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 admission process.

**Institutional Program**

The Master of Science in Nursing curriculum includes a minimum of 36 credit hours of study depending on the specialty track. The advanced practice tracks include Adult/Gerontological Health Nursing, Behavioral Health Nursing, and Nurse Anesthesia.

**Nursing Research**

All students enroll in a research core for a total of 7 credits: 8200:609 Master's Thesis or 8200:618 Nursing Inquiry II.

**Advanced Practice Roles**

Options are provided for advanced practice as clinical nurse specialist, nurse practitioner, or nurse anesthetist, or for advanced roles as an administrator or educator.

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**Behavioral Health Nursing**

Behavioral Health Nurse Practitioner Track (44 credits and meets eligibility requirements for certification). Requirements for full admission include one year of nursing experience in the mental health setting, graduate statistics, basic health assessment.

**Admission Policies**

The R.M.-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 400-654, quantitative 400-696, and analytical 400-640.
• 300-word essay describing professional goals.
• Interview with selected faculty members.
• 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 48 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.

• Core courses:

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<tbody>
<tr>
<td>8300:601</td>
<td>Public Health Concepts</td>
<td>3</td>
</tr>
<tr>
<td>8300:602</td>
<td>Social and Behavioral Sciences in Public Health</td>
<td>3</td>
</tr>
<tr>
<td>8300:603</td>
<td>Epidemiology in Public Health</td>
<td>3</td>
</tr>
<tr>
<td>8300:604</td>
<td>Biostatistics in Public Health</td>
<td>3</td>
</tr>
<tr>
<td>8300:605</td>
<td>Health Services Administration in Public Health</td>
<td>3</td>
</tr>
<tr>
<td>8300:606</td>
<td>Environmental Health Sciences in Public Health</td>
<td>3</td>
</tr>
<tr>
<td>8300:697</td>
<td>Capstone Project</td>
<td>3</td>
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<tr>
<td></td>
<td>Electives</td>
<td>15-18</td>
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<tr>
<td></td>
<td>Total</td>
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A "grant" project, capstone project, portfolio, and exit presentation is required of each student.

Admission

Applications are sent to Northeastern Ohio Universities Master of Public Health, Division of Community Health Sciences, Northeastern Ohio Universities College of Medicine, 4209 State Route, PO. Box 95, Rootstown, Ohio 44272.

Students must meet the following admission requirements:
• submit completed application by the required date
• possess a bachelor's degree from an accredited college or university
• provide official transcripts from each institution of higher education attended
• a minimum undergraduate GPA of 2.75
• three letters of recommendation from individuals familiar with applicant's academic or professional background, submitted to: NEOUMPH Admissions Committee, Division of Community Health Sciences, NEOUCOM, 4209 State Route, PO. Box 95, Rootstown, Ohio 44272-0005. Letters should include assessments of the applicant's work quality and estimation of her/his ability to succeed in the program.
• successful completion of a college-level mathematics or statistic course and a college-level social or natural science course
• acceptable GRE taken within the last five years (may be waived if applicant has a professional degree [master's or doctoral] in a relevant area)
• international candidates for whom English was not the language of instruction must achieve a minimum score of 550 on the TOEFL
• two years work experience in a relevant field is highly recommended
• cover letter (maximum two pages) explaining candidate's educational and professional history, area of interest in public health, interest and motivation for seeking the MPH, and professional or academic career plans upon completion of the program
• $35 non-refundable application fee

Math Program

The MPH program contains five core areas basic to public health: biostatistics, epidemiology, environmental health sciences, health services administration, and social and behavioral sciences.

• Core courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8300:601</td>
<td>Public Health Concepts</td>
<td>3</td>
</tr>
<tr>
<td>8300:602</td>
<td>Social and Behavioral Sciences in Public Health</td>
<td>3</td>
</tr>
<tr>
<td>8300:603</td>
<td>Epidemiology in Public Health</td>
<td>3</td>
</tr>
<tr>
<td>8300:604</td>
<td>Biostatistics in Public Health</td>
<td>3</td>
</tr>
<tr>
<td>8300:605</td>
<td>Health Services Administration in Public Health</td>
<td>3</td>
</tr>
<tr>
<td>8300:606</td>
<td>Environmental Health Sciences in Public Health</td>
<td>3</td>
</tr>
<tr>
<td>8300:697</td>
<td>Capstone Project</td>
<td>3</td>
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<td></td>
<td>Electives</td>
<td>15-18</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>39</td>
</tr>
</tbody>
</table>

Admitted students are assigned an "enrollment university" based on preference. Questions may be directed in writing to the above address or applicants may contact the Program Director by telephone (330) 325-6173, fax (330) 325-5907, or e-mail at mbeal@neo.com. The Program Co-Director in The University of Akron campus may be reached at (330) 972-6209.
College of Polymer Science and Polymer Engineering

Frank N. Kelley, Ph.D., Dean
Ernst D. von Meervall, Ph.D., Associate Dean

HISTORY
The University of Akron has been a focus for education 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. during World War II. An Institute of Rubber Research under the direction of Prof. Morton was created in 1956, which became an Institute of Polymer Science in 1964. A Ph.D. program in Polymer Chemistry was introduced in 1966. 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 1963 and a Department of Polymer Engineering in the College of Engineering in January 1964. With Professor James L. White as director and department chair to give thrust to polymer processing and engineering applications.

In 1968 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.

MISSION STATEMENT
The mission of the College of Polymer Science and Polymer Engineering is to serve its students through a high quality educational environment, incorporating both classroom and laboratory learning, as well as a stimulating research environment. Its graduates and former research associates provide a well-trained workforce for employers throughout the world, but especially for the State of Ohio. With the generation of new knowledge from research and the application of that knowledge, the College serves society with benefits to both the economy and the environment.

- The primary purpose of the College is to educate its students in the science and engineering of polymers since the College is involved, principally in graduate-level education. M.S. and Ph.D., its students are taught the skills of research by the faculty, as well as training in research and professional skills and responsibilities.

- The involvement of the College faculty, students and associated staff in research provides a further purpose, i.e., to develop new knowledge concerning polymeric materials and processes, and to disseminate that knowledge to the broader community of researchers, technologists, and manufacturers who employ that knowledge to their own ends.

- The College provides a variety of services through its institutes and centers to aid the economic and cultural development of our society. Individual faculty members provide services as consultants to industry, government, and civic institutions, concerning the developments in knowledge and applications of polymers.

- An additional function of the College is to provide training for those individuals who wish to improve their skills and knowledge concerning various types of polymers, their properties, processes and uses. Undergraduate students from other colleges within the University participate in specialized courses taught by the polymer faculty and they pursue their traditional degree programs. Also, a variety of non-credit offerings are presented as continuing education, intensive short courses, and seminars.

DESCRIPTION
The College of Polymer Science and Polymer Engineering carries out a program of research and education, primarily at the graduate level, and serves as a major intellectual resource for the scientific and technological development of polymers and related materials and processes. The college consists of the Department of Polymer Science, the Department of Polymer Engineering, the Maurice Morton Institute of Polymer Science and the Institute of Polymer Engineering.

The Department of Polymer Science and The Institute of Polymer Science emphasize polymer synthesis, the physical chemistry, physics and mechanical behavior and technology of polymers, and many of their applications. The Department of Polymer Engineering and the polymer Institute of Polymer Engineering, emphasize polymer processing (including reactive processing), solid state structure/morphology and properties of polymers as related to product history as well as engineering analy
### 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: 9871:601 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 Polymer Engineering

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

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 of Polymeric Fluids 3
  9841:622 Analytical and Design of Polymer Processing Operations I 3
  9841:623 Engineering Properties of Solid Polymers 2
  9841:641 Polymer Materials Engineering Science 2
  Total 12

- Polymer engineering elective:
  9841:601 Polymer Engineering Seminar 1
  9841:623 Analytical and Design of Polymer Processing Operations II 3
  9841:642 Engineering Aspects of Polymer Composites 2
  9841:651 Polymer Engineering Laboratory 3
  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
  9841:609 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.

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

The Department of Polymer Engineering administers a graduate program in which 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 chair and dean.

Students in Polymer Engineering will earn the degree of Doctor of Philosophy in Engineering. Requirements in the interdisciplinary field of Polymer Engineering for that degree are as follows:

- Successfully complete a qualifying examination within three semesters after admission into the program. The examination shall cover graduate courses that the student has completed in basic undergraduate topics.
- Develop a plan of study approved by the student's advisory committee.
- Complete courses in the plan of study developed by the student's advisory committee on the basis of the qualifying examination. A minimum of 96 credits of graduate work must be earned. A total of 48 credit hours of lecture courses and 48 credit hours of research must be completed. Twelve credit hours must be dissertation research.
- A student receiving a Master of Science degree from The University of Akron in Polymer Engineering may use all lecture course credits toward the 48 lecture course credit requirement.
- A student entering with a master's degree or graduate credits from another institution may be given up to 24 credit hours toward the lecture course requirement.
- All doctoral students must complete the Polymer Engineering core requirements for the Master of Science degree.
- Each candidate must pass a candidacy exam and must present his/her research proposal for approval by the advisory committee and taken after 90% of the course work specified in the plan of study has been completed. The candidacy exam may be based on the research proposal.
- Each candidate must pass an oral examination in defense of the dissertation.
Interdisciplinary and Certificate Programs of Study

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

Interdisciplinary Studies programs feature courses which integrate and analyze issues and concepts from more than one field. The goal of this type of study is to place knowledge into 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.

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 the program specifies that it is free-standing and does not require participation in a degree program.

ACUTE CARE NURSE PRACTITIONER - POST-MASTER'S
The Post-Master's Acute Care Nurse Practitioner certificate program prepares acute care nurses practitioners to provide advanced practice nursing care to acutely and/or critically ill adults. The program requires one calendar year of intense study including advanced clinical practice and theory. The program is built upon a core of advanced assessment, pathophysiology, and pharmacology. Acute Care Nurse Practitioners are prepared to conduct comprehensive physical assessments, appraise health risks and promote health behaviors, order and interpret diagnostic tests, diagnose and manage commonly occurring health problems and diseases. The program consists of 16 credits of graduate level course work and 525 hours of clinical practice.

Admission Criteria
Hold an MSN degree from a professionally accredited nursing program.
Minimum of a 3.0 GPA on a 4.0 scale for the master's degree program.
Recent acute/critical care experience (within the past three years).
A 300 word essay describing professional goals.
Completion of the following prerequisite courses; graduate level pharmacology, pathophysiology, and advanced assessment.
Completion of an interview with the selection committee.

Advanced Cardiac Life Support (ACLS) Certification.

Program of Study

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8200:691</td>
<td>Acute Care Nurse Practitioner I</td>
<td>4</td>
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<tr>
<td>8200:692</td>
<td>Clinical Management I</td>
<td>3</td>
</tr>
<tr>
<td>8200:693</td>
<td>Acute Care Nurse Practitioner II</td>
<td>4</td>
</tr>
<tr>
<td>8200:695</td>
<td>Acute Care Nurse Practitioner III</td>
<td>4</td>
</tr>
<tr>
<td>8200:696</td>
<td>Clinical Reasoning</td>
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</tbody>
</table>

ADDITIONAL COUNSELING
John J. Zarski, Ph.D., Department Chair

This certificate program represents specialty training in addiction counseling. The curriculum emphasizes the empirical foundations for theory, assessment, treatment planning and intervention with addictive disorders. Each student will complete an internship and participate in addiction research. This program will be of special interest to graduate students, and graduate degree professionals in counseling or related behavioral sciences such as psychology, social work, and nursing.

Admission
Persons are eligible for admission to the Graduate Certificate Program in Addiction Counseling if they are currently enrolled in a master's degree program in counseling or a closely related field or currently hold a master's degree in counseling or a closely related field. To participate in the program the student should:
- Be formally admitted to The University of Akron as a degree seeking or a special non-degree graduate student.

- Make written application to the program to the Counselor Education Admissions Committee in the Department of Counseling and Special Education.
- Receive written notification for admission from the Counselor Education Admissions Committee.
- Consult with the Counselor Education Internship Coordinator to plan for an internship in an appropriate addictions counseling setting.

Requirements

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>3700:569</td>
<td>Addiction Counseling I: Theory and Practice</td>
<td>3</td>
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<tr>
<td>3700:570</td>
<td>Addiction Counseling II: Assessment and Treatment Planning</td>
<td>3</td>
</tr>
<tr>
<td>3700:571</td>
<td>Addiction Counseling III: Models and Strategies of Treatment</td>
<td>3</td>
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<tr>
<td>3700:665</td>
<td>Internship in Counseling</td>
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<tr>
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<td>Total Credit Hours</td>
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</tbody>
</table>

ADULT/GERONTOLOGICAL NURSE PRACTITIONER - POST-MSN

The Post-MSN certificate program is designed to prepare Adult/Gerontological Clinical Nurse Specialists to complete additional course work required to sit for Nurse Practitioner certification. The Post-MSN Adult/Gerontological Nurse Practitioner Certification Program prepares graduates to assume advanced practice positions as providers of primary healthcare to adults and older adults.

Admission Criteria
Ohio RN licensure.
Hold an MSN degree from a professionally accredited nursing program (clinical master's preferred).
Have a minimum GPA of 3.0 on a 4.0 scale for MSN program.
Minimum of 2-3 years recent clinical experience in adult or gerontological health care.
Complete an application to The University of Akron Graduate School.
Submit an essay describing professional goals.
Submit a resume outlining prior education and work related experiences.
Complete the following prerequisite courses: graduate level pathophysiology, advanced assessment, advanced clinical pharmacology.
Completion of an interview with the selection committee.

Program of Study

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
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<td>Adult/MSN NP Adult/Gerontological Practitioner I</td>
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<tr>
<td>1200:625</td>
<td>Adult/MSN NP Adult/Gerontological Practitioner II</td>
<td>3</td>
</tr>
<tr>
<td>1200:626</td>
<td>Adult/MSN NP Adult/Gerontological Practitioner III</td>
<td>3</td>
</tr>
<tr>
<td>1200:690</td>
<td>Clinical Management I</td>
<td>3</td>
</tr>
<tr>
<td>1200:692</td>
<td>Clinical Management II</td>
<td>3</td>
</tr>
<tr>
<td>1200:694</td>
<td>Clinical Management III</td>
<td>3</td>
</tr>
<tr>
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</tr>
</tbody>
</table>

APPLIED POLITICS

John C. Green, Ph.D., Director

The Ray 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 course work 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, political parties, 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
- 3700:571 Campaign Management II
- 3700:672 Seminar: Political Influence and Organizations
- 3700:695 Internship in Government and Politics
The Post-MSN Admission Certificate Core: Communication 540, or designed for those nurses who hold the Master's degree in Psychiatric Mental Health Nursing and are seeking preparation for the role of the psychiatric nurse practitioner. The program consists of four courses for a total of 12 credits. Students must successfully complete six credits of coursework selected from the various departmental courses listed below.

### CHILD AND ADOLESCENT HEALTH NURSE PRACTITIONER - POST-MSN

#### Requirements

The Post-MSN Child and Adolescent Health Nurse Practitioner certificate program is designed for those nurses who hold the Master of Science in Nursing degree and are seeking preparation for the role of the pediatric nurse practitioner. Upon completion of the 17 credit hour program, the students are eligible to sit for the pediatric nurse practitioner certification examination.

#### Admission

Admission criteria include the following:

- Hold an MSN degree from a professionally accredited nursing program.
- Minimum of a 3.0 GPA on a 4.0 scale for the master's degree program.
- A minimum of one year of clinical experience in a pediatric setting.
- Complete an interview with the program coordinator.
- Completion of the following prerequisite courses: Pathophysiological Concepts, Advanced Pediatric/Adelescent Assessment, Nutrition.

#### Program

The program consists of four courses for a total of 17 credits. Students are required to complete a minimum of 600 clinical practice hours in conjunction with the Child and Adolescent Health Nursing courses.

### Electives:

Students must successfully complete six credits of coursework selected from the various departmental courses listed below.

- **Family and Consumer Sciences**
  - 7400:501 Family Life Patterns in the Economically Dependent Home 2
  - 7400:504 Adolescence in the Family Context 3
  - 7400:550 Family Crisis 3
  - 7400:565 Culture, Ethnicity and the Family 3
  - 7400:602 Family in Life Span Perspective 3
  - 7400:607 Family Dynamics 3
  - 7400:610 Child Development Theories 3
  - 7400:651 Family and Consumer Law 3
  - 7400:665 Development in Infancy and Early Childhood 3
- **Home-Based Intervention**
  - 1620:503 Home-Based Intervention Theory 3
  - 1620:504 Home-Based Intervention Techniques and Practice 3

### COMPOSITION

#### 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.

#### Electives:

Students must successfully complete six credits of coursework selected from the various departmental courses listed below.

- **Family and Consumer Sciences**
  - 7400:501 Family Life Patterns in the Economically Dependent Home 2
  - 7400:504 Adolescence in the Family Context 3
  - 7400:550 Family Crisis 3
  - 7400:565 Culture, Ethnicity and the Family 3
  - 7400:602 Family in Life Span Perspective 3
  - 7400:607 Family Dynamics 3
  - 7400:610 Child Development Theories 3
  - 7400:651 Family and Consumer Law 3
  - 7400:665 Development in Infancy and Early Childhood 3

#### Optional Courses:

- 3300:570 History of English Language 3
- 3300:571 U.S. Dialects: Black and White 3
- 3300:583 Seminar in English: Grammatical Structures of Modern English 3
- 3300:575 Theory of Rhetoric 2
- 3300:589 Seminar in English: Sociolinguistic 3
- 3300:670 Modern Linguistics 3
- 3300:689 Seminar in English: Stylistics 3
- 3300:699 Seminar in English: Contextual Linguistics 3
**DIVORCE MEDIATION**

Helen Clemshaw, 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 Juris Doctor at the University may participate in the certificate program as a cognate or minor. In this case, students must receive permission from their academic department as well as admission from the Center for Family Studies. Since the educational preparation prior to entry to this program will be quite diverse, the selection of courses within the certificate will vary among the participants. However, all students are expected to complete the core courses in addition to 10 credit hours selected from among several disciplines related to divorce mediation.

**Core:**

1800:601 Divorce Mediation 3
1800:602 Divorce Mediation Practicum 2

Select at least one from each area:

- **Law**
  9200:638 Family Law 3
  7400:651 Family Consumer Law 3

- **Accounting**
  6200:601 Financial Accounting 3
  5100:621 Accounting for Lawyers 3

- **Family**
  5600:655 Marriage and Family Therapy Theory and Techniques 3
  5600:667 Mental 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
- 5600:659 Systems Theory in Family Therapy 3
- 7430:540 Family Crisis 3
- 7430:590 Family and Divorce 2
- 7430:602 Family in Life Span Perspective 2
- 9200:684 Alternate Dispute Resolution 3

**E-BUSINESS**

B. S. Vijayaraman, Ph.D., Director

A new model for business (e-Business) is taking shape that is built on the world’s largest communications network, the Internet. The Internet has opened up new possibilities for organizing and running a business and is changing the way businesses transact goods and services. The Internet creates a global platform for buying and selling goods and is used for redesigning business processes within organizations. As businesses invest in the commercialization of the InternetWWW, there is an enormous need from a variety of fronts to understand the implications for strategic initiatives, marketing and advertising, financial markets, information systems strategy, human resource management, supply chain management and legal issues. A certificate program in e-Business is designed for students to learn how organizations can use Internet technology to create new business opportunities and how they can transform an existing business into an e-Business.

Persons are eligible for admission to the graduate certificate program in e-Business if they have been admitted to Graduate School at The University of Akron.

**Required Courses:**

6500:620 E-Business Foundations 3
6500:622 E-Business Technologies 3
6400:695 E-Business: Legal Issues 3
6200:658 E-Business: Electronic Commerce 3
6500:629 E-Business Project 2

**ENVIRONMENTAL STUDIES**

Ira D. Sasowsky, Ph.D., Director

**Program**

This graduate certificate program is designed for environmental professionals who wish to broaden their background or update their skills. In order to satisfy the course prerequisites, it is recommended that students have an undergraduate degree in one of the natural sciences, engineering, or a strong background in mathematics and science.

**Admission**

To participate in the program the student should:
- Be formally admitted to The University of Akron as a graduate or non-degree graduate student.
- Make a written application to the program and receive written notification of admission from the Center for Environmental Studies.

**Requirements**

A plan of study will be developed in consultation with the director of the Center for Environmental Studies. Students must complete the core requirement and a minimum of 14 credits from the list of electives or other courses approved by the director. Electives must be selected from a minimum of three different departments.

**Core (required):**

3010:501 Seminar in Environmental Studies 2

**Electives (minimum of 14 credits):**

- 3010:501 Seminar in Environmental Studies 2
- 3010:590 Workshop in Environmental Studies 1.4
- 3010:602 Evaluation of Environmental Data 3
- 3100:521 Tropical Field Ecology 4
- 3100:525 Wetland Ecology 4
- 3100:660 Environmental Physiology 4
- 3350:505 Geographic Information Systems 3
- 3350:507 Advanced Geographic Information Systems 3
- 3350:541 Remote Sensing 3
- 3350:549 Advanced Remote Sensing 3
- 3350:595 Soil and Water Field Studies 3
- 3370:570 Geophysics 3
- 3370:574 Groundwater Hydrology 3
- 3370:581 Geologic Record of Past Global Change 3
- 3370:584 Advanced Groundwater Hydrology 3
- 3370:679 Urban Geology 3
- 3400:571 American Environmental History 3
- 3470:561 Applied Statistics I 4
- 3700:512 Global Environmental Politics 3
- 3850:536 Population 3
- 4200:593 Pollution Control 3
- 4200:750 Advanced Pollution Control 3
- 4301:523 Chemistry for Environmental Engineers 3
- 4301:526 Environmental Engineering Design 3
- 4301:537 Water Quality Modeling and Management 3
- 4301:582 Hazardous and Solid Waste 3
- 4302:620 Sanitary Engineering Problems 2
- 4302:621 Environmental Engineering Principles 4
- 4303:631 Soil Remediation 3
- 4340:731 Bioremediation 3
- 9200:681 Environmental Law 3

**GERONTOLOGY**

Harvey Sterns, Ph.D., Director
Isadore Newman, Ph.D., Associate Director
Terry H. Albanese, Ph.D., Program Coordinator
Gerontology Certificate Program; Practicum Coordinator
Jeremy Kaplan, Ph.D., Program Coordinator; Nursing Home Administrator Program

**Requirements**

This certificate program is a special course of study in gerontology that complements graduate degree programs in various departments and colleges throughout the University. The graduate certificate is to be received with either a Master's or Doctoral degree. Individuals who already hold a graduate degree 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 for Life-Span Development and Gerontology will oversee this certificate program and certify through the director of the Institute, that all requirements for the certificate have been completed. B.S., M.D. students may complete Practice/Internship and electives from courses available from the Institute or the Office of Geriatric Medicine and Gerontology, NEOUCOM.

Admission
To participate in the program at the graduate level, a student must:
- Obtain admittance to The University of Akron Graduate School.
- Submit an application to the program countersigned by the student’s major academic advisor.
- Participate in an interview with the Director or a designated faculty member of the Institute for Life-Span Development and Gerontology.
- Consult with the director or a designated faculty member to formulate a program of study.
- Receive written notification for admission from the director of the Institute for Life-Span Development and Gerontology.

Program
Minimum: 18 credits.
Core:
6600:580 Interdisciplinary Seminar in Life-Span Development and Gerontology 3
6600:695 Practice/Internship 3
6500:656 Research Methods Course 3
Electives:**
6500:660 Retirement Specialist 2
6300:520 Workshop - Women: Middle and Later Years 2
6300:530 Workshop - Aging, Process and Intervention 2
3705:560 Policy Problems: Aging** 3
3705:620 Psychobiological Care of Developmental, Perceptual, Cognitive 4
3705:727 Psychodynamics of Adulthood and Ageing 4
3850:678 Social Gerontology 3
3850:681 Ethics Cultural Perspectives in Aging 3
5400:541 Educational Gerontology Seminar 3
5400:601 Current Issues in Higher Education, Life-Span and Community Education 2
6500:683 Health Services, Systems Management (with permission) 3
7400:603 Family Relationships in Middle and Later Years 3
7400:550 Social Needs and Services for Older 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

GLOBAL SALES MANAGEMENT
Scott Widmer, Ph.D., Coordinator

Program
The Global Sales Management Certificate is a special course of study which prepares an individual for a career in managing a global sales force. The program takes into account the complexities of culture as far as doing business in foreign countries.

Admission
To participate in the program, the student must be formally admitted to The University of Akron as a graduate or non-degree graduate student, and complete at least 15 credits. Students should visit the Director of Graduate Studies in Business Administration to request that notation of the certificate be included on the student’s transcript as soon as the course of study is completed.

Requirements (complete all 0 credits):
6600:580 Sales Management 3
6900:585 Global Sales Strategy 3
Electives (complete at least 9 credits):
3250:561 Principles of International Economics 3
3250:671 International Trade 3
6500:600 Management and Organizational Behavior 3
6500:652 Organizational Behavior 3
6500:656 Management of International Operations 3
6600:600 Marketing Concepts 3
6600:650 Consumer Behavior 3
6800:605 International Business Environments 3
6800:630 International Marketing Policies 3
7000:645 Inter cultural Communication Theory 3

HIGHER EDUCATION
Dianne Brown-Wright, Ph.D., Coordinator

Requirements*
This certificate program in higher education is not contingent upon completion of a degree program. Undergraduate certificate programs are not available to students who already hold a graduate degree. Specific requirements for this certificate program include:

- Coursework in the fields of administration, student services, curriculum, and instruction, as well as a higher education teaching internship in conjunction with the student’s major academic advisor and the center staff are required. Internships may be completed at the University at one or at several cooperating institutions.
- Total hours required: 18.

Required:
5190:515 Administration in Higher Education (A) 3
5190:526 Advanced Seminar in Higher Education 3
5190:567 Organization and Policy Development in Higher Education (B) 3

Student Services in Higher Education (II)
5190:525 Student Services in Higher Education (A) 3
5190:526 Student Services in Higher Education (B) 3
5190:527 The American College Student (B) 3

Program Planning, Curriculum and Instruction in Higher Education (III)
5190:569 Higher Education Curriculum and Program Planning (A) 3
5190:605 Instructional Strategies and Techniques for the College Instructor (B) 3

Total hours required: 18.

*The award 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 Cleminslaw, 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 postbaccalaureate program. Students who already hold a graduate degree may be admitted to the program as non-degree graduate students. Students pursuing graduate degrees, however, will receive their graduate certificate upon completion of the required courses 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.
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 advisor (if applicable).
- Have an interview with the Director of the Certificate Programs in Home-Based Intervention.
- Receive written notification for admission from the Director of the Certificate Programs in Home-Based Intervention.
- Consult with the Director of the Certificate Programs in Home-Based Intervention to formulate a program of study.

All students enrolled in the home-based certificate programs will enroll in the core course in Home-Based Intervention. Students enrolled in the undergraduate and 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 core 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:

- 1800:503 Home-Based Intervention Theory 3
- 1800:504 Home-Based Intervention Techniques and Practice 3
- 1800:505 Home-Based Intervention Internship 3-5

Eligibility Courses:

- Systems Theory
  - 3800:620 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
  - 3800:512 Socialization: Child to Adult 3
  - 7400:620 Family Life Span Perspective 3
  - 7400:625 Developmental Parent-Child Interactions 3
  - 7400:610 Child Development Theories 3
- Therapeutic Theory
  - 5600:651 Techniques in Counseling 3
  - 4000:667 Mental Therapy 3
  - 5600:669 System Theory in Family Therapy 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
  - 3770:704 Theories of Personality 3
- Sociology
  - 3850:550 Sociology of Mental Illness 3
  - 3850:688 Human Ecology 3
  - 3850:753 Family and Health (Special Topics) 1-3
- Counseling
  - 5600:590 Counseling Problems Related to Life-Threatening Illness and Death 3
  - 5600:620 Issues in Sexuality for Counselors 2
- Special Education
  - 5610:540 Developmental Characteristics of Exceptional Individuals 3
  - 5610:650 Family Dynamics and Communication in the Educational Process 3
  - 5610:604 Collaboration and Consultation Skills for Special Educators 3
- Multicultural Education (Curricular and Instructional Studies)
  - 1500:471 Characteristics of Culturally Diverse Populations 3

- Family and Consumer Sciences
  - 4000:501 Family-Life Patterns in the Economically Deprived Homes 2
  - 4000:504 Adolescence in the Family Context 3
  - 4000:506 Family Financial Management 3
  - 4000:540 Family Crisis 3
  - 4000:542 Human Sexuality 3
  - 4000:546 Culture, Ethnicity, and the Family 3
  - 4000:550 Workshop in Family and Consumer Sciences: Family and Divorce 2
  - 4000:590 Parent Education 3

- Social Work
  - 7750:510 Minority Issues in Social Work Practice 3
  - 7750:52 Social Work and Mental Health 3
  - 7750:54 Social Work in Juvenile Justice 3

MANAGEMENT OF TECHNOLOGY

R. Ray Gehani, D.Eng., Ph.D., Director

In an increasingly global economy that is integrated with technology, an effective and efficient management of technology driven enterprises has emerged as a strategic requirement for their survival and growth. A certificate program in Management of Technology cooperatively developed by the College of Business Administration and the College of Polymer Science and Polymer Engineering is the expectation and strong requirement of potential employers and members of the Advancement Councils for the two colleges. The College of Business Administration, in consultation with the College of Polymer Science and Polymer Engineering, has therefore developed a graduate certificate in Management of Technology. The Graduate Certificate Program in Management of Technology offers course work in Management of Technology and other related business disciplines. The Certificate will prepare the learner from the College of Polymer Science and Polymer Engineering to effectively and efficiently manage a polymer technology driven enterprise, and run the technology function of other manufacturing and service enterprises.

Persons are eligible for admission to the Graduate Certificate Program in Management of Technology if they have been admitted to a master's degree program in the College of Polymer Science and Polymer Engineering.

Required Courses:

- 6500:661 Management of Technology 3
- 6600:630 Marketing Concepts 3
- 6200:601 Financial Accounting 3

Recommended Electives:

From these courses, select six credits for which you have the proper prerequisites.

- 6600:600 Management and Organizational Behavior 3
- 6600:656 Management of International Operations 3
- 6600:650 Fundamentals of Human Resource Administration 3
- 6200:602 Entrepreneurship 3
- 6600:622 Computer Techniques for Management 2
- 6600:675 Business Negotiation 3
- 5610:622 Management Finance 3
- 6200:610 Process Analysis and Cost Management 3
- 6600:540 Product and Brand Management 3

MID-CAREERS PROGRAM IN URBAN STUDIES

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 the 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
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
Public Administration
3960:611 Introduction to the Profession of Public Administration 3
3960:640 Fiscal Analysis 3
3960:643 Introduction to Public Policy Electives 4
Urban Research Methods
3980:670 Research for Futures Planning 3
3980:673 Computer Applications in Public Organizations Electives 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 Electives 4
Urban Studies
3980:602 History of Urban Development 3
3980:601 Electives 3

PARENT AND FAMILY EDUCATION

Helen K. Clemminshaw, Ph.D., Coordinator

Program
This certificate program is a special course of study which can be added to any graduate degree program. It may also be completed by a non-degree graduate student with special permission from the director of the Center for Family Studies. This certificate represents a concentration in theoretical and practical knowledge in parent and family education for community-based services. This course of study promotes collaboration among disciplines and services.

Admission
To participate in the program the student should:
Be formally admitted to The University of Akron as a postbaccalaureate, graduate or non-degree graduate student.
Make written application to the program and receive written notification of admission from The Center for Family Studies.

Requirements
Core:
Students must successfully complete all three of the core courses listed below. However, the first two courses plus three hours of electives must be completed prior to the student’s enrollment in the practicum course.

3400:596 Parent Education 3
3400:605 Developmental Parent-Child Interactions 3
3400:594 Practicum in Parent and Family Education 3

Electives:
Students must successfully complete six credits of coursework selected from among the various departmental courses listed below. These credits shall be chosen from departments outside the student’s discipline.

• Family and Consumer Sciences
3400:505 Family-Life Patterns in the Economically Deprived Home 2
3400:554 Adolescence in the Family Context 3
3400:540 Family Crisis 3
3400:546 Culture, Ethnicity and the Family 3
3400:602 Family in LifeSpan Perspective 3
3400:607 Family Dynamics 3
3400:610 Child Development Theories 3
3400:651 Family and Consumer Law 3
3400:655 Development in Infancy and Early Childhood 3

• Social Work
7750:555 The Black Family 3
7750:666 Social Work Practice: Family and Children 3

• Nursing
8200:651 Child and Adolescent Health Nursing I 5

• Psychology
3750:530 Psychological Disorders of Children 4
3750:776 Child Psychology 4
2792:731 Psychology of Learning Disabilities 4

• Sociology
3850:512 Socialization Child to Adult 3
3850:677 Family Analysis 3

• Educational Foundations
5100:648 Individual and Family Development Across the Lifespan 3
5100:721 Learning Processes 3

• Educational Guidance and Counseling
5600:648 Multicultural Counseling 3
5600:649 Individual and Family Development Across the Lifespan 3
5600:655 Marriage and Family Therapy: Theories and Techniques 3
5600:657 Marital Therapy 3
5600:656 Systems Theory in Family Therapy 3

• Special Education
5610:540 Developmental Characteristics of Exceptional Individuals 3
5610:559 Communication and Consultation with Parents and Professionals 3

• Multicultural Education (Curricular and Instructional Studies)
5500:621 Characteristics of Culturally Diverse Populations 3

• Educational Administration
5170:604 School-Community Relations 3

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 graduate degree in other departments at the University. 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)
3250:533 Introduction to Economics 3
3250:560 Introduction to Political Science 3

• Political Science (choose one)
3700:541 Introduction to Political Science 3
3700:542 Methods of Policy Analysis 3
3700:686 Seminar in Public Policy Agenda and Decision Processes 3
3700:670 Seminar in the Administrative Process 3

• Sociology (choose one)
3850:633 Introduction to Sociology 3
3850:678 Introduction to Social Science Research 3

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

Each student shall complete a scholarly paper dealing with public policy under the direction of a graduate faculty member in the departments of economics, political science or sociology. The student shall enroll for three credits in one of the following courses: 3250:657/689 Reading in Advanced Economics, 3700:697 Independent Research and Readings or 3850:697 Reading in Contemporary Sociological Literature. The student’s paper shall be evaluated by an interdisciplinary committee consisting of graduate faculty from at least two of the previously mentioned departments.

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

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

Administration of the Program

The departments of economics, political science and sociology shall each annually select a representative for a coordinating committee from among those members of the graduate faculty who have special knowledge or expertise in the area of public policy. The committee shall 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 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 total TOEFL score of at least 550.

Program

3330:573 Seminar in Teaching ESL: Theory and Method
3330:589 Seminar in English Grammar, Structures of English
5500:570 Multicultural Education in the U.S.
3380:599 Seminar in English: Sociolinguistics
5500:543 Techniques for Teaching ESL in the Bilingual Classroom

*The awarding of this certificate is 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.

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

TECHNICAL AND SKILLS TRAINING

Qetler Jensrud, Ph.D., Coordinator (e-mail: qetler@uakron.edu)

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 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 students 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 postbaccalaureate program. 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 postbaccalaureate program will enroll in the courses at the undergraduate level. Students admitted to the Graduate School at 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 advisor 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 advisor 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 postbaccalaureate certificate. Any course substitutions must be made with the advisor’s prior written approval. Students must maintain at least a 3.0 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, postbaccalaureate 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: 19 Credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5400:500</td>
<td>Postsecondary Learner</td>
<td>3</td>
</tr>
<tr>
<td>5400:501</td>
<td>Learning with Technology</td>
<td>1</td>
</tr>
<tr>
<td>5400:515</td>
<td>Training in Business and Industry</td>
<td>3</td>
</tr>
<tr>
<td>5400:530</td>
<td>Systematic Curriculum Design for Technical Instruction</td>
<td>3</td>
</tr>
<tr>
<td>5430:595</td>
<td>Instructional Techniques in Technical Education</td>
<td>3</td>
</tr>
<tr>
<td>5420:500</td>
<td>Internship in Technical Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:500</td>
<td>Introduction to Instructional Computing</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 3.0 GPA or better.

WOMEN’S STUDIES

For information, contact the Interdisciplinary Office, located in Deag Hall 201, (330) 972-9008

Building on an interdisciplinary foundation, the Women’s Studies Graduate Certificate Program allows students to examine the cultural practices that have largely excluded and devalued differences in gender, sexual orientation, ethnicity, race and class. This program is designed for graduate students interested in feminist research and/or pedagogy. Students take three core classes in Women’s Studies and pursue the electives in their area of concentration or a related field. This program requires a minimum of 14 credits to complete—between 5 and 7 of these credits are in required Women’s Studies classes; the remainder of the credits are taken in electives.

Admission

Hold a Bachelor’s Degree with a minimum 2.75 grade point average.

Requirements (required 5-7)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1840:580</td>
<td>Feminist Theory</td>
<td>3</td>
</tr>
<tr>
<td>1840:590</td>
<td>Workshop: Women's Studies Lecture Series</td>
<td>1</td>
</tr>
<tr>
<td>1840:593</td>
<td>Individual Studies on Women</td>
<td>10</td>
</tr>
</tbody>
</table>

Electives

Three classes selected from the Women’s Studies Coordinating Council-approved list of graduate level courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1840:585</td>
<td>Special Topics in Women's Studies: Women, Minorities and Media</td>
<td>3</td>
</tr>
<tr>
<td>1840:586</td>
<td>Special Topics in Women's Studies: Women, Poverty and Welfare</td>
<td>3</td>
</tr>
<tr>
<td>1840:589</td>
<td>Internship in Women's Studies</td>
<td>3</td>
</tr>
<tr>
<td>1840:599</td>
<td>Seminar in English: Twentieth Century Women Writers</td>
<td>3</td>
</tr>
<tr>
<td>3400:590</td>
<td>Women in Revolutionary China</td>
<td>3</td>
</tr>
<tr>
<td>3860:522</td>
<td>Sociology of Women</td>
<td>3</td>
</tr>
<tr>
<td>796:121</td>
<td>Special Topics in History of Art: Women in Art</td>
<td>3</td>
</tr>
<tr>
<td>7600:568</td>
<td>Women, Minorities and Media</td>
<td>3</td>
</tr>
<tr>
<td>7750:511</td>
<td>Women's Issues in Social Work Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

or other classes as approved by Women’s Studies graduate coordinator for the certificate.
Section 5

Research Centers and Institutes
Research Centers and Institutes

University Research Council:
Constance B. Bouchard, Ph.D., History
Roger B. Creel, Ph.D., Dean, Buchtel College of Arts and Sciences
Frank N. Kelley, Ph.D., Dean, College of Polymer Science and Polymer Engineering
S. Graham Kelly, Ph.D., Interim Dean, College of Engineering
Ted A. Malo, J.D., Vice President and General Counsel, Secretary, Board of Trustees
Isadore Newman, Ph.D., Education; Associate Director, Life-Span Development and Gerontology
Gerald M. Parker, M.A., Director, Research Services and Sponsored Programs; Secretary, ex officio
James L. White, Ph.D., Director, Institute of Polymer Engineering

The University Research Council is responsible for encouraging, supporting, and making recommendations pertaining to sponsored and contractual research carried out at the University in the interests of the faculty, students, and institutions. The council consists of the Interim Associate Provost, the Director of Research Services and Sponsored Programs, representatives of the Faculty Senate, various college deans and institute directors, and General Counsel. Sponsored research activities on campus are coordinated by the Interim Associate Provost and the Director of Research Services and Sponsored Programs.

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 interdisciplinaries 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. Additionally, in research and educational functions, the institute provides a research service to area hospitals and industry as well as to private and governmental agencies. The purpose for this program is that the combined resources of the University, Northeastern Ohio Universities College of Medicine and affiliated organizations can offer a more cost-effective solution than that 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 researchers selected from the faculties of The University of Akron and Northeastern Ohio Universities College of Medicine, as well as from the ranks of area physicians, engineers and scientists. The institute and the department occupy the third floor of the Olson Research Center on the north edge of the campus.

Center for Conflict Management
For information, contact the office, 201 Leigh Hall, (330) 972-6513.

The Center for Conflict Management provides students with the opportunity for an interdisciplinary program of study in resolving and managing conflicts in the areas of Business/Economics, Labor, Family/Community, and the international arena. 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 for Conflict Management in their area of specialization. The Center sponsors workshops for teachers, special campus programs, and research projects. It also collaborates with community organizations and similar programs on other campuses.

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 areas 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
Ira D. Sasowsky, Ph.D., Director

The Center for Environmental Studies matches the expertise of 95 affiliates in 33 disciplines with the needs of students seeking study and research opportunities in complex environmental issues. Since its founding in 1970, the center has sponsored, or in other ways supported, activities appropriate to the goal of attaining a quality environment for mankind.

The center coordinates special forums, workshops and seminars that address major issues. Examples include the National Energy Forum, the World Food Forum, and Evaluation of Environmental Data. Workshops on energy, natural history and environmental studies in England also emphasize the interdisciplinary approach to the resolution of issues.

Center for Family Business
Susan C. Hanlon, D.B.A., Director

The Center for Family Business provides seminars, conferences and round table groups to help business owners address problems unique to family enterprises. The Center seeks to increase the survival rate of family-owned businesses by focusing on the special challenges inherent in multigenerational family enterprises.

Center for Family Studies
Helen K. Clemensaw, Ph.D., Director

The Center for Family Studies, established in 1979, was designed to stimulate and encourage the interdisciplinary study of the family. It serves both the University and the community by fostering interaction 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, courts, churches, mental health, social and health care agencies. In addition, the Center has a fellows program in which outstanding faculty and community leaders are named as either fellows, adjunct fellows or senior fellows.

The Center offers certificates in the following specialty areas: Divorce Mediation and Home-Based Intervention. For more information, please refer to the descriptions of Interdisciplinary and Certificate Programs in this Bulletin or the General 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.

Center for Nursing
Elizabeth Kinion, Ed.D., R.N., 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 physicials, 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 Organizational Development
Mark Lewis, M.A., Director
The Center for Organizational Development in the College of Business Administration was established to meet the training and development needs of the business community. The Center offers management development seminars, conferences, and consulting services designed to enhance the skills of individuals and improve company productivity in a rapidly changing world. The Center specializes in offering dedicated supervisory training and management development programs that are custom-designed to meet the specific needs of companies.

Center for Policy Studies
Jesse F. Marquette, Ph.D., Director
The Center for Policy Studies is an associated center of the Institute for Health and Social Policy.

The Center houses the University of Akron survey research unit, with responsibility for external grant and contract research, research support for the Urban UniversityLinkage program, sponsored research for faculty, and internal University surveys. Geographic scope of work for center projects extends from local jurisdictions through state, national and international projects. Most of the work conducted at the center is on behalf of government or nonprofit agencies or grant-funded subcontracts for faculty researchers. Center professional staff are available for consultation in the development of grant proposals and budgets.

The Center has responsibility for the administration of the Board of Regents Urban University Program (UUP) which links eight state universities to collaborate on the identification of significant urban problems and propose solutions designed to improve the urban regions of Ohio. The University of Akron Urban University Program, in addition to the collaborative mission of the Ohio UUP, encourages community-oriented research and policy analysis through Partnership Grant Program.

The Center also houses a State Data Center under the aegis of the Ohio Department of Development to provide Census and other data to appropriate agencies and coordinate geographic information system activities with the Department of Geography and Planning.

Center for Urban Studies
Nancy K. Grant, 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.

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.

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 become involved in urban research or professional service activities in the urban community. For many graduates of the Center for Urban Studies, becoming an important complement to formal classroom training in their career participation.

English Language Institute
Debra Deane, Director
The English Language Institute (ELI), established in 1979, provides non-credit academic English as a Second Language (ESL) instruction to international students and non-native residents who plan to pursue an undergraduate or graduate degree at The University of Akron or another U.S. university. The intensive, 20-hour per week English program also serves students who wish to improve their English to meet their own professional or personal goals.

ELI courses at four levels of English proficiency target language and academic skills needed for successful study at a U.S. university: reading, writing, listening, and communicating effectively with people on and off campus. Students also study grammar and vocabulary and prepare for the TOEFL test of English language proficiency, which is required for admission to the University. In addition, students receive a wide variety of support services designed to facilitate their transition to life and study in the United States. The ELI also serves as a resource on issues relating to language proficiency not only for University faculty, staff and students but also for members of the local community. ELI faculty can provide workshops and specialized courses to help departments meet the needs of their international students. For more information, visit the ELI web site at www.uakron.edu/eli or call (330) 972-7544.

Fisher Institute for Professional Selling
Jon M. Havas, Ph.D., Director
The Fisher Institute for Professional Selling was founded in 1994. 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.

William and Rita Fitzgerald Institute for Entrepreneurial Studies
In 1995, a generous gift from William and Rita Fitzgerald created the Fitzgerald Institute for Entrepreneurial Studies in the College of Business Administration. The Institute was established to promote the principles of free enterprise and encourage entrepreneurial spirit and practices both within the University's curriculum and throughout the business community.

The Fitzgerald Institute focuses on the development of curriculum appropriate for both new ventures and the entrepreneurial development and growth of existing businesses. The Institute provides the needed link between the University and the community of entrepreneurs critical to business development in the future. The Fitzgerald Institute also sponsors several outreach projects, such as the Center for Family Business, the Center for Small Business, and Students in Free Enterprise.

For information, contact the Institute, CBA 330, (330) 972-7038.

Institute for Global Business
James W. Barnett, B.B.A., Director
The University of Akron received special funding from the State of Ohio to expand its offerings of undergraduate and graduate degree programming in international business. Thus, the College of Business Administration created the Institute for Global Business, which coordinates both credit and noncredit programming in international business. The Institute also develops short courses and seminars designed to help improve the international competitiveness of area business.

Institute for Health and Social Policy
Richard C. Stephens, Ph.D., Director
The Institute for Health and Social Policy, located on the fifth floor of the Porsky Building, was established in February 1999 for the study of the delivery of effective health and social services. The mission, objectives and research continuum are defined as follows:

Mission
To improve the quality of services to specific target groups most at risk of health and social consequences in order to decrease morbidity and mortality and the burden of health and social problems on the community and individuals.

Objectives
• Conduct research appropriate to the mission
• Collaborate with units on campus
• Assist faculty in the development of proposals

Research Continuum
• Epidemiology
• Intervention Development
• Service delivery
• Technology transfer
• Policy

Most of the work conducted by the Institute is on behalf of government or nonprofit agencies. Faculty and students have the opportunity to collaborate on research and evaluation projects of national significance. The Institute also serves as an educational resource for students and the community for the most up-to-date social and health services research available and the latest advances in behavioral and social science research methodologies.
Institute for Life-Span Development and Gerontology

Harvey L. Sterns, Ph.D., Director
Isadore Newman, Ph.D., Associate Director
Terry H. Albanese, Ph.D., Program Coordinator, Gerontology Certificate Program, and Practicum Coordinator
Jerome Kaplan, Ph.D., Program Coordinator, Nursing Home Administrator Program

The Institute for Life-Span Development and Gerontology, founded in 1978, 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 management (Human Resource Management Concentration) with a Certificate in Gerontology.

The Institute of Life-Span Development and Gerontology has grown into a campus-wide program involving more than 65 faculty in 23 different departments, representing 8 colleges. Students in the certificate programs carry out field placements at numerous community service settings. There are over 40 courses at the undergraduate and graduate levels. Research, education, training and service support has been received from the U.S. Administration on Aging, National Institute on Aging, U.S. Department of Education, Office of Special Education and Rehabilitation Services, National Institute on Disability and Rehabilitation Research, AARP Andrus Foundation, Ohio Department of Aging, and Area Agency on Aging. The Institute also serves as a major site for the Rehabilitation Research and Training Center Consortium on Aging and Developmental Disabilities involving seven universities in six states.

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, joining together with the Office of Geriatric Medicine and Gerontology, Northeast Ohio Universities College of Medicine; Gerontology Center, Kent State University; and Gerontology Committee, Youngstown State University.

Institute of Polymer Engineering

James L. White, Ph.D., Director

The Institute of Polymer Engineering carries out fundamental and applied research in polymer processing, engineering performance and associated characterization. The Institute, founded in 1983, seeks to be a major intellectual and research resource in northeast Ohio. The Institute maintains up-to-date and futuristic processing and characterization laboratories, with continued interest in development of new process 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 Rubber Research and in 1964 became the interdisciplinary Institute of Polymer Science. The University's first Ph.D. program in polymer chemistry was started in 1956 and was administered by the Institute until a separate Department of Polymer Science was established in 1967. The Institute maintains extensive laboratory facilities, an applied research group, a macromolecular modeling center, and a mini pilot plant for polymer synthesis. It is the principal organization responsible for external funding of research projects and graduate fellowships in polymer science.

Microscale Physiochemical Engineering Center (MPEC)

George G. Chase, Ph.D., Director

The Microscale Physiochemical Engineering Center (MPEC) was established in 1986 by faculty with a common research interest in materials composed of very small particles. These small particles occur, for example, in heterogeneous catalysts, fluid/solid separations, paper/pulp processing, soil remediation, waste water decontamination, and solid transport.

The unique feature of MPEC is the ability to form multidisciplinary teams of faculty and graduate students to solve specific industrial problems. The Center hosts an annual conference, promotes networking, provides a forum for industrial-university cooperation, and is a consortium of industrial sponsors for fundamental and applied research in microscale physiochemical engineering.

Training Center for Law Enforcement and Criminal Justice

Charles F. Williams, Director
Fred A. Baldwin, Associate Director

The Training Center for Law Enforcement and Criminal Justice, employing the expertise of the Criminal Justice Technology faculty and the experienced professionals in the field of Criminal Justice, provides state certified training in the following areas: Basic Peace Officer Training Academies, Corrections, Private Security, Private Investigations, Jailer Training, Police Refresher Training, Bailiff Training, Firearms Requalification, and In-service Seminars.

Training Center for Fire and Hazardous Materials

David H. Hoover, Ph.D., 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 Marshals and other related organizations. Training in all phases of hazardous materials containment and fire prevention and control is provided under contract to various municipalities, industries and agencies. The programs are supported by the faculty of the Fire Protection Technology degree program in association with other state and nationally recognized professionals.
Section 6

Courses of Instruction
# Course Numbering System*

**INDEX**

**Interdisciplinary Programs**
- 1800 Divorce Mediation
- 1820 Home-Based Intervention Therapy
- 1840 Women's Studies
- 1880 Medical Studies

**Buchtel College of Arts and Sciences**
- 3100 Biology
- 3110 Biology/NEGUCOM
- 3150 Chemistry
- 3200 Classics
- 3210 Greek
- 3220 Latin
- 3250 Economics
- 3300 English
- 3310 Geography and Planning
- 3370 Geology
- 3400 History
- 3450 Mathematics
- 3460 Computer Science
- 3470 Statistics
- 3480 Computer Engineering
- 3490 Environmental Studies
- 3500 Modern Languages
- 3530 German
- 3550 French
- 3570 Mathematics
- 3600 Philosophy
- 3650 Physics
- 3700 Physical Science
- 3750 Psychology
- 3850 Sociology
- 3870 Anthropology
- 3980 Public Administration and Urban Studies

**College of Engineering**
- 4200 Chemical Engineering
- 4300 Civil Engineering
- 4400 Electrical Engineering
- 4450 Computer Engineering
- 4600 Mechanical Engineering
- 4800 Biomedical Engineering

**College of Education**
- 5100 Educational Foundations and Leadership
- 5170 General Administration
- 5190 Higher Education Administration
- 5400 Technical Education
- 5500 Curricular and Instructional Studies
- 5550 Physical Education
- 5600 Outdoor Education
- 5610 Health Education
- 5620 Educational Guidance and Counseling
- 5680 Special Education
- 5680 School Psychology
- 5680 Special Educational Programs

**College of Business Administration**
- 6200 Accountancy
- 6300 Entrepreneurship
- 6400 Finance
- 6500 Management
- 6600 Marketing
- 6700 Professional
- 6950 International Business

**College of Fine and Applied Arts**
- 7100 Art
- 7400 Family and Consumer Sciences
- 7500 Music
- 7510 Musical Organizations
- 7520 Applied Music
- 7550 Communication
- 7700 Speech-Language Pathology and Audiology
- 7750 Social Work
- 7800 Theatre
- 7810 Theatre Organizations
- 7900 Dance
- 7910 Dance Organizations
- 7920 Dance Performance

**College of Nursing**
- 8200 Nursing

**College of Polymer Science and Polymer Engineering**
- 9841 Polymer Engineering
- 9871 Polymer Science

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

DIVORCE MEDIATION

1800:

501 DIVORCE MEDIATION 3 credits
Prerequisite: Admission to the Graduate Certificate Program on Divorce Mediation. Overview of divorce mediation process includes guidelines for negotiating separation and divorce agreements, division of personal and real property, support, custody, and future plans.

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: 501. Overview of home-based intervention to include philosophy and description of this programming as well as assessment of family, their home and community environment.

504 HOME-BASED INTERVENTION TECHNIQUES AND PRACTICE 2 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.

WOMEN’S STUDIES

1840:

580 FEMINIST THEORY 3 credits
Prerequisite: 1940/390. A summary of feminist theory to familiarize students with the main currents in contemporary feminist theory and the origins and evolution of that thought.

585 SPECIALTOPICS IN WOMEN’S STUDIES 1-3 credits
(May be repeated). Specialized topics not currently covered in other academic courses. Emphasis will be on original source materials, critical analyses and the synthesis of empirical and theoretical perspectives.

589 INTERNSHIP IN WOMEN’S STUDIES 1-3 credits
(May be repeated.) Prerequisite: permission of Director of Women’s Studies. This class provides supervised experience and on-the-job training in an organization, agency, corporation or group dealing with women’s issues.

590 WORKSHOP 1-3 credits
(May be repeated.) Group experiential study of special issues in Women’s Studies.

MEDICAL STUDIES

1880:

501 SPECIAL TOPICS: MEDICAL EDUCATION 1-3 credits
(May be repeated with a change of topic with a maximum of 3 credits toward graduation.) Prerequisites: upper college student status and permission. Selected topics on medical education offered by professionals. Intended to provide advanced undergraduate education and continuing education for students and practitioners in the health sciences. Graded credit/no credit.

COOPERATIVE EDUCATION

3000:

501 COOPERATIVE EDUCATION 0 credits
Prerequisite: must complete 12 graduate credit hours with at least a 3.0 overall grade point average. (May be repeated.) For cooperative education students only. Work experience in business, industry, or governmental agency. Comprehensive performance evaluation and written report required. Graded credit/no credit.

INSTITUTE FOR LIFE-SPAN DEVELOPMENT AND GERONTOLOGY

3006:

680 INTERDISCIPLINARY SEMINAR IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY 3 credits
Prerequisite: permission. This seminar program is 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 from government and community facilities and services.

685 SPECIAL TOPICS 1.5 credits
Prerequisite: permission. Specialized topics and current issues in life-span development and gerontology. Guest speakers from various disciplines and services which have life-span development and gerontological components from government and community facilities and services.

686 RETIREMENT SPECIALIST 2 credits
Prerequisite: permission. An investigation of issues related to the design and implementation of a retirement planning and examination of life-span planning education as employed by labor, business and education.

690 WORKSHOP 1-3 credits
Prerequisite: permission. Specialized topics and current issues in life-span development and gerontology. May be repeated.

696 PRACTICUM IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY 2 credits
Prerequisite: permission. Supervised experience in research or community agency work.

ENVIRONMENTAL STUDIES

3010:

501 SEMINAR IN ENVIRONMENTAL STUDIES 2 credits
Prerequisite: graduate standing. Specific environmental topic or topics from interdisciplinary viewpoint each semester. May be repeated for a maximum of 6 credit hours.

590 WORKSHOP IN ENVIRONMENTAL STUDIES 1-3 credits
Prerequisite: permission. Specialized topics and current issues in environmental science. May be repeated for a maximum of 6 credit hours.

596 FIELD/LAB STUDIES IN ENVIRONMENTAL SCIENCE 2 credits
Prerequisite: permission. Specialized topics and current issues in environmental science. May be repeated for a maximum of 6 credit hours.

602 EVALUATION OF ENVIRONMENTAL DATA 3 credits
Prerequisite: graduate standing. One year of chemistry, physics, job experience or course work in chemical engineering. A review of environmental testing techniques in current use, emphasis on interpretation and limitations.
688 PHYSICAL ORGANIC CHEMISTRY
Prerequisites: 618 or 643. An introduction to physical organic chemistry, including spectroscopy, reactions, and mechanistic aspects.

695 SPECIAL TOPICS: BIOLOGY
May be repeated. Permission required. Special courses offered once or only occasionally in areas where no formal course exists.

697 BIOLOGY COLLOQUIUM
1 credit each. May be repeated. Permission required. Attendance at all departmental seminars and presentation of a seminar based on original research. Required of all thesis option students who wish to present their thesis research.

709 MASTER'S THESIS
(May be repeated) A minimum of six credits is required for thesis option students.

*Field trips involved, minor transportation costs.

**BIOLOGY/NEOUCOM

***CHEMISTRY

3110:

630 HUMAN GROSS ANATOMY I
3 credits. Prerequisites: graduate standing and permission. An intensive survey of human morphological aspects.

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

641 FUNCTIONAL NEUROANATOMY
6 credits. Prerequisite: permission of instructor. Study of structure and function of nervous system with emphasis on human brain and human behavior. Laboratory.

695 SPECIAL TOPICS: BIOLOGY/NEOUCOM
16 credits. Prerequisite: permission of instructor. Advanced topics in medical education covering areas not otherwise available. May be repeated with a change in topic.

3150:

501 BIOCHEMISTRY LECTURE I

502 BIOCHEMISTRY LECTURE II
3 credits. Prerequisite: 403. Overview of metabolism: thermodynamics; carbohydrates, fatty acid, amino acid, and nucleic acid metabolism; hormonal control of metabolism. Photosynthesis.

572 ADVANCED INORGANIC CHEMISTRY
3 credits. Prerequisites: 304 or 319. Concepts of atomic structure integrated in systematic classification of elements. Periodic Table: Chemistry of the representative elements. Transition elements including coordination compounds, organometallics, and metal carbonyls.

590 WORKSHOP IN CHEMISTRY
1-3 credits. May be repeated. Group studies of special topics in chemistry. May not be used to meet undergraduate or graduate major requirements in chemistry.

603 BIOCHEMISTRY LECTURE III
3 credits. Prerequisites: 501 and 502. DNA, RNA, and protein metabolism. Translation and transcription. Gene function and expression.

604 BASIC QUANTUM CHEMISTRY
3 credits. Prerequisite: 304 or permission of instructor. Quantum mechanics with applications to molecular systems, including angular momentum, molecular Hamiltonian, vibronic and perturbation methods and molecular orbital theory.

611 SPECTROSCOPY
3 credits. Prerequisite: 600 or permission of instructor. Interaction of light with matter, linear and nonlinear spectroscopic methods. Rotational, vibrational, and electronic spectroscopy. Radiolysis/nanotechnology and photonics.

619 TRANSITION-METAL ORGANOMETALLICS
3 credits. Prerequisite: 472 or equivalent. The organometallic chemistry of the transition metals. Elements. Topics covered include synthesis, characterization methods, structure, bonding, reactivity, and applications.

620 MAIN GROUP ORGANOMETALLICS
3 credits. Prerequisite: 472 or equivalent. The organometallic chemistry of the main group elements. Topics covered include synthesis, characterization methods, structure, bonding, and applications.

621 ADVANCED PREPARATIONS
1-3 credits. Prerequisite: permission. Methods for preparing and purifying organic and inorganic compounds.

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

629 PHYSICAL INORGANIC CHEMISTRY
3 credits. Prerequisites: 502, 472. Detailed treatment of chemistry of transition elements. Group theoretical applications, ligand field theory, kinetics and mechanism magnetism, electronic spectra, molecular orbital theory.

630 THEORETICAL INORGANIC CHEMISTRY
7 credits. Prerequisites: 318, 472, 629, or permission. Detailed treatment of chemistry of transition elements. Group theoretical applications, ligand field theory, kinetics and mechanism, magnetism, electronic spectra, molecular orbital theory.

635 THERMODYNAMICS AND STATISTICAL THERMODYNAMICS
3 credits. Prerequisites: 633 and 634 or permission of instructor. Rigorous treatment of laws of thermodynamics and their applications to condensed chemical systems. Fundamentals of statistical thermodynamics and applications to systems in chemical equilibrium.

636 CHEMICAL KINETICS
3 credits. Prerequisite: 635 or permission of the instructor. Chemical kinetics, experimental methods of investigation and analysis of reaction systems. Theoretical treatments of reaction rates.

639 DESCRIPTIVE INORGANIC CHEMISTRY
3 credits. Prerequisite: Undergraduate or graduate major in chemistry. The characteristics, coordination chemistry, bonding, and reactivity of inorganic compounds. Emphasis placed on applications and on examples from the recent literature.

640 CHEMICAL SEPARATIONS
3 credits. Prerequisites: 423 and 424 or equivalent. General theory, instrumentation, and application of methods of separation. Emphasis on modern chromatographic techniques and recent advances.

641 SPECTRAL METHODS
3 credits. Prerequisites: 423 and 424 or equivalent. Theory and application ofInstrumental measurement. Interpretation of data.

642 ELECTROCHEMISTRY
3 credits. Prerequisites: 422 and 424 or equivalent. Theory and application of electrochemical methods of analysis.

645 X-RAY CRystallography
3 credits. Prerequisite: permission. Theoretical and practical aspects of single crystal x-ray crystallography. Topics covered include diffraction, space groups, structure determination, and applications.

670 SPECTROSCOPIC IDENTIFICATION OF ORGANIC COMPOUNDS
3 credits. Prerequisites: 263, 264 or permission of instructor. Determination of the structures of organic compounds by spectroscopic analysis: NMR, IR, Raman, mass spectrometry, FT-IR, UV/VIS, X-ray crystallography.

683 MECHANISTIC AND SYNTHETIC ORGANIC CHEMISTRY I
3 credits. Prerequisites: 263, 264 or permission of instructor. Introduction to the structural and mechanistic aspects of organic reactions: HMO calculations, acid and base, nucleophiles, kinetics, linear free energy relationships, reactive intermediates, selectivity mechanisms.

684 MECHANISTIC AND SYNTHETIC ORGANIC CHEMISTRY II
3 credits. Prerequisite: 683 or permission of instructor. Synthetic organic chemistry from a mechanistic perspective: nucleophilic and electrophilic substitution and addition reactions, carbyl chemistry, functional group manipulations, oxidations, reductions, cycloaddition reactions.

695 MASTER'S THESIS
16 credits. For properly qualified candidates for master's degree. Supervised original research in analytical, inorganic, or physical chemistry.

701 CHEMICAL LITERATURE
2 credits. Prerequisite: permission. Critical searching of chemical databases. Major emphasis is placed on chemical abstracts, but other databases are included. Lecture and online searching.

709 SPECIAL TOPICS: ANALYTICAL CHEMISTRY
3 credits. May be repeated. Permission required. Topics in advanced analytical chemistry: electroanalytical, activation analysis, atomic absorption spectrometry, mass spectrometry, liquid-liquid extraction, analysis of inorganic samples, and the exchange, thermodynamics, separations, standards, sampling, recent developments.

711 SPECIAL TOPICS: INORGANIC CHEMISTRY
3 credits. May be repeated. Permission required. Topics in advanced inorganic chemistry. Spectroscopic techniques: structural and mechanistic aspects.

712 SPECIAL TOPICS: ORGANIC CHEMISTRY
3 credits. May be repeated. Permission required. Topics in advanced organic chemistry. Spectroscopic techniques: structural and mechanistic aspects.

713 SPECIAL TOPICS: PHYSICAL CHEMISTRY
3 credits. May be repeated. Permission required. Subject from modern physical chemistry.

715 SPECIAL TOPICS: BIOCHEMISTRY
12 credits. May be repeated. Permission required. Recent developments in areas of biochemistry.

720 ADVANCED BIOCHEMICAL TECHNIQUES
3 credits each. Prerequisites: 420/520 or permission. Advanced lecture course in physical techniques in biochemistry. Includes optical and hydrodynamic methods, radiolytic techniques, and mass spectrometry.

722 ENZYMATIC REACTIONS
3 credits. Prerequisites: 405/505, 405/505 or permission. Mechanisms of enzyme catalyzed reactions, general aspects, and specific examples for phosphorylation, glycosyl transfer, oxidations, and other reactions.

724 BIOMATERIALS IN CHEMISTRY
3 credits. Prerequisites: 405/505, 405/505. Survey of the structure and properties of materials in organic, inorganic, and biomaterials science.

725 ADVANCED METABOLISM
3 credits. Prerequisites: 624 and 625 or permission. Advanced study of carbohydrate, lipid, and protein metabolism with emphasis placed on metabolic dysfunction.

740 PHYSICAL ORGANIC CHEMISTRY
Prerequisites: 622, 623, plus permission of instructor. An advanced treatment of the theory and mechanisms of organic chemistry: kinetics, mechanisms, and reactivity of organic reactions.

750 ADVANCED SYNTHETIC ORGANIC CHEMISTRY
3 credits. Prerequisites: 622, 623 or permission of instructor. Advanced treatment of organic functional group manipulations in the context of the total synthesis of natural products.

899 DOCTORAL DISSERTATION
1-6 credits each. Open to qualified students selected as candidates for Doctor of Philosophy in Chemistry. Supervised research or theses undertaken in organic, inorganic, physical, analytical, or biochemistry.

501, 502 EGYPTOLOGY I AND II
The history and antiquities of ancient Egypt.

504, 505 ASSYRIOLOGY
3 credits each. Prerequisites: 504, 505 or permission of instructor. The Akkadian language.
506 STATE AND LOCAL PUBLIC FINANCE
3 credits
Prerequisite: 410, recommended 415. Examines economic rationale and principles for provision of goods and services by different governmental units. Covers alternative revenue sources and special topics.
525 ECONOMETRIC METHODS AND APPLICATIONS
3 credits
Prerequisites: 3270/862 or 3270/861. Application of statistical methods in economics and other social sciences. Topics include statistical estimation, hypothesis testing, regression analysis, and forecasting. Use of computer is extensive.
527 ECONOMIC FORECASTING
3 credits
Prerequisites: 3470, 620 or permission of instructor. Study of methods for building, identifying, fitting and checking dynamic economic models and the use of these models for forecasting. Emphasis is on the application of available computer software systems.
530 LABOR MARKET POLICY
3 credits
Prerequisites: 330 or 333. Intensive study of current labor market policy issues e.g., discrimination, poverty, the changing industrial structure, and the economics of education.
535 THE DEVELOPMENT OF AMERICAN CORPORATE STRUCTURE
3 credits
Traces evolution of American corporate structure from the late 19th Century to the present. Explores and analyzes changing dimensions of corporate structure and response of government. Case studies are analyzed.
540 SPECIAL TOPICS: ECONOMICS
3 credits
Prerequisite: Permission. Opportunity to study special topics and current issues in economics.
550 COMPARATIVE ECONOMIC SYSTEMS
3 credits
Prerequisites: 203 and 204 or permission of instructor. Systems of economic organization, ranging from the traditional extreme of a perfectly free market economy to the socialist variety. Historical evolution of economic systems covering problems in theory and practice.
560 ECONOMIC DEVELOPMENT AND PLANNING FOR UNDERDEVELOPED COUNTRIES
3 credits
Prerequisites: 203 and 233 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 2520/854.
561 PRINCIPLES OF INTERNATIONAL ECONOMICS
3 credits
Prerequisites: 200 and 203 or 244. International trade and foreign exchange policies of free and controlled markets, international monetary problems.
570 DEVELOPMENT OF ECONOMIC THOUGHT
3 credits
Prerequisites: 203 and 233 or 244. Evolution of theory and method; relation of ideas of economics contemporary to conditions.
581 MONEY AND BANKING OF THE PUBLIC SECTOR
3 credits
Prerequisites: 386, 600. Control of currency and credit policies of central banks and governments. United States Treasury and Federal Reserve System.
587 URBAN ECONOMICS THEORY AND POLICY
2 credits
Prerequisites: 200 and 201 or 244. Analysis of urban areas from an economic perspective. Emphasis on urban structure; land uses; commodity flows; housing, income distribution,olarity and urban fiscal policy.
590 WORKSHOP IN ECONOMICS
1.5 credits
May be repeated. Group studies of special topics in economics. May not be used to meet undergraduate or graduate major requirements in economics. May be used for elective credit only.
600 FOUNDATIONS OF ECONOMIC ANALYSIS
3 credits
Prerequisite: Graduate standing. Determination of national income, employment and price levels; aggregate consumption, investment and fiscal policy. Analysis of problems faced by household and firm. Partial equilibrium analysis of competition and monopoly and general equilibrium analysis. Microeconomics: Principles. Course equivalent for 622, 623, 693, or 694. May be applied toward the M.A. graduate credits required for M.A. in economics.
602 MACROECONOMIC ANALYSIS I
3 credits
Construction of static Keynesian aggregate demand models. Analysis in terms of comparative statics with or without the private investment component in dynamic models.
603 MACROECONOMIC ANALYSIS II
2 credits
Prerequisite: 602. Macroeconomic dynamics and stabilization analysis of closed and open Keynesian systems. Inclusive coverage of post-Keynesian theories of economic growth.
606 METHODS OF THE PUBLIC SECTOR
3 credits
Examines public sector organizations, public goods. Public finance. Considers specific topics on cost-benefit analysis, expenditures analysis, fiscal federalism.
610 FRAMEWORK OF ECONOMIC ANALYSIS
3 credits
Prerequisite: Graduate standing. Development of theoretical and analytical framework for economic decision making, discussion of applications of the framework to situations involving demand, supply production, price, employment and wage.
611 MICROECONOMIC THEORY I
3 credits
Methods of consumer behavior and of the firm. Determination of market prices, consumption, money, establishment of criteria for productive, allocative and distributive efficiency.
612 MICROECONOMIC THEORY II
2 credits
Prerequisites: 611. Continuation of 611. Covers market equilibrium, general equilibrium and welfare theory, and applications in public choice and applied welfare theory.
615 INDUSTRIAL ORGANIZATION
3 credits
Prerequisites: 602 or permission. Fundamental economic aspects of food and resource allocation, labor and wage determination, and resource allocation between different industries.
617 THE ECONOMICS OF REGULATION
3 credits
Prerequisite: Graduate standing. Studies regulation of transportation, communication and other industries. Emphasis on economics of regulation.
620 APPLICATIONS OF MATHEMATICAL MODELS TO ECONOMICS
3 credits
Prerequisites: 620. Application of mathematical models to economic problems, especially with regard to the development of computer programs for economic analysis.
621 APPLICATION OF LINEAR MODELS IN ECONOMIC ANALYSIS
3 credits
Prerequisites: 620 or permission. Application of linear statistical methods and the extension of these methods to the study of economic phenomena.
626 STATISTICS FOR ECONOMETERS
3 credits
Prerequisites: Knowledge of calculus and ability to read economic journals. Credit is not given for both this course and ECON 626.
627 ECONOMETRICS
3 credits
Prerequisite: 626 or equivalent. Introduction to the principles and methods of econometric analysis, with special emphasis on the use of computer programs.
628 SEMINAR IN RESEARCH METHODS
3 credits
Prerequisite: Graduate standing. Seminar in the research techniques of economic analysis, with special attention to econometric methods.
630 THEORIES OF WAGES AND THE ECONOMY OF THE PUBLIC SECTOR
3 credits
Prerequisite: Graduate standing. Separation of public wages from the market economy. Credit is not given for both this course and ECON 630.
636-648 PUBLIC SECTOR LABOR MARKETS
3 credits
Prerequisite: 630 or permission of instructor. Extensive study of labor market theory and applications to policy issues.
639 SEMINAR ON ECONOMIC GROWTH AND DEVELOPMENT
3 credits
Prerequisite: 638 or permission of instructor. Extensive study of recent developments in growth theory and applications to policy issues.
639 SEMINAR ON REGULAR ECONOMIC ANALYSIS AND DEVELOPMENT
3 credits
Prerequisite: 638 or permission of instructor. Extensive study of recent developments in growth theory and applications to policy issues.
646 INTERNATIONAL ECONOMIC RELATIONS
3 credits
Prerequisite: Graduate standing. Determination of national income, employment and price levels; aggregate consumption, investment and fiscal policy. Analysis of problems faced by household and firm. Partial equilibrium analysis of competition and monopoly and general equilibrium analysis. Microeconomics: Principles. Course equivalent for 622, 623, 693, or 694. May be applied toward the M.A. graduate credits required for M.A. in economics.
650 COMPARATIVE INTERNATIONAL TRADE
3 credits
Prerequisite: 638 or permission of instructor. Extensive study of recent developments in growth theory and applications to policy issues.
651 MONETARY ECONOMICS
3 credits
Prerequisite: Graduate standing. Extensive study of recent developments in growth theory and applications to policy issues.
656-660 ECONOMIC GEOTHERMAL STUDIES
3 credits
Prerequisite: Graduate standing. Extensive study of recent developments in growth theory and applications to policy issues.
680 READING IN ADVANCED ECONOMICS
3 credits
Prerequisite: Graduate standing. Extensive study of recent developments in growth theory and applications to policy issues.
699 MASTER'S THESIS
3 credits
May be repeated for a total of six credits.
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Theory of Rhetoric</td>
<td>3 credits</td>
<td>Prerequisite: Completion of 100:101 and 100:102 or their equivalents, or permission of the instructor. Theoretical issues in the study of rhetoric. Literature and modern theories of rhetoric, with attention to classical oratorian, &quot;topoi&quot; of rhetoric and their application to teaching of English.</td>
</tr>
<tr>
<td>Seminar in English</td>
<td>3 credits</td>
<td>Prerequisite: Completion of 100:101 and 100:102 or their equivalents, or permission of the instructor. (May be repeated with different topics.) Special studies, and methods of literary research. Emphasis on selected areas of English and American fiction and language.</td>
</tr>
<tr>
<td>Workshop in English</td>
<td>3 credits</td>
<td>Prerequisite: Completion of 100:101 and 100:102 or their equivalents, or permission of the instructor. (May be repeated with different topical groups of special topics in English. Emphasis on the creative study of literature. Undergraduate or graduate major requirements in English for elective credit only.</td>
</tr>
<tr>
<td>Teaching College Composition</td>
<td>3 credits</td>
<td>Limited to teaching assistants in the Department of English. The study of narrative, dialogue, genre, and language acquisition as relevant to teaching basic composition.</td>
</tr>
<tr>
<td>Shakespeare's Contemporary English Drama</td>
<td>3 credits</td>
<td>Emphasis on the historical, critical, and dramatic documents pertinent to the study of Shakespeare's life and art.</td>
</tr>
<tr>
<td>Milton</td>
<td>3 credits</td>
<td>Emphasis on Milton's major poems and prose works. Personal encounters with Milton the man and Milton the artist.</td>
</tr>
<tr>
<td>AutoBiography as History of English</td>
<td>3 credits</td>
<td>Emphasis on modern poetry, poetry and related literature for the study of literature.</td>
</tr>
<tr>
<td>History and Practice of Modern Poetry</td>
<td>3 credits</td>
<td>Emphasis on modern poetry, poetry and related literature.</td>
</tr>
<tr>
<td>Seminar in James</td>
<td>3 credits</td>
<td>A study of Henry James's life and works. Primary emphasis will be on James's novel, short fiction, and late works. Some attention will be given to his literary criticism, travel pieces, and plays.</td>
</tr>
<tr>
<td>Literary Criticism</td>
<td>3 credits</td>
<td>Inquiry into nature and value of literature and of modem criticism.</td>
</tr>
<tr>
<td>Modern Linguistics</td>
<td>3 credits</td>
<td>Introduction to the study of modern languages. Goals include understanding of language variation and background presentation for linguistic studies of literature.</td>
</tr>
<tr>
<td>Theories of Composition</td>
<td>3 credits</td>
<td>Study of composition theories and research in their application for writing instruction. Particular focus on word topics as composing processes, invention, form, style, modes of writing, language writers and evaluation of writing. Classes sessions include discussion of readings and presentations.</td>
</tr>
<tr>
<td>Research Methodologies in Composition</td>
<td>3 credits</td>
<td>Research methodologies in composition and their application. Students will analyze research papers and evaluate work already done, and propose and complete semester research projects.</td>
</tr>
<tr>
<td>Writting for MBA</td>
<td>3 credits</td>
<td>Emphasis on professional writing. Writing topics are presented as decision-making tools, and students develop strategies for messages to subordinate, analytical reports and messages to outside audiences.</td>
</tr>
<tr>
<td>Theory and Teaching of Basic Composition</td>
<td>3 credits</td>
<td>Development of research and instruction of specific instructional methods for teaching basic composition.</td>
</tr>
<tr>
<td>Scholarly Writing</td>
<td>3 credits</td>
<td>Development of research and instruction of specific instructional methods for teaching basic composition.</td>
</tr>
</tbody>
</table>

**Note:** This list is a sample of courses and does not represent all courses offered. For a complete list, please refer to the official course catalog or the registrar's office.
GEOLOGY 3370:

505 ARCHAEOLOGICAL GEOLOGY 3 credits
Preliminary course for students planning to work in, or use techniques in, archaeology. Emphasis on prehistoric and historic periods of the United States. Field and laboratory assignments.

510 REGIONAL GEOLOGY NORTH AMERICA 3 credits
A study of the geology of North America. Major emphasis is placed on the formation and evolution of major land masses, and the major geologic features that presently characterize the continent. Laboratory requirements.

511 GLACIAL GEOLOGY 3 credits
The study of glacial land forms and deposits with special emphasis upon drift deposits, and post-glacial changes.

521 COASTAL GEOLOGY 3 credits
A study of the geology of coastal environments with special emphasis upon beach, estuarine, and sea cliff processes.

525 PRINCIPLES OF SEDIMENTARY BASIN ANALYSIS 3 credits
The study of sedimentary basins with special emphasis upon the processes of deposition, structure, and the history of sedimentary basins.

532 MINERALOGY-INTRODUCTORY PETROGRAPHY 3 credits
A study of the petrographic properties of minerals with emphasis on their occurrence in igneous, sedimentary, and metamorphic rocks.

533 ADVANCED PETROGRAPHY 3 credits
A study of the petrographic properties of minerals with emphasis on their occurrence in igneous, sedimentary, and metamorphic rocks.

535 PETROLEUM GEOLOGY 3 credits
A study of the geology of petroleum deposits and exploration techniques.

536 COAL GEOLOGY 3 credits
A study of coal strata, coal beds, and coal formation processes. Laboratory assignments.

537 ECONOMIC GEOLOGY 3 credits
A study of the economic geology of the United States with emphasis on the deposits of metallic and nonmetallic minerals.

541 FUNDAMENTALS OF GEOPHYSICS 3 credits
A study of the fundamental principles of geophysics with emphasis on the applications of geophysical methods to geologic problems.

542 EXPLORATION GEOPHYSICS 3 credits
A study of the principles and methods of geophysical exploration with emphasis on practical applications.

543 BOREHOLE GEOPHYSICS 3 credits
A study of the principles and methods of borehole geophysics with emphasis on practical applications.

545 ADVANCED STRUCTURAL GEOLOGY 3 credits
A study of the principles and methods of structural geology with emphasis on practical applications.

546 ADVANCED PALEONTOLOGY 3 credits
A study of the principles and methods of paleontology with emphasis on practical applications.

547 GEOCHEMISTRY 3 credits
A study of the principles and methods of geochemistry with emphasis on practical applications.

548 STABLE ISOTOPE GEOCHEMISTRY 3 credits
A study of the principles and methods of stable isotope geochemistry with emphasis on practical applications.

549 ADVANCED GROUNDWATER HYDROLOGY 3 credits
A study of the principles and methods of groundwater hydrology with emphasis on practical applications.

550 ANALYTICAL METHODS IN GEOLOGY 3 credits
A study of the principles and methods of analytical methods in geology with emphasis on practical applications.

551 GEOLOGY FIELD CAMP I 3 credits
A field camp course requiring permission of instructor. Field camps are available on a yearly basis.

552 GEOLOGY FIELD CAMP II 3 credits
A field camp course requiring permission of instructor. Field camps are available on a yearly basis.

553 CARBONATE PETROLOGY 3 credits
A study of the petrology of carbonate rocks with emphasis on the processes by which they were formed.

554 SILICICLATE SEDIMENTOLOGY 3 credits
A study of the sedimentology of siliciclastic rocks with emphasis on the processes by which they were formed.

555 ROCKS AND MINERALS 3 credits
A study of the properties and classifications of rocks and minerals with emphasis on the processes by which they were formed.

556 GLOBAL TECTONICS 3 credits
A study of the tectonic processes that have shaped the Earth's crust.

557 GEOLOGIC RECORD OF PAST GLOBAL CHANGE 3 credits
A study of the geologic record of past global climate and environmental change with emphasis on palaeoecological, palaeoceanological, and palaeoclimatological evidence.

558 ADVANCED GROUNDWATER HYDROLOGY 3 credits
A study of the principles and methods of groundwater hydrology with emphasis on practical applications.
450 United States Diplomacy to 1799 3 credits
Establishment of basic policies, diplomacy of exploration and emergence of a world power.

451 United States Diplomacy Since 1794 3 credits
Recent developments of government and the role of major powers in dealing with the challenges of war, peace making and power politics.

452 U.S. Constitutional History to 1787 3 credits
This course will cover the creation of the U.S. Constitution and Bill of Rights as well as Congressional legislation through the Civil War.

453 U.S. Constitutional History Since 1870 2 credits
This course will examine the evolution of civil liberties and individual rights from the Civil War to the present.

454 American Economy to 1800 3 credits
Survey of economic developments from colonial era, including agriculture, commerce, labor. Special emphasis on role of business, and evolution of monetary and fiscal policy.

455 American Economy Since 1800 3 credits
Survey of economic developments since 1800, topics include agriculture, businesses, and business. Special emphasis on role of business and evolution of monetary and fiscal policy.

456 United States Social-Cultural History to 1877 3 credits
Case studies in social history, emphasis on social, cultural framework, emphasis on social, cultural, and environmental, and impact of Civil War.

457 United States Social-Cultural History Since 1877 3 credits
Case studies in social history, emphasis on social, cultural, and environmental, and impact of Civil War.

458 China History 3 credits
Political, social, economic and intellectual history of China, with special emphasis on China's relationship to Old Northwest and to the nation.

459 American Environmental History 3 credits
National conservation of natural resources from beginnings of American society to present, with emphasis on environmental, political, technological, and economic history of environmental protection and control.

460 Latin America: Origins of Nationality 3 credits
The Latin American civilization, discovery and conquests, colonization, struggle for independence and formation of new states.

461 Latin America: The Twentieth Century 3 credits
Social revolution, political, ideological, and contemporary problems.

462 Mexico 1 credits
History of Mexico from Indian civilizations to present with emphasis on relations with United States.

463 Central America and the Caribbean 3 credits
Selected aspects of the histories of Central American and Caribbean countries with emphasis on political and governmental movements, foreign relations, social revolution, economic, and undeveloped regions, and relations with the United States.

464 War and Western Civilization 3 credits
War and society in Europe, Asia, and beyond from ancient world to present with special emphasis on period since 1400.

465 Historical Agency Administration 3 credits
Organization and administration of nonacademic historical agencies (e.g., societies, museums, libraries, etc.) Some field experience in a local historical agency.

466 Functions of Historical Agencies 3 credits
Pre-1940s, operations and functions of historical agencies. Students will develop a project that involves participating in an agency function.

467 Western Science since 1800 3 credits
Continuing development of physical, biological, and psychological sciences in European and American societies: Atomic physics and weapons, evolution, genetics, modern medicine.

468 Western Technology 3 credits
Technology in Mesopotamia, Egypt, Greece, Rome, medieval Europe, first and second industrial revolutions in Europe, America.

469 Special Studies in History 3 credits
Includes experimental and interdisciplinary studies, as well as those subjects that are not listed in the Graduate Bulletin. See departmental office for information on particular offerings.

470z Workshop in History 2 credits
May be repeated for a total of 2 credits. May be used for elect credit only. May not be used to meet undergraduate or graduate major requirements in history.

471 Reading Seminar in Ancient History 4 credits
Study of paleohistory literature, sources of materials and major interpretations of ancient history, especially Greek and Roman era.

472 Reading Seminar in Ancient History 4 credits
Preliminary 622. Research and writing in selected topics of ancient history, particularly Greek and Roman era.

473 Reading Seminar in Medieval History 4 credits
474 Reading Seminar in Medieval History 4 credits
Study of historical literature, sources of materials and major interpretations of medieval European history.

475 Reading Seminar in Medieval History 4 credits
476 Reading Seminar in Medieval History 4 credits
Study of historical literature, sources of materials and major interpretations of early modern European history.

477 Reading Seminar in Modern European History to 1870 4 credits
Study of historical literature, sources of materials, major interpretations of early modern European history.

478 Reading Seminar in Modern European History to 1870 4 credits
Participation in research and writing in selected topics of modern European history from premodern to the Middle Ages.

479 Reading Seminar in Modern European History to 1870 4 credits
Study of historical literature, sources of materials, major interpretations of early modern European history.

480 Writing Seminar in the History of England and the Empire 4 credits
Study of historical literature, sources of materials, major interpretations of English and British imperial history.

481 Writing Seminar in Modern European History to 1870 4 credits
Study of historical literature, sources of materials, major interpretations of modern European history since early 19th century.

482 Writing Seminar in Modern European History to 1870 4 credits
Study of historical literature, sources of materials, major interpretations of modern European history, occasionally including social, economic, and intellectual subjects.

483 Writing Seminar in the History of England and the Empire 4 credits
Participation in research and writing in selected topics of modern European history from premodern to the Middle Ages.
5A3 NUMERICAL SOLUTIONS FOR PARTIAL DIFFERENTIAL EQUATIONS
3 credits
Prerequisite: 428/528 or equivalent. For advanced undergraduate and graduate students. Study of finite difference and finite element methods for partial differential equations—continuity, stability, convergence, and computer implementation.

5B2 PARTIAL DIFFERENTIAL EQUATIONS
4 credits
Prerequisites: 235 or 335. The classical initial value and boundary value problems of mathematical physics developed and solved using Fourier series and integral transforms.

5C2 SYSTEMS OF ORDINARY DIFFERENTIAL EQUATIONS
2 credits
Prerequisite: 235 or 335 and either 392 or 492A or permission. Analysis, solution of systems of equations, linear, nonlinear: Topics: stability theory, perturbation methods, asymptotic methods, applications from physics, social sciences.

5C3 MATHEMATICAL MODELS
3 credits
Prerequisites: 236 or 336, and proof sequences in an approved area. Or permission. Foundation and analysis of mathematical models for social and physical sciences. Analysis of deterministic and stochastic models. Topics may include stochastic processes, linear programming, graph theory, Markov chains, and optimization.

5C4 ADVANCED ENGINEERING MATHEMATICS I
3 credits
Prerequisites: 235 and 392 or permission. Matrices, eigenvalue problems, systems of ODEs, vector analysis, complex variables.

5C5 ADVANCED ENGINEERING MATHEMATICS II
3 credits
Prerequisites: 235 and 392 or permission. Special functions, Fourier series and transforms, PDEs.

5D1 CONCEPTS IN GEOMETRY
4 credits
Prerequisite: 226 or permission of instructor. 307 is recommended. Axiomatic treatment of both Euclidean and non-Euclidean geometries. Other concepts included are finite geometry, transformations, conics, circles and inversions.

5E4 INTRODUCTION TO TOPOLOGY
3 credits
Prerequisite: 237 or permission of instructor. Introduction to topological spaces and topologies, mapping, convergence, homeomorphisms, connected spaces, metric spaces.

5F4 TOPICS IN MATHEMATICS
12 credits
May be repeated for a total of 12 credits. Prerequisite: Permission of instructor. Selected topics in mathematics and applied mathematics at an advanced level.

5G4 WORKSHOP IN MATHEMATICS
12 credits
May be repeated. Group studies in special topics in mathematics and statistics. May not be used to meet undergraduate or graduate major requirements in mathematics and statistics. May be taken for elective credit only.

5I4 INTRODUCTION TO ANALYSIS
4 credits
Prerequisite: permission. Introduction to analysis, including differentiation and integration, maxima and minima, Lagrange multipliers, transformations, inverse series, line and surface integrals, improper integrals. May not be used to meet degree requirements for mathematics majors.

5I5 TOPOLOGY IN ALGEBRA
3 credits
Prerequisite: 412/522. Advanced study of selected topics in the following areas: semigroups, groups, rings, modules and fields.

5I6 REAL ANALYSIS
3 credits
Prerequisite: 422/522 or permission. In-depth study of real analysis—metric spaces, normed vector spaces, integration theory, Hilbert spaces.

5I7 MEASURE THEORY
3 credits
Prerequisites: 447 or 547. Measure, measurable function, Lebesgue integral, convergence theorems, Radon-Nikodym theorem.

5I8 ANALYTIC FUNCTION THEORY
3 credits
Prerequisites: 412/522. holomorphic functions, analytic continuation, contour integral, asymptotic expansions.

5I9 ADVANCED NUMERICAL ANALYSIS I
2 credits
Each

5I10 SUBSPACE METHODS IN ALGEBRA
1-3 credits
Prerequisites: 420/520, 421/521, 422/522, or permission. Existence, uniqueness and stability of solutions to general classes of partial differential equations. Methods for solving these classes is introduced, emphasizing both analytical and numerical techniques.

5I11 NUMERICAL METHODS OF APPLIED MATHEMATICS I AND II
3 credits each

5I12 OPTIMIZATION
3 credits
Prerequisite: 422/522 or permission. Unconstrained and constrained optimization theory and methods in applied problems.

5I13 ADVANCED COMBINATORICS AND GRAPH THEORY
3 credits
Prerequisites: 232 or 335. Theory and techniques of combinatorics as applied to network problems and graph theoretical problems.

5I14 THEORY AND APPLICATION OF WAVELETS
3 credits
Prerequisite: Permission of instructor. Theory of wavelets and applications to signal and image analysis. Topics include multiresolution representations, filter banks, discrete and continuous wavelet transforms, wavelet packets, and applications.

5I15 ADVANCED TOPICS IN MATHEMATICS
2 credits
May be repeated. Subject to approval of advisor. Seminar-type discussion on topics in mathematics leading to supervised research project. No more than 2 credits allowed to apply to major requirements.

5I16 SEMINAR IN MATHEMATICS
1-3 credits
May be repeated. Subject to approval of advisor. Seminar-type discussion on topics in mathematics leading to supervised research project. No more than 2 credits allowed to apply to major requirements.

5I17 PRACTICUM IN MATHEMATICS AND STATISTICS
3 credits
May be repeated. Subject to approval of advisor. Practicum in college teaching of mathematical sciences. May not be used to meet degree requirements. May be taken only on a credit/noncredit basis.

5D5 MATHEMATICS
3450:

501 HISTORY OF MATHEMATICS
3 credits
Prerequisite: 227. Origin and development of mathematical ideas. Course does not meet degree requirement in the department.

510 ADVANCED LINEAR ALGEBRA
3 credits
Prerequisite: 317. Study of vector spaces, linear transformations, and fields. Applications.

520 ABSTRACT ALGEBRA I
3 credits
Prerequisite: 307 or permission. Study of groups, rings, fields, integral domains, vector spaces, field extensions. Geometric theory.

521 ABSTRACT ALGEBRA II
3 credits
Prerequisite: 412/522 or permission of instructor. Study of groups, rings, fields, integral domains, vector spaces, field extensions. Geometric theory.

530 THEORY OF NUMBERS
2 credits
Prerequisites: 227 or permission. Euclidean algorithm, unique factorization theorem, congruences, prime numbers, quadratic residues, number-theoretic functions, Gaussian integers and their properties.

540 VECTOR ANALYSIS
3 credits
Prerequisite: 223. Vector algebra, calculus of vector functions, conservative vector fields, integral theorems, and general curvilinear. Application of geometry and engineering.

550 COMBINATORICS AND GRAPH THEORY
3 credits
Prerequisites: 227 or permission, introduction to basic ideas of mathematical counting properties of structures of systems.

551 ADVANCED CALCULUS I AND II
3 credits each
Prerequisite: 317 or permission. Study of limits, continuity, differentiation, integration, partial derivatives, multiple integration: maxima and minima, convergence and uniform convergence, power series, improper integrals, and complex functions. Application of complex analysis, integral transforms, line and surface integrals.

552 COMPLEX VARIABLES
3 credits

570 APPLIED NUMERICAL METHODS I
3 credits
Prerequisites: 227 and 380 or permission of instructor. Numerical methods in analysis, ordinary and partial differential equations: Numerical differentiation, interpolation, solution of systems of equations, and numerical linear algebra.

571 APPLIED NUMERICAL METHODS II
3 credits
Prerequisites: 315 and 475/525 or permission of instructor. Numerical methods in the solution of systems of ordinary and partial differential equations: Numerical differentiation, interpolation, iterative methods for ODEs, finite differences for PDEs.

590 NUMERICAL SOLUTIONS FOR ORDINARY DIFFERENTIAL EQUATIONS
3 credits
698 MASTER'S RESEARCH

699 MASTER'S DATA

555 INTRODUCTION TO WINDOWS

520 ADVANCED NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS

521 Prerequisite: 422/522 and 428/528, or equivalent. Derivation, analysis, and implementation of difference and variational-based methods for the solution of partial differential equations and systems of differential equations.

732 ADVANCED PARTIAL DIFFERENTIAL EQUATIONS I AND II

3 credits each Prerequisites: 422/522 and 428/528. These courses are sequential. Study of formulated problems and transformations between them with an emphasis on the formulation and analysis of differential and integral equations as applications of these concepts.

266 DYNAMICAL SYSTEMS

3 credits Prerequisite: 422/522 or equivalent. The study of mathematical models of systems which evolve over time. An introduction to maps and applications to ordinary differential equations.

733 ASYMPTOTIC METHODS AND NONLINEAR ANALYSIS I AND II

3 credits each Prerequisites: 422/522 and 428/528. Survey of asymptotic and perturbation methods as applied to integrals and differential equations. Topics: bifurcation and stability with applications from the physical sciences and engineering.

735 SYMMETRICAL SYSTEMS

3 credits Prerequisite: 422/522 or equivalent. The study of mathematical models of systems which evolve over time. An introduction to maps and applications to ordinary differential equations.

540 COMPUTER GRAPHICS

3 credits Prerequisites: 316 and knowledge of C. Topics in computer graphics, including: 3D modeling, surface rendering, and ray tracing.

543 ARTIFICIAL INTELLIGENCE AND HEURISTIC PROGRAMMING

3 credits Prerequisite: 350. Study of various programs which have displayed some intelligent behavior. Exploration of level at which computer can display intelligence.
699 MASTER'S THESIS
Preparation: permission. May be repeated for a total of four credits. A properly qualified candidate for a master's degree may obtain 2+ credits for research experience which culminates in the preparation of a faculty-supervised thesis.

STATISTICS
3470:

560 PROBABILITY
3 credits
Pre requisite: 3470:221. Introduction to probability, random variables and probability distributions, expected value, sums of random variables, Markov processes.

569 RELIABILITY MODELS
3 credits
Pre requisite: 3470:312 or 276 or equivalent. Applications of probability theory to reliability modeling, including parametric and nonparametric models, competing modes of failure, censored data and accelerated life models.

571 ACTUARIAL SCIENCE I
3 credits
Pre requisite: 3470:312 or 276 or equivalent. Study of the theory of actuarial science, including actuarial models, life insurance, annuities, and mortality tables.

572 ACTUARIAL SCIENCE II
3 credits
Pre requisite: 3470:312 or 276 or equivalent. Study of advanced topics in actuarial science, including advanced modeling techniques, simulation, and risk management.

575 FOUNDATIONS OF STATISTICAL QUALITY CONTROL
3 credits
Pre requisite: 3470:312 or equivalent. Course provides a foundation in the theory and application of statistical techniques used in industry.

590 COMPUTER APPLICATIONS
3 credits
Pre requisite: 3470:222 and one semester course in statistics or permission. Use of statistical packages in practical problems related to the natural and physical sciences.

599 TOPICS IN STATISTICS
1-3 credits
May be repeated for a total of six credits. For graduate students in statistics. May not be used to meet major or minor requirements.

600 WORKSHOP IN STATISTICS
1-3 credits
May be repeated with change of topic. Group studies of statistics. May be repeated for a total of six credits. Prerequisites: 3470:222 or equivalent.

609 STATISTICAL COMPUTING
3 credits
Pre requisite: 3470:222 or equivalent. Emphasis on the use of statistical software packages in statistical analysis.

659 ADVANCED STATISTICAL PROBABILITY
3 credits
Pre requisite: 3470:312 or equivalent. Advanced topics in probability theory, including measure theory, stochastic processes, and martingales.

660 ADVANCED THEORETICAL STATISTICS I AND II
3 credits each
Pre requisite: 3470:222 or equivalent. Theoretical statistics, including estimation, hypothesis testing, and regression analysis.

663 EXPERIMENTAL DESIGN
3 credits
Pre requisite: 3470:312 or equivalent. Design and analysis of experiments, including randomized and blocked designs, analysis of variance, and response surface methodology.

664 STATISTICS FOR THE HEALTH SCIENCES
3 credits
May not be used to meet degree requirements for mathematical sciences majors. Prerequisite: satisfactory performance on a placement examination. Descriptive statistics, probability, and probability distribution, tests of hypotheses and confidence intervals, nonparametric statistics, regression, and correlation.

665 RESEARCH
3 credits
Pre requisite: 3470:312 or equivalent or permission. Problems in research and experiments in a specified area of statistics. May be repeated for credit with change of topic.

666 NONPARAMETRIC STATISTICS METHODS
3 credits
Pre requisite: 3470:312 or 276 or equivalent or permission. Theory and application of nonparametric statistics, including rank tests, chi-square tests, and other tests of statistical hypotheses.

667 FACTOR ANALYSIS
3 credits
Pre requisite: 3470:312 or 276 or equivalent or permission. Theory and application of factor analysis, including estimation, rotation, and interpretation.

670 BIOSTATISTICS
3 credits
Pre requisite: 3470:312 or 276 or equivalent or permission. Theory and application of biostatistics, including the design of clinical trials, survival analysis, and the use of statistical software.

675 RESPONSE SURFACE METHODOLOGY
3 credits
May be repeated for a total of six credits. For graduate students in statistics. May not be used to meet major or minor requirements.

ENGINEERING APPLIED MATHEMATICS
3490:

790 ADVANCED SEMINAR IN APPLIED MATHEMATICS
3 credits
Pre requisite: permission. May be repeated for a total of 12 credits. For students seeking graduate degrees in applied mathematics. Advanced topics in mathematics and related areas.

890 PRELIMINARY RESEARCH
3 credits
Pre requisite: permission. May be repeated for a total of nine credits. For students seeking graduate degrees in applied mathematics. May be repeated for credit only.

999 DOCTORAL DISSERTATION
3 credits
Pre requisite: permission. May be repeated for a total of 12 credits. For students seeking graduate degrees in applied mathematics. May be repeated for credit only.

MODERN LANGUAGES
3500:

502 ADVANCED FRENCH GRAMMAR
3 credits
Pre requisite: 3500:202 or equivalent. Advanced study of the grammar of modern French with emphasis on complicating factors such as��otic, morphology, phonology, and idiomatic expressions.

504 FRENCH LITERATURE OF THE MIDDLE AGES AND THE RENAISSANCE
4 credits
Pre requisite: 3500:204 or equivalent. Development of French literature from the Middle Ages to the Renaissance.

511 17TH CENTURY FRENCH LITERATURE
4 credits
Pre requisite: 3500:201 or equivalent. Emphasis on the literature of the 17th century, including the works of Molière, Racine, and Voltaire.

515 18TH CENTURY FRENCH LITERATURE
4 credits
Pre requisite: 3500:205 or equivalent. Emphasis on the literature of the 18th century, including the works of Diderot and Voltaire.
511 19TH CENTURY FRENCH LITERATURE
Prerequisite: 305 or 405 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
Prerequisite: 202 or equivalent. (May be repeated.) Development of specialized language skills by reading of significant works of literature or culture not studied in other courses.

527 20TH CENTURY FRENCH LITERATURE
Prerequisite: 305 or 306 or equivalent. Reading and discussion of the most representative works of the 20th Century. Conducted in French.

540 SELECTED THEMES IN FRENCH LITERATURE
(May be repeated.) Conducted in French. Prerequisite: 305 and 306 or equivalent. Reading and discussion of literary works selected according to an important theme.

5711 FRENCH LANGUAGE READING PROFICIENCY
4 credits
Designated to develop proficiency in reading comprehension. Prepares students for graduate reading examination. Does not count toward French major.

5724 INDIVIDUAL READING IN FRENCH
Prerequisites: 202 and permission of the French section. Individual reading in French, offered at the graduate level. (May be repeated for a total of eight credits.)

6074 SELECTED TOPICS IN THE MOVEMENT OF IDEAS IN FRENCH LITERATURE
Study of ideas instrumental in shaping French thought and culture.

641 FRENCH TEACHING PRACTICUM
2 credits
Preempts 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 requirements.

6923 INDIVIDUAL READING AND RESEARCH IN FRENCH
Prerequisites: 202 and permission of Department Chair. Independent study and research in specific areas. Considerable reading and writing required.

689 MASTER’S THESIS
4 credits

GERMAN
3530:

522 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS, CULTURE, AND LITERATURE
Prerequisites: 206 and graduate standing. Development of specialized language skills by advanced readings in German literature or culture. (May be repeated for a total of eight credits.)

571 GERMAN LANGUAGE READING PROFICIENCY
4 credits
Designed to develop proficiency in reading comprehension.

5928 INDIVIDUAL READING IN GERMAN
Prerequisites: 206 and graduate standing. Individual reading in German, offered at the graduate level. (May be repeated for a total of eight credits.)

SPANISH
3580:

505 SPANISH LINGUISTICS, PHONOLOGY
Prerequisite: 302 or instructor’s permission. Descriptive study of Spanish phonetics and phonology, comparison of Spanish and English sounds, historical aspects, regional accents and sociolinguistic variation. Conducted in Spanish.

506 SPANISH LINGUISTICS, SYNTAX
Prerequisite: 302 or instructor’s permission. Descriptive study of Spanish syntax, introduction to theories of grammar, overview of Spanish semantics and pragmatics. Conducted in Spanish.

508 CULTURAL MANIFESTATION IN MEDIEVAL AND RENAISSANCE SPAIN
Prerequisite: 407 or 408 or permission of instructor. Comparative study of representative artistic and literary works of the Medieval and Renaissance periods. Conducted in Spanish.

511 SPAIN DURING THE BAROQUE PERIOD
4 credits
Prerequisite: 407 or 408 or instructor’s permission. A comparative study of the different cultural manifestations during the 17th century in Spain. Conducted in Spanish.

512 CERVANTES: DON QUIJOTE
Prerequisite: 407 or 408 or permission of instructor. Reading and analysis of Don Quijote as the first major novel in the historical context of the Baroque and Baroque aesthetics. Conducted in Spanish.

515 THE AGE OF REASON AND THE ROMANTIC REBELLION IN SPAIN
4 credits
Prerequisite: 407 or 408 or permission of instructor. Study of this period in the intellectual and political movements in Spain from the Enlightenment and the Romantic movement as reflected in the works of the major artists and writers of these periods. Conducted in Spanish.

516 REPRESENTING REALITY IN 19TH CENTURY SPAIN
4 credits
Prerequisite: 407 or 408 or permission of instructor. A comparative study of the major literary and artistic movements in Spain from Romanticism to Modernism. Conducted in Spanish.

518 20TH CENTURY SPAIN: THE AVANT-GARDE IN LITERATURE AND ART
4 credits
Prerequisite: 407 or 408 or permission of instructor. A comparative study of the major literary and artistic movements in Spain which illustrate the primary cultural changes of the century. Conducted in Spanish.

519 THE SPANISH CIVIL WAR AND ITS CULTURAL IMPACT
4 credits
Prerequisite: 205 or permission of instructor. Study of the impact of the Civil War on Spanish culture.

522 SPECIAL TOPICS IN SPECIALIZED LANGUAGE SKILLS OR CULTURE OR LITERATURE
1-4 credits
Prerequisite: 202 or equivalent. (May be repeated.) Development of specialized language skills by reading of significant works of literature or culture not studied in other courses.

523 SPANISH-AMERICAN LITERATURE BEFORE 1900
Prerequisite: 407 or 408 or permission. Reading of representative Spanish-American literature from the discovery to 1900. Oral and written reports. Conducted in Spanish.

524 RACE AND ETHNICITY: INDIGENOUS CULTURES IN 20TH CENTURY SPANISH-AMERICA
Prerequisite: 407 or 408 or permission. Traces the diverse representations of indigenous cultures in literature. Takes into account the interactive forces of class, gender, race, and ethnic difference. Conducted in Spanish.

525 20TH CENTURY SPANISH-AMERICAN NOVEL
Prerequisite: 407 or 408 or permission of instructor. Reading and discussion of representative contemporary Latin American novels. Conducted in Spanish.

527 LATINO CULTURES IN THE USA
Prerequisites: 407 and 408 or permission of instructor. Inquiry into the Latino experience of displacement and marginality through the analysis of cultural manifestations in the USA. Conducted in Spanish.

529 CULTURE AND LITERATURE OF THE HISPANIC CARIBBEAN
4 credits
Prerequisite: 407 or 408 or permission. Reading and analysis of selected works from the 20th Century that depict women in Hispanic countries. May be repeated. Conducted in Spanish.

530 WOMEN IN 20TH CENTURY HISPANIC LITERATURE
Prerequisite: 407 or 408 or permission. Reading and analysis of selected works from the 20th Century that depict women in Hispanic countries. May be repeated. Conducted in Spanish.

531 HISPANIC CULTURE: SPAIN
4 credits
Prerequisite: 302 or permission. Study of society, customs, history, art, music, etc. of Spain, from a Hispanic perspective. Conducted in Spanish.

532 HISPANIC CULTURE: SOUTH AMERICA
4 credits
Prerequisite: 302 or permission. Study of society, customs, history, art, music, etc. of South America, from a Hispanic perspective. Conducted in Spanish.

533 HISPANIC CULTURE: MEXICO AND CENTRAL AMERICA
4 credits
Prerequisite: 302 or equivalent. Study of society, history, and culture of Mexico, Central America and the Hispanic Caribbean, from a Hispanic perspective. Conducted in Spanish.

571 SPANISH LANGUAGE READING PROFICIENCY
4 credits
Designed to develop proficiency in reading comprehension.

601 SEMINAR ON MEDITERRANEAN SPANISH LITERATURE
4 credits
Reading and discussion of representative works of the Spanish literary tradition. Conducted in Spanish.

602 SEMINAR ON SPANISH LITERATURE OF THE GOLDEN AGE
Seminars on 16th and 17th Century Spanish Literature
4 credits each
Reading and discussion of representative writers from Renaissance to Late Baroque period. Readings in essay, novel, theatre, poetry and philosophical writings. Conducted in Spanish.

603 SEMINAR ON SPANISH-AMERICAN LITERATURE
4 credits
Studies in representative writers preceding the “Boom.” Reading and discussion of various genres and authors representing the different literary developments. Conducted in Spanish.

607 SEMINAR ON 20TH CENTURY SPANISH-AMERICAN LITERATURE
4 credits
Reading and discussion of contemporary writers with emphasis on theatre, novel and short story. Conducted in Spanish.

612 SEMINAR ON 20TH CENTURY SPANISH LITERATURE
Studies in representative writers with emphasis on novels, poetry and short stories. Conducted in Spanish.

661 SPANISH TEACHING PRACTICUM
2 credits
Preempts teaching assistantship or permission. Orientation and practice of particular aspects of teaching Spanish language and culture. Student teaching experience is periodically reviewed and evaluated. These credits may not be applied toward degree requirements.

699 MASTER’S THESIS
4 credits

PHILOSOPHY
3600:

511 PLATO
Prerequisite: 211 or permission of instructor. Detailed study of the origins and development of Plato’s Theory of Forms and the related theories of knowledge, ethics, and politics.

516 ANALYTIC PHILOSOPHY
3 credits
Prerequisite: one course in philosophy or permission of instructor. Study of ideal and ordinary language movements in 20th Century British and American philosophy. Deals with such figures as Russell, Carnap, Austin, Moore, Wittgenstein, and Ayer.

519 BRITISH EMPIRISM
3 credits
Prerequisite: one introductory course and 313 or permission of instructor. Intensive analysis of selected major writings of Locke, Berkeley and Hume.

521 PHILOSOPHY OF LAW
3 credits
Prerequisite: one course in philosophy or permission of instructor. Philosophical inquiry into the nature of law and legal institutions.

522 CONTINENTAL RATIONALISM
3 credits
Prerequisite: one introductory course and 313, or permission of instructor. Intensive analysis of selected major writings of Descartes, Spinoza and Leibnitz.

524 EXISTENTIALISM
3 credits
Prerequisite: one introductory course in philosophy, 314, or permission of instructor. In-depth inquiry into the thought of Kierkegaard, Sartre, Heidegger, Sorme, and other existential analysts with their concern for the human condition.

526 PHENOMENOLOGY
3 credits
Prerequisite: one introductory course in philosophy, 314, or permission of instructor. In-depth inquiry into the thought of Husserl and Heidegger and their influence upon Western European and American thought.

532 ARISTOTLE
3 credits
Prerequisite: 211 or permission of instructor. Detailed study of Aristotle’s metaphysics, philosophy of nature, philosophy of mind and ethics. Taught alternate years.

534 KANT
3 credits
Prerequisite: 314 or permission or equivalent. Study of Kantian system of thought and its relation to history of philosophy, includes thorough investigation of one or more of Kant's philosophical works.

Courses of Instruction 99
PHYSICS 3650:

500 HISTORY OF PHYSICS
Prequisite: 262 or 270. Study of origin and evolution of major philosophical concepts characterizing contemporary physics. 3 credits

506 PHYSICAL OPTICS
Prequisite: 220 and 3450.75. Propagation, reflection, and refraction of electromagnetic waves, wave polarization, interferometry, and modern optical techniques. 3 credits

510 VACUUM SCIENCE AND TECHNOLOGY
Prequisite: 3650.3. An interdisciplinary course stressing the fundamentals and applications of vacuum science, including selection of materials, pressure measurement, and vacuum attenuation, safety precautions, etc. 3 credits

511 MECHANICS I
Prequisite: 292 and 3450.335. Mechanics at intermediate level: Newtonian mechanics, motion of a particle in one dimension, central field problem, system of particles, conservation of momentum, rigid bodies, gravitation. 3 credits

512 MECHANICS II
Prequisite: 4313.61. Advanced mechanics at the senior or beginning graduate level, including coordinate systems, mechanics of continuous media, Lagrange's equations, tensor algebra and stress analysis, rotating rigid bodies, vibration theory. 3 credits

513 ELECTROMAGNETISM I
Prequisite: 292, 3450.335 or permission of instructor. Electrodynamics and magnetostatics, electric fields, scalar potential, electrostatics, Laplace's and Poisson's equations, current, magnetic field, vector potential, magnetic materials, inductance. 3 credits

514 ELECTROMAGNETISM II
Prequisite: 4365.62. Special relativity, four vectors, Maxwell's equations in covariant form, propagation, reflection and refraction of electromagnetic waves, multipole radiation. 3 credits

515 QUANTUM PHYSICS
Prequisite: 341 and 3450.335. Introduction to quantum theory. Schroedinger equation, observables, angular momentum, perturbation theory, variational principle, bound states, scattering theory, linearity and interactions, spin and the Pauli Principle. 3 credits

516 QUANTUM PHYSICS
Prequisite: 4441.66. Applications of quantum mechanics to atomic, nuclear and solid state physics. Tuning and evaluating periodic potential, hydrogen and helium ions, atom-ion forces, quantum statistics. 3 credits

517 ADVANCED LABORATORY I
Prequisite: 3650.3 or permission of instructor. Experimental techniques applicable to research-type projects in contemporary physics. FTR spectroscopy, optical spectroscopy, lasers, SPR, and thin film growth and characterization. 3 credits

518 ADVANCED LABORATORY II
Prequisite: 322 or permission of instructor. Experimental projects applicable to contemporary physics. Diode and dye lasers, laser feedback, noise, NMR, electron tunnelling and fiber optics. 3 credits

566 TECHNIQUES OF PHYSICS INSTRUCTION
Prequisite: 262 or 270. Teaching assistants are introduced to current research in physics. Shown applications for teaching physical science and trained in skills needed as a laboratory teaching assistant. 3 credits

568 DIGITAL DATA ACQUISITION
Prequisite: 262 or 270. Designed to introduce science and mathematics students to use of digital techniques of interfacing instruments to microcomputers. Physical measurements and device control are emphasized. 3 credits

570 INTRODUCTION TO SOLID-STATE PHYSICS
Prequisite: 3650.3 or permission of instructor. Introduction to solid-state physics, emphasizing fundamental relations between these disciplines and the periodicity of crystalline lattice. 3 credits

581,582 METHODS OF PHYSICAL SCIENCES AND PHYSICS
Prequisite: 292, 3450.335, and senior or graduate standing in a physical science or engineering major. 3 credits each

585 SELECTED TOPICS IN PHYSICS
Prequisite: 322 or permission of instructor. Consideration of selected topics, procedures, techniques, materials, apparatus or current interest in physics. 3 credits

590 WORKSHOP
May be repeated. Prequisite: permission. Further investigations of various selected topics in physics, under guidance of faculty member. 1-4 credits

597 INDEPENDENT STUDY
May be repeated. Prequisite: permission. Further investigations of various selected topics in physics, under guidance of faculty member. 1-3 credits

598 PHYSICS COLLOQUIUM
3 credits

605 COMPUTER PHYSICS NUMERICAL SOLUTIONS TO PHYSICS PROBLEMS I
Prequisite: 292 or permission. Review of computer and scientific programming techniques and applications to numerical solutions to physics problems, including Newton's and Schrödinger's equations, Treatment and reduction of experimental data, plotting, simulation. 3 credits

606 COMPUTER PHYSICS NUMERICAL SOLUTIONS TO PHYSICS PROBLEMS II
Prequisite: 605 or permission. Data reduction, Collatz problem, programming of theoretical models with data, instruction in computer technology. May be repeated to accommodate scientific problems of individual interest. 3 credits

610 SURFACE PHYSICS
Prequisite: 417. An interdisciplinary course stressing the fundamentals and applications of physics at surfaces, including conduction, catalysis, adsorption, and surface science. 3 credits

615 ELECTROMAGNETIC THEORY I
Prequisite: 30755.62. Fundamentals of electromagnetic theory, Maxwell's equations and vector calculus, applications to circuits, systems, and fields. 3 credits

616 ELECTROMAGNETIC THEORY II
Prequisite: 615. Scattering and diffraction, plasma physics, special theory of relativity, dynamics of relativistic particles, field collisions, charged particles, radiation from moving charges, relativistic multipole fields. 3 credits

625 QUANTUM MECHANICS I
Prequisite: 422 or 30755.6. Principles of quantum mechanics, basic concepts and applications to quantum systems. 3 credits

626 QUANTUM MECHANICS II
Prequisite: 625. Advanced theory of quantum mechanics, applications to quantum systems, second quantization of matter. 3 credits

641 LAGRANGIAN MECHANICS
Prequisite: 322, 333, 3450.335 or permission of instructor. Lagrangian mechanics, Lagrange's equations, Hamilton's equations, phase space, Hamilton's principle, canonical transformations. 3 credits

651 STATISTICAL MECHANICS
Prequisite: 422, 542, 3450.335 or permission of instructor. Fundamental principles of statistical mechanics, Gibbs, Fermi and Bose Statistics, liquids, gases, phase equilibrium, chemical reactions. 3 credits

669 CRITICAL PHENOMENA AND PHASE TRANSITIONS
Prequisite: 422, 625, 641, 661 or permission of instructor. Modern theory of critical phenomena: Landau theory, spin systems, magnetic interaction, phase transitions, applications to phase transitions in atomic and nuclear systems. 3 credits

685 SOLID STATE PHYSICS I
Prequisite: 410, 625 or permission of instructor. Theory of crystal lattice solids, properties of reciprocal lattice and Brillouin zone, lattice dynamics and thermal heat, electronic conduction, solid state semiconductors, basic crystal structure. 3 credits

686 SOLID STATE PHYSICS II
Prequisite: 485. Orthogonally arranged plane and volume potentials, Electron-electron interaction, screening of the potential, carrier mobility and scattering, band structure and optical transitions. Dynamics of electrons, transport properties and Fermi surface. 3 credits

699 SPECIAL PROBLEMS IN THEORETICAL PHYSICS
May be repeated. Prequisite: permission. Intended to facilitate expansion of selected areas of interest in theoretical physics, by consultation with faculty member and independent study beyond available course work. 1-3 credits

701 SEMINAR IN THEORETICAL PHYSICS
Prequisite: 322 or permission of faculty. May be repeated. 3 credits

702 GRADUATE RESEARCH
Prequisite: permission of faculty. May be repeated. 1-9 credits

708 SPECIAL TOPICS PHYSICS
Prequisite: permission of instructor. Topics may be chosen from any area of interest in physics. 1-4 credits

709 MASTER'S THESIS
Prequisite: permission. May be repeated. 1-12 credits

710 DOCTORAL RESEARCH
Prequisite: permission of advisor. May be repeated. 1-15 credits

POLITICAL SCIENCE 3700:

502 POLITICS AND THE MEDIA
Prequisite: 101. Examination of relationships between the press, the news media and public decision-making. 3 credits

505 POLITICS IN THE MIDDLE EAST
Prequisite: 101. The Middle East: A History. 3 credits

510 INTERNATIONAL DEFENSE POLICY
Prequisite: 101. World War II and the Cold War. 3 credits

512 GLOBAL ENVIRONMENT POLITICS
Prequisite: 101. 3 credits
515 COMPARATIVE FOREIGN POLICY
Prerequisite: 201 or 220 or permission. Study of foreign policies of selected nations, with special attention to processes and instruments of decision making of the major powers.
3 credits

542 SURVEY RESEARCH METHODS
Prerequisite: 200 or 201 or permission. Study of the survey research methods as applied to the analysis of public opinion, political behavior and public policy formation.
3 credits

541 THE POLICY PROCESS
Prerequisites: eight credits in political science. Intensive study of policy-making processes, emphasizing roles of various participants in executive and legislative branches as well as private organizations and interest groups.
3 credits

542 METHODS OF POLICY ANALYSIS
Prerequisites: 201. An examination of methods, availability of analyzing public policies. Techniques for analyzing political action and research. Study of quantitative research and the practical problems facing policy analysts.
3 credits

563 POLITICAL SCANDALS AND CORRUPTION
This course will provide information on major political scandals, including media coverage, public opinion, the role of special prosecutors, and the impacts of scandals.
3 credits

508 POLITICS OF CORRECTIONS
Prerequisite: 440. This course examines the political dynamics of corrections involving citizen concerns, public policy,矫正, and specific problems, as well as consideration of ethical questions in policy analysis. The practical problems facing policy analysts.
3 credits

561 THE SUPREME COURT AND CONSTITUTIONAL LAW
Prerequisite: 200 or permission. Interpretation of the Constitution by the Supreme Court with emphasis on federal judicial, legislative and executive powers, separation of powers, and federalism.
3 credits

562 THE SUPREME COURT AND CIVIL LIBERTIES
Prerequisite: 200 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.
3 credits

570 CAMPAIGN MANAGEMENT I
Prerequisite: passing grade in election campaign, research and practice of campaign management.
3 credits

571 CAMPAIGN MANAGEMENT II
Prerequisite: 470/570. The second course in campaign management. Focus on strong, coalition building, candidate positioning, event planning, internal organization, and other elements of campaign strategy.
3 credits

572 CAMPAIGN FINANCE
Prerequisite: permission. Reading and research in financial decision making in political campaigns.
3 credits

573 VOTER CONTACT AND ELECTIONS
Prerequisite: permission. Theoretical and practical approaches to gaining votes in all types of political campaigns.
3 credits

574 POLITICAL OPINION, BEHAVIOR AND ELECTORAL POLITICS
Prerequisite: 100 or 201 or permission. Advanced analysis of political attitudes, cultural and group processes of opinion formation and change. Attention given to the effects of opinion change on electoral outcomes.
3 credits

575 AMERICAN INTEREST GROUPS
Prerequisite: six credits of political science or permission. Reading and research on the development, structure and function of interest groups in the United States.
3 credits

576 AMERICAN POLITICAL PARTIES
Prerequisite: six credits of political science or permission. Reading and research on the development, structure and function of parties in the United States.
3 credits

580 POLICY PROBLEMS
Prerequisite: six credits of political science or permission. Examination of problems of public policy.
3 credits

581 THE POLITICS OF POLICING
Prerequisite: 100. Analysis of political dimensions in the study of police and their interaction with police, rights, and community.
3 credits

584 CURRENT ISSUES (UL TOPIC)
Prerequisite: 100. Study and critical analysis of current issues, programs, and policies existing in the political arena, including crime and criminal justice.
3 credits

585 CONSTITUTIONAL PROBLEMS IN CRIMINAL JUSTICE
Prerequisite: 100. Analysis of Supreme Court policy making with regard to problems of criminal justice, including search and seizure, self-incrimination, right to counsel, jury selection, and post-conviction appeal rights.
3 credits

600 SCOPE AND THEORIES OF POLITICAL SCIENCE
Prerequisite: six credits of political science or permission. Emphasis on the nature, intent and context of political theory, theory construction and validation in political science.
3 credits

601 RESEARCH METHODS IN POLITICAL SCIENCE
Prerequisites: six credits of political science, including 443 (or a satisfactory equivalent) or permission of instructor. Techniques of quantitative research methodology in political science, utilizing and limitations of quantitative analysis.
3 credits

610 SEMINAR IN INTERNATIONAL POLITICS
Prerequisite: six credits of political science or permission. Analysis of current problems in the theory and practice of foreign relations and organization.
3 credits

611 SEMINAR IN COMPARATIVE POLITICS
Prerequisite: six credits of political science or permission. Research selected topics in comparative politics. Comparative method.
3 credits

625 SEMINAR IN POLICIES OF DEVELOPING NATIONS
Prerequisite: six credits of political science or permission. Selected topics investigated. Emphasis on theories of political development.
3 credits

630 SEMINAR IN NATIONAL POLITICS
Prerequisite: six credits of political science or permission. Reading and research on causation, development and implementation of national policy in one or more areas of contemporary society.
3 credits

630 SEMINAR IN LAW, PUNISHMENT, AND POLITICS: U.S. AND THE WORLD
Prerequisite: six credits of political science or permission. Reading and research on the multiple and contingent interconnections between laws, world politics, and power.
3 credits

631 SEMINAR IN CIVIL LIBERALS AND THE JUDICIAL PROCESS
Prerequisite: six credits of political science or permission. Civil liberties and judicial process viewed in political context. Reading and research on selected topics.
3 credits

636 SEMINAR IN PUBLIC POLICY AGENDAS AND DECISIONS
Prerequisite: six credits of political science or permission. Reading and research on the development of public policy issues and models of decision making used by policy makers.
3 credits

672 SEMINAR: POLITICAL INFLUENCE AND ORGANIZATIONS
Prerequisites: permission. Examination of how public policies and demands are resolved or diffused. Theoretical and applied look at parties, interest groups, public opinion, media, and protest.
3 credits

690 SPECIAL TOPICS IN POLITICAL SCIENCE
Prerequisites: six credits of political science or permission. Graduate-level examination of selected topics in American politics, comparative politics, international politics, political philosophy or political theory.
4 credits

695 INTERNSHIP IN GOVERNMENT AND POLITICS
May be repeated for a total of 6 credits. Prerequisite: Permission of graduate advisor. Supervised individual placement with public office holders, party groups, governmental agencies, non-profit organizations, political campaigns, or related professional level work.
3 credits

696 TOPICS IN MASTER’S RESEARCH
Prerequisite: permission of advisor. May be repeated for a total of 3 credits. No more than six credits may be applied to degree requirements. Research in suitable topics in political science or applied political science culminating in a Thesis. Graded crerdit/grade.
3 credits

697 INDEPENDENT RESEARCH AND READINGS
May be repeated, but no more than six credits toward the master’s degree in political science. Prerequisite: permission.
1 credits

698 POLITICAL SCIENCE PRACTICUM
Prerequisite: permission of instructor. Professional seminar required of all graduate students. May not be applied toward degree requirements. Covers disciplinary, methodological, research practices, career tracks and program selecting. Graded credit/grade.
3 credits

699 MASTER’S THESIS
6 credits

PSYCHOLOGY
3750:

500 PERSONALITY
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.
4 credits

510 PSYCHOLOGICAL TESTS AND MEASUREMENTS
Prerequisite: Admission to the Graduate School. Consideration of the nature, construction and use of tests and measures in industry, government, and education. Includes attitude and achievement tests, rating scales, attitude and opinion analysis.
4 credits

520 ABNORMAL PSYCHOLOGY
Prerequisite: Admission to the Graduate School. Survey of syndromes, etiology, pathology, and treatments of major psychological conditions ranging from transient maladjustments to psychoses.
4 credits

530 PSYCHOLOGICAL DISORDERS OF CHILDREN
Prerequisite: Admission to the Graduate School. Survey of syndromes, etiology, pathology, and treatments of developmental disorders in children from the standpoint of developmental psychology. Prerequisite: satisfactory performance in an approved training program.
4 credits

532 HUMAN RESOURCE MANAGEMENT
Prerequisite: Admission to the Graduate School. The application of psychological theory to the effective management of human resources in an organization, including recruitment, selection, training and retention of personnel.
4 credits

544 ORGANIZATIONAL THEORY
Prerequisite: Admission to the Graduate School. The application of psychological theory to the management of human resources in an organization, including leadership, motivation, task performance, organizational theory and development.
4 credits

545 PSYCHOLOGY OF SMALL GROUP BEHAVIOR
Prerequisite: Admission to the Graduate School. Intensive investigation of factors affecting behavior and performance in small groups including effects of personality, social structures, role relationship, and conflictual variables.
4 credits

550 COGNITIVE DEVELOPMENT
Prerequisite: Admission to the Graduate School. Theory and research on life span changes in cognitive processes including conceptual formation, categorization, information processing and Piagetian assessment tasks.
4 credits

560 HISTORY OF PSYCHOLOGY
Prerequisite: Admission to the Graduate School. Examination of the development of psychology as a scientific discipline, including contributions of notable figures and ideas, from its origins to the present.
3 credits

900 WORKSHOP IN PSYCHOLOGY
May be repeated. May not be used to meet undergraduate or graduate major requirements in psychology. Group studies of special topics in psychology.
1 credits

610 PSYCHOLOGICAL RESEARCH USING QUANTITATIVE AND COMPUTER METHODS I AND II
Prerequisites: 3750 and 3750. Survey of research design, data collection, data analysis, and report writing. Focus on the preparation and presentation of written and oral papers. Emphasis on the use of quantitative methods and computer-aided statistical software.
4 credits

610,2 PSYCHOLOGICAL RESEARCH USING QUANTITATIVE AND COMPUTER METHODS I AND II
Prerequisites: 3750 and 3750. Survey of research design, data collection, data analysis, and report writing. Focus on the preparation and presentation of written and oral papers. Emphasis on the use of quantitative methods and computer-aided statistical software. Courses offered as lecture and directed research. Topics include research design, sampling, controls, threats to validity, hypothesis testing, statistical measurement, experimental design, exploratory questionnaires, and training in computer programs.
4 credits
## SOCIETY 3850:

### 510 SOCIAL STRUCTURES AND PERSONALITY

- **Credit**: 3 credits
- **Description**: Emphasis on personality, structural, functional and conflict approaches to the personality of the individual in society. (Same as KSU 72214) Seminar.

### 511 SOCIAL INTERACTION

- **Credit**: 3 credits
- **Description**: An introduction to advanced social theory and research in sociology, including social structure and social interaction. (Same as KSU 72212) Seminar.

### 512 SOCIALIZATION: CHILD TO ADULT

- **Credit**: 3 credits
- **Description**: Emphasis on theoretical and empirical analyses of processes by which infant, child, adolescent and adult learn social and cultural requirements necessary to function in new roles, changing roles and society in general.

### 521 RACIAL AND ETHNIC RELATIONS

- **Credit**: 3 credits
- **Description**: Examination of the social and cultural processes through which racial and ethnic relations are maintained in society. Seminar.

### 523 SOCIOLOGY OF WOMEN

- **Credit**: 3 credits
- **Description**: Emphasis on theoretical and empirical analysis of the social and cultural processes through which gender roles and identities are maintained in society. Seminar.

### 525 SOCIOLOGY OF URBAN LIFE

- **Credit**: 3 credits
- **Description**: Examination of urban lifestyles and the social processes that maintain them. Seminar.

### 529 THE VICTIM IN SOCIETY

- **Credit**: 3 credits
- **Description**: Emphasis on the social and cultural processes through which crime is maintained in society. Seminar.

### 530 SOCIOLOGICAL ANALYSIS

- **Credit**: 3 credits
- **Description**: Advanced treatment of sociological methods of analysis. Seminar.

### 531 SOCIETY IN AGING

- **Credit**: 3 credits
- **Description**: Emphasis on the social and cultural processes through which aging is maintained in society. Seminar.

### 541 POLITICAL SOCIOLOGY

- **Credit**: 3 credits
- **Description**: Emphasis on the social and cultural processes through which political behavior is maintained in society. Seminar.

### 549 SOCIAL ISSUES IN AGING

- **Credit**: 3 credits
- **Description**: Emphasis on the social and cultural processes through which social issues in aging are maintained in society. Seminar.

### 550 SOCIAL PSYCHOLOGY

- **Credit**: 3 credits
- **Description**: Emphasis on the social and cultural processes through which social psychology is maintained in society. Seminar.

### 560 FUNDAMENTALS OF SOCIOLOGY

- **Credit**: 3 credits
- **Description**: Emphasis on the social and cultural processes through which fundamental sociology is maintained in society. Seminar.

### 601 PSYCHOSOCIAL ISSUES IN AGING

- **Credit**: 3 credits
- **Description**: Emphasis on the social and cultural processes through which psychosocial issues in aging are maintained in society. Seminar.

### 606 SOCIAL PSYCHOLOGY

- **Credit**: 3 credits
- **Description**: Emphasis on the social and cultural processes through which social psychology is maintained in society. Seminar.

### 610 PERSONALITY AND SOCIAL SYSTEMS

- **Credit**: 3 credits
- **Description**: Emphasis on the social and cultural processes through which personality and social systems are maintained in society. Seminar.

### 615 PSYCHOLOGICAL METHODS IN HEALTH RESEARCH

- **Credit**: 3 credits
- **Description**: Emphasis on the social and cultural processes through which psychological methods in health research are maintained in society. Seminar.

### 617 SOCIOLOGICAL THEORY

- **Credit**: 3 credits
- **Description**: Emphasis on the social and cultural processes through which sociological theory is maintained in society. Seminar.
ANTHROPOLOGY
3870:

565 CULTURE AND PERSONALITY
2 credits
Prerequisite: 150 or permission. Critical examination of functional and causal relationships between culture and individual cognition and behavior. Lecture.

567 CULTURE AND MEDICINE
3 credits
Prerequisite: 150 or permission. Analyzes various aspects of Western and non-Western medical systems from an anthropological perspective. Compares traditional medical systems around the world.

590 QUALITATIVE METHODS: BASIS OF ANTHROPOLOGICAL RESEARCH
3 credits
Provides broad exposure in qualitative research, using primary methods, including key informant interviewing, focus group interviews, and other group methods. Includes the use of computer-based programs for rapid data entry, analysis and retrieval.

593 SOCIAL ANTHROPOLOGY
3 credits
Prerequisite: 150 or permission. Comparative structural analysis of non-Western systems of kinship and social organization in terms of status, role, reciprocity, expectation, normative, and extended household and other kindred groupings. Lecture.

572 SPECIAL TOPICS: ANTHROPOLOGY
3 credits
May be repeated for credit only. May cover a variety of special topics in anthropology. May not be used to meet departmental undergraduate or graduate major requirements. May be used for elective credit only.

790 ANALYSIS OF SOCIOLOGICAL DATA
2 credits
Prerequisite: 706 or permission. Critical examination of data analysis techniques, utilizing computer and data analysis software.

791 SOCIAL SAMPLING
3 credits
Prerequisite: 654 or permission. Theory and methods for sampling individuals in the population. Topics include sampling design, sampling accuracy, sampling error, and the relationship between sampling and the design of experiments.

792 SURVEY RESEARCH METHODS
3 credits
Prerequisite: 635 or permission. Methodology for designing, conducting, and analyzing surveys. Topics include sampling, question design, and data analysis.

793 EXPERIMENTAL AND QUASI-EXPERIMENTAL RESEARCH IN SOCIOLOGY
3 credits
Prerequisite: 633 or permission. Application of experimental and quasi-experimental research methods to sociological research. Topics include experimental design, statistical analysis, and empirical literature.

794 CULTURAL AND SOCIAL DIFFERENCES: ANTHROPOLOGY
2 credits
Prerequisite: 706 or permission. Focus on cultural and social differences, including race, gender, and social class. Topics include cultural relativism, ethnocentrism, and social inequality.

795 QUALITATIVE METHODS: BASIS OF ANTHROPOLOGICAL RESEARCH
3 credits
Provides broad exposure in qualitative research, using primary methods, including key informant interviewing, focus group interviews, and other group methods. Includes the use of computer-based programs for rapid data entry, analysis and retrieval.

796 COMMUNITY DEVELOPMENT AND RESEARCH METHODS
3 credits
Prerequisite: 633 or permission. Focus on community development and research methods in anthropology. Topics include community planning and development, community organization, and community development programs.

797 HUMAN RESOURCES: ANTHROPOLOGY
3 credits
Prerequisite: 633 or permission. Focus on human resources in anthropology. Topics include human resource planning, recruitment, selection, training, and development.

798 SOCIAL PSYCHOLOGY
3 credits
Prerequisite: 633 or permission. Focus on social psychology, including social cognition, social behavior, and social influence.

799 SPECIAL TOPICS: ANTHROPOLOGY
3 credits
May be repeated for credit only. May cover a variety of special topics in anthropology. May not be used to meet departmental undergraduate or graduate major requirements. May be used for elective credit only.

PUBLIC ADMINISTRATION AND URBAN STUDIES
3800:

590 WORKSHOP
1-3 credits
May be repeated. Group studies of special topics in urban studies. May not be used to meet graduate major requirements. May be used for elective credit only.

600 BASIC QUANTITATIVE RESEARCH
3 credits
Prerequisite: 604 or equivalent. Focus on basic concepts of research methodology, including research design, data collection, and statistical analysis.

601 ADVANCED RESEARCH AND STATISTICAL METHODS
3 credits
Prerequisite: 604 or equivalent. Focus on advanced research design, data analysis, and statistical methods.

602 HISTORY OF URBAN DEVELOPMENT
3 credits
Examines major events and developments in urban history, including urban growth, urban planning, and urban policy.

610 LEGAL FOUNDATIONS OF PUBLIC ADMINISTRATION
3 credits
Prerequisite: 604 or equivalent. Focus on the legal and ethical foundations of public administration, including the role of law in public administration and the legal framework for public sector management.

611 INTRODUCTION TO THE PROFESSION OF PUBLIC ADMINISTRATION
3 credits
Prerequisite: 604 or equivalent. Focus on the role of public administration in society and the ethical and legal framework for the profession.

612 NATIONAL URBAN POLICY
3 credits
Prerequisite: 604 or equivalent. Focus on national and regional urban policy, including urban planning, development, and management.

613 INTERGOVERNMENTAL MANAGEMENT
2 credits
Prerequisite: 604 or equivalent. Focus on the role of intergovernmental relationships and the management of intergovernmental relationships.

614 ETHICS AND PUBLIC SERVICE
3 credits
Prerequisite: 604 or equivalent. Focus on ethical issues in public service, including ethical decision-making, ethical leadership, and ethical management.

615 PUBLIC ORGANIZATION THEORY
3 credits
Prerequisite: 604 or equivalent. Focus on public organization theory, including organization design, governance, and leadership.

616 PERSONNEL MANAGEMENT IN THE PUBLIC SECTOR
3 credits
Focus on personnel management in the public sector, including recruitment, selection, placement, training, development, and evaluation.

617 LEADERSHIP AND DECISION-MAKING
3 credits
Focus on leadership and decision-making in the public sector, including leadership theory, decision-making models, and strategic planning.

618 CITIZEN PARTICIPATION IN GOVERNMENT
3 credits
Focus on citizen participation in government, including citizen involvement in policy-making, public participation in decision-making, and citizen empowerment.

620 SOCIAL SERVICES PLANNING
3 credits
Focus on social services planning, including needs assessment, program development, and evaluation.

621 URBAN SOCIETY AND SERVICE SYSTEMS
3 credits
Focus on urban society and service systems, including urban social structures, urban social problems, and urban service delivery systems.

622 URBAN PLANNING AND HEALTH CARE
3 credits
Focus on urban planning and health care, including urban health care systems, urban health care delivery, and urban health care policy.

623 PUBLIC WORKS ADMINISTRATION
3 credits
Focus on public works administration, including public works management, public works engineering, and public works policy.

636 PARKS AND RECREATION
3 credits
Focus on parks and recreation, including park planning, park management, and recreation management.

640 PUBLIC FINANCIAL ANALYSIS
3 credits
Focus on public financial analysis, including public finance, public budgeting, and public investment.

641 URBAN ECONOMIC GROWTH AND DEVELOPMENT
3 credits
Focus on urban economic growth and development, including urban economic development, urban economic policy, and urban economic analysis.

642 PUBLIC BUDGETING
3 credits
Focus on public budgeting, including budgeting principles, budgeting processes, and budgeting policy.

643 INTRODUCTION TO PUBLIC POLICY
3 credits
Focus on public policy, including policy formulation, policy implementation, and policy analysis.

650 COMPARATIVE URBAN SYSTEMS
3 credits
Focus on comparative urban systems, including urban systems in different cultural contexts, urban systems in different economic contexts, and urban systems in different political contexts.

670 RESEARCH FOR FUTURES PLANNING
2 credits
Focus on research for futures planning, including futures planning, strategic planning, and long-range planning.

671 PROGRAM EVALUATION IN URBAN STUDIES
3 credits
Focus on program evaluation in urban studies, including program evaluation methods, program evaluation techniques, and program evaluation policy.

681 SEMINAR IN ANTHROPOLOGICAL THEORY AND METHODS
3 credits
Major theoretical viewpoints in anthropological theory, research design, and methodological issues.

682 SEMINAR IN THEORETICAL SOCIOLOGY
3 credits
Major theoretical concepts in sociology, research design, and methodological issues.

683 SEMINAR IN THEORETICAL PSYCHOLOGY
3 credits
Major theoretical concepts in psychology, research design, and methodological issues.

684 SEMINAR IN THEORETICAL ECONOMICS
3 credits
Major theoretical concepts in economics, research design, and methodological issues.

685 SEMINAR IN THEORETICAL POLITICS
3 credits
Major theoretical concepts in politics, research design, and methodological issues.

686 SEMINAR IN THEORETICAL PHILOSOPHY
3 credits
Major theoretical concepts in philosophy, research design, and methodological issues.
672 ALTERNATIVE URBAN FUTURES 3 credits
Overview of topics and issues associated with alternative urban futures and their implications for planning and public policy in urban communities.

673 COMPUTER APPLICATIONS IN PUBLIC ORGANIZATIONS 2 credits
Prerequisite: 600 or 602. Introduction to microcomputer applications in the public sector, including data entry, statistical analysis, report writing, graphics representation and spreadsheets.

674 ANALYTICAL TECHNIQUES FOR PUBLIC ADMINISTRATORS 3 credits
Prerequisite: 603. Public sector applications of quantitative methods, including decision analysis, queue theory, mathematical programming, and simulation.

680 SELECTED TOPICS IN URBAN STUDIES 1-3 credits each
Prerequisite: permission. Selected topics in specific areas of urban planning, in various developmental processes of cities, or in various urban policy and administrative issues. A minimum of 27 credits may be earned in 680 and 681.

690 URBAN STUDIES SEMINAR 3 credits
Prerequisites: 16 credits of urban studies core plus supplementary methods. Urban research methods applied to specific urban research area. Comprehensive paper required.

695 INTERNSHIP 1-3 credits
Prerequisite: may be repeated for a total of three credits. Prerequisite: permission. Supervised work experience in which student participates in policy planning, administrative operations in selected urban, state and federal governments and urban agencies.

881 INDIVIDUAL STUDIES 1-3 credits
Prerequisite: may be repeated for a total of four credits. Directed individual readings or research on specific area or topic.

899 MASTER’S THESIS 3 credits
Prerequisite: permission. Supervised thesis writing. (May be repeated for a total of nine credits.)

900 ADVANCED RESEARCH METHODS I 3 credits
Prerequisite: permission. Master’s level coursework on statistics and probability. Introduction to statistical techniques and methodologies in doctoral and postdoctoral research. Emphasis on conceptual and mathematical interrelationships.

901 ADVANCED RESEARCH METHODS II 3 credits
Prerequisite: 700 or equivalent. Continuation of 700. Emphasis placed upon conceptual and mathematical interrelationships of multivariate statistical techniques as well as application of these techniques through computer analysis of urban data sets.

902 URBAN THEORY I 3 credits
Prerequisite: permission. Review of major theoretical tradition examining urban problems for students entering the doctoral program in urban studies within two-course sequence.

903 URBAN THEORY II 3 credits
Prerequisite: 02. Review of major professional disciplines dealing with urban problems and for students entering the doctoral program in urban studies (second in two-course sequence).

904 PUBLIC BUREAUCRACY 3 credits
Prerequisite: permission. Analysis of bureaucratic operations in the implementation of public policy, including special attributes of human service organizations and the democratic theory debate.

905 ECONOMICS OF URBAN POLICY 3 credits
Prerequisite: permission. Master’s level coursework in economics of urban policy and politics.

906 PROGRAM EVALUATION 3 credits
Prerequisite: permission. Advanced treatment of topics in program evaluation.

907 URBAN PLANNING AND MANAGEMENT STRATEGIES 3 credits
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.

908 URBAN POLICY: THE HISTORICAL PERSPECTIVE 3 credits
Prerequisite: permission. Critical examination of major ideas about the city from Antiquity to the 20th Century and of the impact on urbanization in society and public policy.

909 SYSTEMS AND PROCESSES OF POLICY ANALYSIS 3 credits
Prerequisite: permission. Analysis of administrative processes within public organizations, federal, state and local in the United States. Emphasis on urban community planning.

911 SEMINAR IN PUBLIC ADMINISTRATION 3 credits
Prerequisite: permission. In-depth study of major administrative processes, concepts and policies underlying public administration in the United States.

914 SEMINAR IN POLICY ANALYSIS AND EVALUATION 3 credits
Prerequisite: permission. In-depth study of major administrative processes, concepts and policies underlying public administration in the United States.

915 SEMINAR IN URBAN AND REGIONAL PLANNING 3 credits
Prerequisite: permission. In-depth study of major administrative processes, concepts and policies underlying urban and regional planning in the United States.

920 COMPARATIVE PLANNING STRATEGIES 3 credits
May be repeated for a maximum of 16 credits. Prerequisite: permission of instructor or chair. Selected topics for specialized instruction delivered at Kent, Youngstown, and/or Cleveland State University to apply toward a U.S. degree either as a required or an elective course.

999 URBAN TUTORIAL 3 credits
Prerequisite: permission. Intensive study of a particular approved field or topic area of urban studies under the supervision of a tutor.

899 DOCTORAL DISSERTATION 3 credits
(May be repeated.) Open to properly qualified students accepted as candidates for the Doctor of Philosophy degree. Student must register for at least three credits each semester until dissertation is accepted. Minimum of 15 credits required.

Courses of Instruction 105

**College of Engineering**

**CHEMICAL ENGINEERING**

4200:

535 PROCESS ANALYSIS AND CONTROL 2 credits
Prerequisite: 335, 336. This course is intended for a student holding a BS in a discipline other than engineering. Response of simple and chemical processes and design of appropriate control systems.

541 PROCESS DESIGN I 2 credits
Prerequisite: 330, 251, 263. Application of chemical engineering fundamentals to the design of a unit-munt process. Emphasis on use of process simulators. Advanced equipment design, oral, written communication skills, teamwork.

561 SOLIDS PROCESSING 3 credits
Prerequisites: 321 and 365 or permission. Comprehensive problems in sedimentation, fluidization, drying and other operations involving mechanisms of particulate solids in liquid and gas continua.

563 POLLUTION CONTROL 3 credits
Prerequisite: 362 or permission. Air and water pollution sources and problems. Engineering aspects and methodology.

566 DIGITAL DATA AND SIMULATION 3 credits
Prerequisites: 362 or permission. Data acquisition and analysis by digital devices, digital control applications and design.

570 ELECTROCHEMICAL ENGINEERING 2 credits
Prerequisite: 309, 320. Electrochemical engineering principles as applied to the study of electrode processes and to the design of electrochemical reactors. Topics include electrochemical thermodynamics, cell polarization, Faraday's laws, electrode kinetics, transport processes in electrochemical systems, current distributions, reactor design, experimental methods, chemical processes, and batteries and fuel cells.

572 SEPARATION PROCESSES IN BIOCHEMICAL ENGINEERING 2 credits
Prerequisite: 352. Introduction to the separation and purification techniques pertinent to biochemical processes, with emphasis on the engineering considerations for large-scale operations.

600 TRANSPORT PHENOMENA 3 credits
Prerequisite: 322 or permission. Systematic presentation of conservation of momentum, energy and mass at microscopic and macroscopic levels in conjunction with illustrative examples and analogies.

607 CHEMICAL REACTION ENGINEERING 3 credits
Prerequisites: 330 or permission. Kinetics of homogeneous and heterogeneous reactors. Reactor design for ideal and non-ideal flow systems.

610 CLASSICAL THERMODYNAMICS 3 credits
Prerequisite: 225. Discussion of laws of thermodynamics and their application. Problem solving and correlation of thermodynamic data. Phase and reaction equilibria.

622 BIOCHEMICAL ENGINEERING 3 credits
Prerequisite: permission. Application of chemical engineering principles to biochemical processes which produce desirable compounds or destroy unwanted or hazardous substances.

625 PHYSICAL PROPERTIES OF STRUCTURAL BIOPOLYMERS 3 credits
Prerequisites: permission of instructor. Examination of the physical properties of biological tissue from a material science perspective leading to a rational design of biomaterials.

630 CHEMICAL PROCESS DYNAMICS 3 credits
Prerequisite: 600. 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: 322, 329. Mathematical analysis of processes in transport phenomena, chemical kinetics and control systems. Solution techniques for these problems and their practical significance are stressed. Relevant mathematical techniques will be necessary for theory development.

632 NONLINEAR DYNAMICS AND CHAOS 3 credits
Prerequisite: 3450.235. Discussion and analysis of the complex behavior exhibited by nonlinear equations. Emphasis is on the numerical methods to quantify chaos.

633 COLLOIDS—PRINCIPLES AND PRACTICE 3 credits
Prerequisite: permission of instructor. Colloid science and applications in chemical and biomaterials engineering; dispersion systems, interfacial forces, surface tension, interfacial thermodynamics, colloid applications, biomaterials applications and characterization techniques.

634 APPLIED SURFACANT SCIENCE 3 credits
Prerequisite: 610. The basics of surfactant science, the chemical engineering application of surfactants including use in polymerization media, separations, emulsion microfluidization, and a rheology modifier.

635 ADVANCED POLYMER ENGINEERING 3 credits
Prerequisites: 322 or 600 or permission. Reactors for polymerization, polymer characterization, polymer rheology.

640 ADVANCED PLANT DESIGN 3 credits
Prerequisites: permission. Topical treatment of process and equipment design, scale-up, optimization, process synthesis, process economics, Case problems.

674 RENEWABLE RESOURCES FOR ENVIRONMENTALLY BENIGN CHEMICAL PRODUCTION 3 credits
Prerequisite: permission of instructor. Focus is on chemical and biochemical processing technologies for the preparation of fuels, polymers, materials, and specialty chemicals from renewable resources.

680 HETEROGENOUS CATALYSIS 3 credits
Prerequisite: 330. 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 innovative areas of chemical engineering, such as electrophysical engineering, coal and synthetic fuels processing, biochemical engineering, simultaneous heat and mass transfer phenomena and new separation techniques.
CIVIL ENGINEERING

514 DESIGN OF EARTH STRUCTURES
3 credits
Prequsite: 314 or permission.
Study of earth structures: dams, highway fills, cuts, embankments, etc. Emphasis on design techniques, construction procedures, stability analysis, and cost estimation.

515 SOIL AND ROCK EXPLORATION
3 credits
Prequsite: 314 or permission. Site exploration criteria and planning. Conventional boring and sampling. Laboratory testing methods. Theory and application of geotechnical methods, including seismic, electrical resistivity, gravity, magnetic and radiometric measurements. Some photo interpretation.

523 CHEMISTRY FOR ENVIRONMENTAL ENGINEERS
3 credits (2 lecture - 1 lab)
Prequsite: One year of college chemistry. General, physical, organic, biochemistry, and allied chemical concepts applied to environmental engineering. Concepts are used in water and wastewater laboratory.

526 ENVIRONMENTAL ENGINEERING DESIGN
3 credits
Prequsite: 323. An introduction to the physical, chemical and biological processes utilized in the treatment of water and wastewater, with design parameters emphasized.

527 WATER QUALITY MODELING AND MANAGEMENT
3 credits
Prequsite: 223. Analysis and simulation of the physical, chemical and biochemical processes as well as the stream ecological and biological processes. Applications to aquatic systems involving non-technical constraints outlined.

531 ADVANCED METHODS OF STRUCTURAL ANALYSIS
3 credits
Structural analysis using finite element: simple frames and beams, stress concepts and matrix formulation, simple and complex structural systems modeling, vibration analysis.

532 ENVIRONMENTAL PROTECTION
3 credits

533 RESEARCH ADVANCED TOPICS IN ENVIRONMENTAL ENGINEERING
3 credits
Prequsite: 332. Advanced topics in environmental engineering, with emphasis on research and project development.

534 TRAFFIC ENGINEERING
3 credits
Prequsite: 244. Traffic analysis, traffic assignment, and traffic control.

535 DESIGN AND ANALYSIS OF CIVIL STRUCTURES
3 credits
Prequsite: 335. Design and analysis of structural systems, including load and resistance factor design (LRFD) and other design methods.

536 DESIGN AND ANALYSIS OF CIVIL STRUCTURES
3 credits
Prequsite: 336. Advanced design and analysis of civil structures, focusing on seismic and other loadings.

537 DYNAMIC AND NVIRONMENTAL ENGINEERING
3 credits
Prequsite: 337. Dynamic behavior of civil structures, including earthquake and other environmental loads.

538 ENVIRONMENTAL ENGINEERING DESIGN
3 credits
Prequsite: 338. Design of environmental systems, including air, water, and soil pollution control.

539 ENVIRONMENTAL ENGINEERING DESIGN
3 credits
Prequsite: 339. Advanced environmental engineering design, including water treatment, air pollution control, and solid waste management.

540 ENVIRONMENTAL ENGINEERING DESIGN
3 credits
Prequsite: 340. Environmental engineering design, with emphasis on sustainable and green engineering practices.

541 ENVIRONMENTAL ENGINEERING DESIGN
3 credits
Prequsite: 341. Advanced environmental engineering design, focusing on emerging technologies and issues.

542 ENVIRONMENTAL ENGINEERING DESIGN
3 credits
Prequsite: 342. Environmental engineering design, with emphasis on water and wastewater systems.

543 ENVIRONMENTAL ENGINEERING DESIGN
3 credits
Prequsite: 343. Environmental engineering design, focusing on urban and regional scale projects.

544 ENVIRONMENTAL ENGINEERING DESIGN
3 credits
Prequsite: 344. Environmental engineering design, with emphasis on infrastructure and transportation systems.

545 ENVIRONMENTAL ENGINEERING DESIGN
3 credits
Prequsite: 345. Environmental engineering design, focusing on interdisciplinary and collaborative projects.

546 ENVIRONMENTAL ENGINEERING DESIGN
3 credits
Prequsite: 346. Environmental engineering design, with emphasis on innovation and sustainable development.
612 ADVANCED SOIL MECHANICS
Prerequisite: 314. Study of mechanics of behavior of soil as continuum. Principles of stress, strain, deformation, shear strength, and pore water pressure as applied to mechanical behavior of soil or materials.

613 ADVANCED GEOTECHNICAL TESTING
Prerequisites: 314, 622. Laboratory and field practice of static and dynamic in situ and laboratory soil testing. Testing procedures, applicability, limitations. (General evaluation of geotechnical parameters for routine and special site conditions. One lecture, two laboratory per week.)

614 FOUNDATION ENGINEERING I
Prerequisite: 311 or permission. Foundation bearing capacity and settlement analysis. Design of shallow and deep foundation systems. Load driving and load tests procedures and analyses. Theory and design of composite foundations including retaining walls, embankments and tunnels.

615 FOUNDATION ENGINEERING II
Prerequisite: 614 or permission. Soil-structure interaction theory and applications to underwater structures and foundation design. Theory and design of advanced foundation systems and methods and problems including dewatering, soil stabilization, underpinning and cofferdams. Scope, stability analysis.

616 SOIL IMPROVEMENT
Prerequisites: 211 and 314. Admixture stabilization preconsruction with vertical drains, vane shear testing, vibrocompaction, injection and grouting, thermal methods, electro-soils, soil reinforcement technologies. Special design case studies.

617 NUMERICAL METHODS IN GEOTECHNICAL ENGINEERING
Prerequisites: 311 and 341. Steady-state and transient flow through soils, consolidation, soilstructure interaction, piping, stress-deformation analysis of earth structures.

618 ROCK MECHANICS
Prerequisite: 552 or permission. Mechanical nature of rocks, linear elasticity and application to rock mechanics, rock, (time) dependence and effects of pore pressure, experiments on rock properties, failure theory and crack propagation.

620 SANITARY ENGINEERING PROBLEMS
2 credits
Prerequisite: 225. Application of both laboratory methods and theory to solution of sanitary and environmental problems involving water supply, soil ingestion, special industrial wastes, detergents and others.

621 ENVIRONMENTAL ENGINEERING PRINCIPLES
4 credits
Coursework: 12 credits. Presentation of basic principles of chemical reaction engineering, methods of solving environmental problems, and contaminant migration required for the understanding and solving environmental problems.

622 ADVANCED CHEMISTRY
2 credits
Prerequisites: 3150.151 and 3150.153 or permission. Qualitative treatment of fundamentals that govern the chemistry of aquatic systems. Emphasis on carbonate and dissolution-calcification as a mechanism of carbon dioxide sequestration and carbon dioxide sequestration.

623 PHYSICAL/Chemical TREATMENT PROCESSES
2 credits
Prerequisite or concurrent: 621. Theory, current research associated with physical/chemical processes, the impact on design-coagulation/precipitation, adsorption/sorption, filtration, adsorption processes emphasized.

624 BIOLOGICAL TREATMENT PROCESSES
2 credits
Prerequisite or concurrent: 621. Theory, current research associated with biological processes, related biological physics principles, the impact on the design/structural design, fixed film processes, gas transfer, sludge stabilization, sludge digestion processes emphasized.

625 WATER TREATMENT PLANT DESIGN
2 credits
Prerequisites: 622. Design of treatment plants for potable industrial and commercial uses. Development of water sources, treatment methods and finishing used to design best practical methods in terms of cost-benefit.

626 WASTEWATER TREATMENT PLANT DESIGN
2 credits
Prerequisite: 624. Application of theory and fundamentals to design of wastewater treatment plants. System design methods used by biological and chemical stabilization of wastewater to meet quality water criteria. Economic analyses made to determine best practical designs to be utilized.

627 ENVIRONMENTAL OPERATIONS LABORATORY
2 credits
Prerequisites: 625 or permission. Instruction of laboratory experiments relevant to the design and operation of water and wastewater treatment processes. Experimental data collection, interpretation and report preparation.

628 ADVANCED CHEMICAL OXIDATION PROCESS
3 credits
Prerequisites: 3150.151 and 3150.153 or permission. Qualitative and quantitative treatment of advanced chemical oxidation processes that go beyond precipitation and kinetics of water. Emphasis on ozone, hypochlorite, peroxides, and ultraviolet light (UV).

631 SOIL REMEDIATION
Prerequisite: 621 or permission. Provide a thorough understanding of site characterization, traditional soil remediation technologies, as well as present and emerging remediation technologies.

640 ADVANCED FLUID MECHANICS
3 credits

641 OPEN CHANNEL HYDRAULICS
3 credits
Application of basic principles of fluid mechanics to flow in open channels. Criteria for analysis of uniform, gradually varied and rapidly varied flows. Study of movement and transportation of sediments. Design problems utilizing numerical techniques.

645 APPLIED HYDROLOGY
3 credits
Dissipation of water cycle such as precipitation, evaporation, stream flows, floods, infiltration. Methods of analysis and their application to studies of water demand, storage, transfer, including mathematical modeling of urban runoff and statistical hydrology.

646 COASTAL ENGINEERING
3 credits
Challenges of long and shallow wave theories. Interaction of structures, waves design analysis of shore, offshore structures. Movement, transmission of sediments in tide shore areas.

681 ADVANCED ENGINEERING MATERIALS
3 credits
Selected topics on principles governing mechanical behavior of materials with respect to elastic, plastic and creep responses, stress rupture, high and low cycle thermal fatigue. Failure of ceramic materials. Test methods for fiber reinforced plastic structures and metal matrix composites. Metallography and prediction of engineering materials.

682 ELASTICITY

683 PLASTICITY
Prerequisite: 682, 4900-622 or equivalent. Mathematical formulation of constitutive equations with focus on their use in structural analysis. Internal variables. Isotropic, kinematic hardening. Nonthermal plasticity. Finite deformations, viscoplasticity.

646 ADVANCED REINFORCED CONCRETE DESIGN
3 credits

685 ADVANCED STEEL DESIGN
Prerequisite: 403. Properties of steel, fasteners, bearing, friction joints, Gusset plates, plate girders, and planks. Weld joints, cyclic loads, fatigue analysis, types of detail, tension, stability design.

686 EXPERIMENTAL METHODS IN STRUCTURAL MECHANICS
3 credits

687 LIMIT ANALYSIS IN STRUCTURAL ENGINEERING
3 credits

688 ADVANCED SEMINAR IN GEOMATERIALS ENGINEERING
13 credits
Prerequisite permission. Advanced projects, reading, studies or experimental work in various areas of civil engineering.

697 ENGINEERING REPORT
2 credits
Prerequisites: Permission of advisor. A project is given in civil engineering for students electing the non-thesis option. The final engineering report must be approved by the advisor and the advisory committee.

698 MASTER'S RESEARCH
16 credits
Prerequisite: Permission of advisor. (May be repeated.) Research on a suitable topic in civil engineering culminating in a Master's thesis.

699 MASTER'S THESIS
16 credits
Prerequisite: Permission of advisor. Research and thesis on some suitable topic in civil engineering as approved by advisor. Defense of thesis is by final examination.

701 EARTHQUAKE ENGINEERING
3 credits

702 PLATES AND SHEELS
3 credits
Prerequisites: 682 and 2500:591. Analysis for rectangular plates. Approximate methods, including finite difference, forces in middle plane. Large deflections. Differential geometry of a surface, Shell of revolution.

703 VISCOELASTICITY AND VISCOPLASTICITY
3 credits

704 LINEAR ELEMENT ANALYSIS
2 credits

705 ADVANCED COMPOSITE MECHANICS
3 credits

712 DYNAMIC PLASTICITY
3 credits
Prerequisites: 692 or 703. Inelastic and transient loading of structural elements beams, plates, shells, etc. in which plastic deformation occurs. Topics include: longitudinal and transverse plasma wave propagation in rods, propagation of plastic hinges in dependent viscoplastic waves, transverse impact on beams and plates, high-rate forming, blast loading, plate perforation, shock waves in solids.

717 SOIL DYNAMICS
3 credits
Prerequisite: 694 or permission. Introduction of wave propagation theory related to soils, soil structures and foundations. Dynamic behavior of soils. Design of foundations for dynamic loading, impacting, pulsating and blast loads.

731 REMEDIATION
2 credits
Prerequisite: 621 or permission. Provide the fundamentals required for understanding and successfully implementing the biodegradation of hazardous compounds coiled with the use of novel metabolic and transgenic techniques of bacterium.

745 SEEPAGE
2 credits
Discussion of parameters determining the seepage of liquids. Analysis, numerical and experimental methods, to determine two- and three-dimensional movement of groundwater with unstable flow.

898 PRELIMINARY RESEARCH
1.5 credits
(May be repeated for a total of 6 credits) Prerequisite: approval of dissertation director. Preliminary investigation prior to the submission of a dissertation proposal in to the interdisciplinary doctoral committee.

899 DOCTORAL DISSERTATION
1.5 credits
May not be taken more than once. Prerequisite: acceptance of research proposal by the interdisciplinary doctoral committee and approval of the dissertation director. Original research by the doctoral student.

ELECTRICAL ENGINEERING 4400:

549 DIGITAL COMMUNICATION
3 credits
Prerequisite: 341. Introduction to digital communication theory and systems, coding of analog and digital information, digital modulation techniques, introduction to information theory.

553 ANTENNA THEORY
3 credits
Prerequisites: 364 or equivalent. Theory of EM radiation. Wave antennas, arrays, receiving and transmitting antennas, wave propagation, integral equations for induced currents, self and mutual impedances. Equations for radiation from aperture antennas.

557 MICRO WAVES
2 credits
Prerequisites: 345 or equivalent. Microwave devices, Maxwell's equations and wave equation. Field analysis of wave guides, microwave components, techniques, and systems.

560 PROGRAMMABLE LOGIC
2 credits
Prerequisites: 300. Programmable logic. Design of digital circuits. Conceptual understanding of logic, circuits. Methodologies for analysis, design and testing, the design of the circuit.
Courses of Instruction 109

COMPUTER ENGINEERING

4450:

520 OBJECT ORIENTED DESIGN

Prerequisite: 1060 or equivalent. A course in object-oriented design with a focus on design and implementation using object-oriented programming languages like C++.

3 credits

570 VLSI CIRCUITS AND SYSTEMS

3 credits

597 SPECIAL TOPICS: COMPUTER SCIENCE

May be taken more than once. Prerequisite permission of department chair. Special topics in computer engineering.

1-2 credits

605 COMPUTER ARCHITECTURE

Prerequisite: 230 or equivalent. Development of computer architectures. Design methodologies, processor organization and design of instruction sets. Parallel processing, computer organization, system configuration.

2 credits

610 COMPLEX SYSTEMS

Prerequisite: 605 or equivalent. This course provides an introduction to distributed systems and parallel programming based on a single instruction, message-passing, or shared memory.

3 credits

640 COMPUTER NETWORKS

Prerequisite: 645 or equivalent. Modern computer networking and network management. Concepts, protocols, design, reliability, performance.

3 credits

645 COMPUTER NETWORKS II

Prerequisite: 640 or equivalent. Advanced topics in computer networks, including network protocols, network design, and network management.

3 credits

650 DATABASE MANAGEMENT SYSTEMS

Prerequisite: 645 or equivalent. Fundamentals of database systems, including database designs, query languages, and transaction management.

3 credits

660 COMPUTER SYSTEM SECURITY

Prerequisite: 645 or equivalent. Fundamentals of computer system security, including access control, cryptography, and secure software development.

3 credits

670 COMPUTER VISION AND IMAGES

Prerequisite: 645 or equivalent. Introduction to computer vision and image processing, including image acquisition, image processing, and computer vision.

3 credits

680 ARTIFICIAL INTELLIGENCE

Prerequisite: 645 or equivalent. Introduction to artificial intelligence, including knowledge representation, reasoning, and learning.

3 credits

690 INTERNET AND DISTRIBUTED SYSTEMS

Prerequisite: 645 or equivalent. Introduction to the internet and distributed systems, including network protocols, web technologies, and distributed applications.

3 credits

700 SOFTWARE ENGINEERING

Prerequisite: 645 or equivalent. Fundamentals of software engineering, including software development processes, software project management, and software quality assurance.

3 credits

710 SOFTWARE ENGINEERING II

Prerequisite: 645 or equivalent. Advanced topics in software engineering, including software architecture, software metrics, and software maintenance.

3 credits

720 SOFTWARE ENGINEERING III

Prerequisite: 645 or equivalent. Special topics in software engineering, including software testing, software evolution, and software safety.

2 credits

730 SOFTWARE ENGINEERING IV

Prerequisite: 645 or equivalent. Special topics in software engineering, including software security, software privacy, and software ethics.

2 credits

MECHANICAL ENGINEERING

4600:

500 THERMAL SYSTEM COMPONENTS

Prerequisite: 301, 315, or equivalent. Fundamentals of steam systems. Selection and performance analysis of boiler-turbine systems and steam systems.

3 credits

520 SYSTEM DYNAMICS AND CONTROL


3 credits

530 CONTROL SYSTEMS DESIGN

Prerequisite: 445 or permission. Methods of feedback control design such as minimal error, root-locus, frequency domain. Compensation techniques. Multivariable and nonlinear design methods and computer-aided design and analysis.

3 credits

540 INDUSTRIAL AUTOMATIC CONTROL

Prerequisite: 441 or permission. Operation of basic control mechanisms. Study of mechanical, hydraulic, pneumatic, fluidic control systems, including application areas. Tuning of control devices for optimum performance of system. Use of on-line computer and control techniques.

3 credits

550 INTRODUCTION TO COMPUTATIONAL FLUID FLOW AND CONVECTION

Prerequisites: 315 or permission. Numerical modeling of fluid thermal systems, numerical solution of the momentum and thermal boundary layer equations, flow simulations using advanced heat transfer/fluidic packages.

3 credits

560 PRESSURE VESSEL DESIGN

Prerequisite: 315 or permission. Introduction to modern pressure vessel technology. Topics include basic structural considerations, materials, and their environment and design-construction features.

3 credits

561 COMPUTER AIDED DESIGN AND MANUFACTURING

Prerequisites: 301, 315, or equivalent. Geometric modeling, computer graphics, and finite element methods. Topics include geometric modeling, computer graphics, and finite element methods.

3 credits

570 EVOLUTIONARY ALGORITHMS

Prerequisite: 622 or equivalent. Introduction to optimization techniques based on evolutionary algorithms, including genetic algorithms and ant colony optimization.

3 credits

580 CONVECTION HEAT TRANSFER

Prerequisite: 315. Convection heat transfer mechanisms. Fundamental laws of heat transfer, conduction, and convection.

3 credits

590 AUTOMATIC CONTROL

Prerequisite: 441 or permission. Advanced topics in automatic control, including state-space methods, stability analysis, and robust control.

3 credits

600 THERMAL ENGINEERING

Prerequisite: 315 or equivalent. Introduction to thermal engineering systems, including heat transfer, fluid mechanics, and thermodynamics.

3 credits

610 DYNAMICS OF VISCOUS FLOW

Prerequisite: 310. Viscous flow fundamentals. Topics include fluid dynamics, boundary layers, and turbulent flows.

3 credits

620 COMPUTATIONAL FLUID DYNAMICS I

Prerequisite: 315 or equivalent. Introduction to computational fluid dynamics, including finite element methods and numerical solutions.

3 credits

630 CONDUCTION HEAT TRANSFER

Prerequisite: 315 or equivalent. Advanced topics in conduction heat transfer, including thermal conductivity, heat capacity, and thermodynamic properties.

3 credits

640 INTRODUCTION TO THERMOCHEMISTRY

Prerequisite: 315 or permission. Introduction to thermodynamics of chemical and physical systems, including heat transfer and fluid flow.

3 credits

650 CONTINUUM MECHANICS

Prerequisite: 315 or permission. Fundamentals of continuum mechanics, including stress, strain, and constitutive equations.

3 credits

660 THERMAL FIELDS OF MATERIALS

Prerequisite: 315 or equivalent. Introduction to the thermal fields of materials, including heat transfer and fluid flow.

3 credits

670 FUNDAMENTAL OF FRUCTURE MECHANICS

Prerequisite: 315 or permission. Introduction to the fundamental of fracture mechanics, including stress, strain, and deformation.

3 credits

680 ANALYSIS OF MECHANICAL COMPONENTS

Prerequisite: 315 or permission. Analysis of mechanical components, including stress, strain, and deformation.

3 credits
628 MECHANICAL BEHAVIOR OF MATERIALS 3 credits
Prerequisite: 350 or permission. Mechanical behavior of engineering materials; metallurgy of deformable, anisotropic and composite materials; stresses and deformation; strengthening mechanisms; thermomechanical processing; mechanical testing.

629 NONLINEAR ENGINEERING PROBLEMS 3 credits

630 VIBRATIONS OF DISCRETE SYSTEMS 2 credits
Prerequisite: 413A or 413B. Study of vibrations of multimode of freedom systems with or without external forces, including free and forced vibrations, damped and transient responses, normal modes vibrations, and free vibrations of single degrees of freedom systems. Application to design and shock design.

631 KINEMATIC DESIGN 3 credits
Prerequisites: 521 and permission of instructor. The geometry of constrained mechanisms. Analysis of linkages and gearing. Introduction to computer-aided design.

632 RELIABILITY IN DESIGN 3 credits

633 COMPUTERIZED MODAL ANALYSIS OF STRUCTURES 3 credits
Prerequisite: 630 or equivalent. Modal analysis theory and measurement techniques, digital signal processing concepts, structural dynamics theory, modal parameter estimation with "hands-on" experience in the application of modal measurement methods in vibration analysis.

634 ADVANCED DYNAMICS OF ROTATING MACHINERY 3 credits
Prerequisite: 420 or equivalent. Dynamic modeling and simulation of complex rotating bearing systems. Steady-state, transient, and stability analysis with emphasis on gyroscopic, inerter, root-box, disk-skew and imprecise interaction effects.

635 WAVES STRESSES IN SOLIDS AND FLUIDS 2 credits
Prerequisite: 531 or equivalent. The wave propagation: propagation of elastic waves through solid media, transmission, reflection, absorption and diffraction phenomena. Low and high-velocity impact problems. Numerical simulation techniques.

642 SYSTEM ANALYSIS AND CONTROL DESIGN 3 credits
Prerequisite: 440 or equivalent. Uniform methods of modeling and response analysis, controllability and observability, stability theory and analysis of linear and nonlinear engineering processes. Design of feedback controls for optimum performance for multivariable nonlinear control applications.

643 DISTRIBUTED PROCESS CONTROL DESIGN AND APPLICATIONS 3 credits
Prerequisite: 440 or equivalent. Design and control continuous control algorithms. Process control function implementation. Self-diagnosis, decision, intelligent control systems. Case studies and experiments from various engineering disciplines.

646 PROCESS IDENTIFICATION AND COMPUTER CONTROL 3 credits
Prerequisite: 440 or equivalent or permission. Obtaining mathematical models of processing from noisy data. Methods of digital control design. Case studies on computer control of selected processes.

647 ENGINEER CYST IN CONTROLS AND MANUFACTURING 3 credits
Prerequisite: 440/450 or permission of instructor. Expert system methodologies for process control, computer-integrated flexible manufacturing and robotics.

670 NEURAL AND FUZZY CONTROL SYSTEMS 3 credits
Prerequisite: 440/540 or permission of instructor. Analysis and design of intelligent control systems. The artificial neural network and fuzzy logic for process identification and controller design. Applications and case studies in industry.

670 TRIBOLOGY 3 credits
Prerequisite: 670. Fundamentals of lubrication and wear treatment. Includes basic theory, advanced topics, applications to bearings, gears, cams, and fluid film lubrication. Fluid film lubrication and bearings, rolling element bearings, bearing dynamics.

660 ENGINEERING ANALYSIS 3 credits
Prerequisite: 655. In engineering. Study of analysis techniques as applied to specific engineering problems. Applications include beam deflections, acoustics, heat conduction and hydraulicodynamic.

665 CORD MECHANICS 3 credits
Prerequisite: 607. Elastic and viscoelastic theory of wire rope. Derivation of simple and complex. Applications are discussed with respect to wire mechanics, bioengineering and laminocomposite constructions.

679 INTEGRATED FLEXIBLE CELLULAR MANUFACTURING SYSTEMS ANALYSIS AND DESIGN 3 credits
Prerequisite: 440/540 or equivalent or by permission of instructor. The analysis of integrated computer-aided manufacturing systems, design of automated manufacturing components and simulations of flexible cellular manufacturing systems.

693 MEASUREMENTS METHODS AND EXPERIMENTAL ERROR IN THERMOCOUL SCIENCE 3 credits
Prerequisites: viscosity, fluid convection heat transfer, convection heat transfer. The course will include elements of experimental error analysis, optics, and optical ray tracing, principles of testing, methods and devices for fluid flow quantification and temperature measurement. Laboratory work with hands-on experiences.

698 SPECIAL TOPICS IN MECHANICAL ENGINEERING 14 credits
Prerequisite: Permission. For qualified candidate for graduate degree. Supervised research in the student's major field of training or experience. Credit depends upon nature and extent of project, as determined by advisor and department chair.

697 ENGINEERING REPORT 2 credits
Prerequisite: Permission of advisor. A relevant problem in mechanical engineering for students electing the nonthesis option. The final engineering report must be approved by the advisor and the advisory committee.

698 MASTERS RESEARCH 16 credits
Prerequisite: Permission of advisor. (May be repeated) Research on a suitable topic in mechanical engineering culminating in a master's thesis.

699 MASTERS THESIS 14 credits
Prerequisite: permission of advisor. Supervised research in a specific area of mechanical engineering.

704 FINITE ELEMENT ANALYSIS II 3 credits

706 FINITE ELEMENT ANALYSIS III 3 credits

710 DYNAMICS OF VISCOUS FLOW II 3 credits

711 COMPUTATIONAL FLUID DYNAMICS II 3 credits
Prerequisite: 480/580. Development of advanced computational techniques for convection-dominated flows. Higher order explicit and implicit schemes including nonstructural frameworks and methods applied to benchmark problems.

712 HYDRODYNAMIC STABILITY 3 credits

719 ADVANCED HEAT TRANSFER 3 credits
Prerequisites: 615, 616. Topics include nonhomogeneous or nonlinear boundary value problems of heat conduction, heat transfer with melting, solidification and ablation, heat transfer in porous systems and hydrodynamically and thermally unsteady convection.

722 APPLIED STRESS ANALYSIS II 3 credits
Prerequisite: 619. Development of approximate solution techniques including finite elements, method of weighted residuals (Rayleigh-Ritz, Galerkin, Trefftz, collocation seeking, etc.) and finite differences.

726 NONLINEAR CONTINUUM MECHANICS 3 credits
Prerequisite: 622. Finite deformation and strain, stress, constitutive equations, strain energy functions. Solution of finite deformation problems in hyperelasticity, coupled thermoelasticity and plasticity, electroelasticity and micropolar theories.

730 VIBRATIONS OF CONTINUOUS SYSTEMS 3 credits
Prerequisite: 630. Continuation of vibrational systems, using separation of variables, energy methods, Rayleigh-Ritz and other approximate techniques. Concepts and solutions of integral equations as applied to continuous systems.

731 RANDOM VIBRATIONS 3 credits
Prerequisites: 410 or equivalent. Stationary random processes and their transmission through linear time-invariant discrete and continuous vibrating systems. Analysis of random data and interaction between mechanisms of linear and nonlinear systems.

736 ADVANCED MODAL ANALYSIS OF STRUCTURES 3 credits
Prerequisite: 633 or equivalent. Structural excitation techniques. Modal parameter estimation. System identification, harpiness, lumping matrices, substructuring, prediction and evaluation of structural instability problems.

741 OPTIMIZATION THEORY AND APPLICATIONS 3 credits
Prerequisite: permission. Theory of optimization in engineering systems, development and method of solution of optimization problems for physical processes, large systems. Use of dynamic programming, operational research methods of system optimization, control.

763 ADVANCED METHODS IN ENGINEERING ANALYSIS 3 credits
Prerequisites: 4340/5340 or equivalent. Applications of finite difference and finite element methods, variational methods, integral methods and similarity transforms to engineering problems in heat transfer, fluid mechanics and vibrations.

765 ADVANCED SEMINAR IN MECHANICAL ENGINEERING 14 credits
May be repeated for a total of nine credits. Prerequisite: permission of department chair. Advanced projects and studies in various areas of mechanical engineering. (For student seeking Ph.D. in engineering science.)

785 PRELIMINARY RESEARCH 1-15 credits
Prerequisite: approval of dissertation director. Preliminary investigations prior to the submission of a dissertation proposal to the Interdisciplinary Doctoral Committee.

795 DOCTORAL DISSERTATION (May be taken more than once) Prerequisite: acceptance of research proposal by the Interdisciplinary Doctoral Committee and approved by the dissertation director. Original research by the doctoral student.

BIOMEDICAL ENGINEERING 4800:

530 DESIGN OF MEDICAL IMAGING SYSTEMS 3 credits
Prerequisites: 3200/200; 3650/292; 4400/435, 4800/305; or by permission of instructor.
Physical principles and engineering design of medical imaging systems, with emphasis on digital radiography, computed tomography, nuclear medicine, ultrasound and magnetic resonance.

537 PHYSICS OF MEDICAL IMAGING 3 credits
Prerequisites: 3200, 3650, 3652, 4400/435, 4800/305. Physical principles of medical imaging modalities with emphasis on the properties, general mechanisms and interaction of radiation with matter, physics of the image formation and optimization.

560 EXPERIMENTAL TECHNIQUES IN BIOMECHANICS 3 credits
Prerequisites: 2000/200; 2002; 4400/435. Clinical instrumentation to measure and display physiological and anatomic parameters. Basic concepts of instrumentation including design criteria and operational analysis. Practical experience gained through the use of instrumented mammalian models.

571 BIOMETRY 3 credits
Statistical and experimental design topics for the biomedical and biomedicine research disciplines including: distributions, hypothesis testing and estimation, ANOVA, proportion analysis and nonparametric statistics.
621 SENSORY SYSTEMS ANALYSIS 3 credits
Prerequisite: 4400:371 or equivalent, or by permission. Study of various sensory modalities from a systems engineering perspective. Techniques from linear and non-linear systems analysis are applied to aspects of vision, hearing, touch, and position sensing in humans. Comparisons are made with artificial emulations of these senses.

622 PHYSIOLOGICAL CONTROL SYSTEMS 2 credits
Prerequisite: 4400:371 or equivalent, or by permission. Analysis of motor, circulatory, homeostatic, and other physiological functions are carried out from the perspective of control theory, both linear and nonlinear. Both similarities and differences from traditional engineering systems will be presented. Computer simulations of several physiological systems will be developed.

623 PROCESSING OF BIOMEDICAL SIGNALS 2 credits
Prerequisite: graduate standing in the College of Engineering or 811 or equivalent. Concepts for the analysis of biomedical continuous signals and discrete processes including deterministic and random components, and computerized analysis. Histograms, correlograms, and data displays.

624 IMAGE PROCESSING FOR BIOMEDICAL DATA 3 credits
Image sampling, quantization, and transformations. Enhancement including smoothing and sharpening. Restoration using inverse and Wiener filters. Edge detection and thresholding with region growing for segmentation.

630 BIOMEDICAL COMPUTING 3 credits
Prerequisite: 460:206 or equivalent. Computer applications in health care. Clinical applications: AHMT, medical records, direct order entry, A.D. conversion, patient monitoring, peripherals and interfaces, diagnostic algorithms, automated EKG, ECG systems.

632 DIAGNOSTIC IMAGING TECHNIQUES 3 credits
Prerequisite: 4400:371 or equivalent, or by permission. Applications of orientation, magnetic resonance, and optical fibers to biomedical systems. Vocabulary of control systems analysis. Linear systems and control.

633 BIOMEDICAL OPTICS 3 credits
Application of lightwave principles and optical fibers in the design and implemention of instrumentation, techniques, and applications for medical diagnostic imaging and treatment of disease.

634 MEDICAL IMAGING DEVICES 3 credits
Imaging modalities including radiation, magnetic resonance, and sound. The formation of images. Specific devices including computer tomography, magnetic resonance, ultrasound, gamma cameras and PET.

636 SPINE MECHANICS 3 credits
Prerequisites: 3900:581 or equivalent; 4200:406 or equivalent, or permission. Physical properties and functional biomechanics of the spine. Kinematics and kinetics of the human spine. Biomechanics of scoliosis, trauma instability, pain, and orthosis. Mechanics and design of surgical implants.

637 SOFT CONNECTIVE TISSUE BIOMECHANICS 3 credits
Prerequisites: 3900:528 or equivalent. Mechanical properties and functional biomechanics of soft connective tissue. Biomechanics of muscle and joint mechanics. Biomechanics of connective tissue.

638 HARD CONNECTIVE TISSUE BIOMECHANICS 3 credits
Prerequisites: 3900:529 or equivalent. Mechanical properties and functional biomechanics of bone. The biology and mechanics of fracture and fracture healing. Mechanics of external and internal fixators. Total joint implants and reconstruction techniques.

644 MUSCLE MECHANICS AND OPTIMIZATION 3 credits
Prerequisite: Graduate standing in the College of Engineering or by permission. Human body joint kinematics, muscle mechanics and modeling. The principles of optimality as applied to muscle forces, along with muscle anatomy and physiology.

645 MECHANICS IN PHYSIOLOGY AND MEDICINE 3 credits
Prerequisites: 4400:371 and 4500:202 or equivalent. The mechanics of control and feedback in biological organisms. Mechanics of the system and its parts. Mechanics of the living organism.

647 KINETICS OF THE HUMAN BODY 2 credits
Prerequisites: 4600:221 or equivalent, graduate standing in the College of Engineering or by permission. Analytical methods used to model and quantify human body motion. Three-dimensional kinematics, joint coordinate systems, functional anatomy, segment center of mass and joint centers.

650 CARDIOVASCULAR DYNAMICS 3 credits
Prerequisites: 3000:587, 582, or equivalent; 4400:371 or equivalent. Analysis of blood pumping action, blood flow, blood flow functions, and blood flow factors. Use of modeling and direct measurement techniques. Clinical implications of disease.

651 CARDIOVASCULAR DIAGNOSTIC TECHNIQUES 3 credits
Prerequisite: 3000:586, 582 or equivalent. Cardiovascular disease conditions, instrumentation and techniques both invasive and noninvasive used for diagnosis. Direct interaction with active clinical laboratories.

652 CARDIOVASCULAR THERAPEUTIC TECHNIQUES 3 credits
Prerequisite: 651 Cardiac therapeautic devices and procedures for correction of congenital defects, valve failure, heart and arterial bypass grafting and arteriovenous catheter-based procedures.

653 TRANSPORT PHENOMENA IN BIOLOGY AND MEDICINE 3 credits
Prerequisites: 4200:321, 323 or 4600:200, 518 or equivalent. Basic definitions, cardiovascular maps and monographs. Transport phenomena in physiology and medical systems and artificial kidney and lung design. Design optimization. Analysis of human thermal system.

655 REHABILITATION ENGINEERING 3 credits
Prerequisites: graduate standing in engineering, mathematics, or science; permission of the instructor. Devices for rehabilitation, interfacing the motor and sensory impaired, quantitative assessment techniques, prosthetics and orthotics, bedside engineering, emerging technology.

660 BIOMATERIALS AND LABORATORY 4 credits
Prerequisite: Biomedical Laboratory. Material data in biological applications. Effect of physiological environment and stimulation on materials. Corrosion and unintended degradation. Design of materials for soft tissue, hard tissue, blood, and biodegradable devices. Laboratory experiments using materials designed for biomedical use and demonstration of biological/medical interactions.
EDUCATIONAL FOUNDATIONS AND LEADERSHIP

5100:

512 DESIGN AND PRODUCTION OF INSTRUCTIONAL MATERIALS
3 credits (2 clinical hours)
Design, adaptation and preparation of instructional materials using graphics, transparency production, video equipment, computer authoring software, mounting and laminating processes, and other media.

514 ORGANIZING AND SUPERVISING EDUCATIONAL MEDIA PROGRAMS
3 credits
Prerequisites: 310 or permission of the instructor. Procedures for planning, organizing and evaluating educational media programs including media facilities and services.

520 INTRODUCTION TO INSTRUCTIONAL COMPUTING
3 credits
Examines the use of word processing, spread sheets, databases, graphics, telecommunications and authoring software in both educational and business settings and evaluates instructional and applications software.

590.12 WORKSHOP
1-3 credits
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

594 EDUCATIONAL INSTITUTES
1-4 credits
Special course designed as in-service upgrading programs, frequently provided with the support of curriculum units.

600 PHILOSOPHIES OF EDUCATION
3 credits
Examination of basic philosophical problems underlying educational questions and how these philosophies influence educational practice.

602 COMPARATIVE AND INTERNATIONAL EDUCATION
3 credits
Comparative study of selected educational systems with reference to forces that shape characteristics. Different theoretical approaches used in study of comparative education also investigated.

604 TOPICAL SEMINAR IN THE CULTURAL FOUNDATIONS OF EDUCATION
3 credits
May be repeated for a total of six credits. Topics selected by the instructor or related to study of educational institutions, theories and/or ideas. Different topics will be offered from section to section.

614 PLANNING FOR TECHNOLOGY
3 credits
Prerequisite: 520 or permission of instructor. Emphasizes the process of planning for the use of technology in schools. Includes plans for faculty support and arrangements of computer set ups.

616 ADULT EDUCATION
2 credits
Survey course for teachers and administrators. Historical background including influences on and their relation to developments in the field. Emphasis on background and social value of current programs.

620 PSYCHOLOGY OF INSTRUCTION FOR TEACHING AND LEARNING
3 credits
Prerequisite: 202/201 or equivalent. Current theories and research in the areas of cognition and learning, development, and motivation, and their application to teaching in any context.

624 SEMINAR: EDUCATIONAL PSYCHOLOGY
3 credits
May be repeated for a total of six credits. Prerequisite: 250 or equivalent. In-depth study of research in selected areas of learning, development, evaluation and motivation.

630 TOPICAL SEMINAR IN COMPUTER-BASED EDUCATION
3 credits
May be repeated for a total of six credits. Prerequisite: 430/530. Advanced topics related to development, implementation, research and evaluation of computer based education. Emphasis on selecting, developing, implementing and evaluating computer-based programs and systems.

636 TOPICAL SEMINAR IN EDUCATIONAL TECHNOLOGY
3 credits
Repeatable for up to nine credits. Current trends and practices in educational technology such as computer authoring software, tools and processes for instructional video production, presentation software, and online education.

640 TECHNIQUES OF RESEARCH
3 credits
Research methods and techniques commonly used in educational and behavioral sciences. Preparation of research reports. Includes library, historical, survey, experimental research and data analysis.

642 TOPICAL SEMINAR IN MEASUREMENT AND EVALUATION
3 credits
May be repeated for a total of six credits. Topics of current interest and need will be emphasized. The student will develop expertise in the measurement and evaluation of educational programs.

646 MULTICULTURAL COUNSELING
2 credits
Prerequisites: 5600/643 or permission of instructor. An examination of multicultural counseling theory and research necessary to work with culturally diverse people.

648 INDIVIDUAL AND FAMILY DEVELOPMENT ACROSS THE LIFESPAN
3 credits
An exploration of individual and family development. Emphasis will be placed on understanding the relationship between the individual and his/her family.

695 FIELD EXPERIENCE: MASTER'S
1-3 credits
Prerequisites: permission of department chair and instructor. Area determined in accordance with student's program and professional goals.

696 MASTER'S TECHNOLOGY PROJECT
2-3 credits
Prerequisite: permission of department chair and instructor. Preparation and test a technology learning aid that includes any combination of text, graphics, sound, color, motion, and the provision for interaction by the target students.

697 INDEPENDENT STUDY
1-3 credits
May be repeated for a total of six credits. Prerequisite: permission of department chair and instructor. Specific area of study determined in accordance with student's program and professional goals.

698 MASTER'S PROBLEM
2-4 credits
Prerequisite: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with problems in educational foundations.

GENERAL ADMINISTRATION

5170:

590.23 WORKSHOP
1-3 credits
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

594 EDUCATIONAL INSTITUTES
1-4 credits
Special course designed as in-service upgrading programs, frequently provided with the support of curriculum units.

601 PRINCIPLES OF ADULT EDUCATION
3 credits
Prerequisite: 500/600. An introduction to the major dimensions of the personnel function.

604 SCHOOL-COMMUNITY RELATIONS
3 credits
Prerequisites: 501 and 510. A study of the interaction between the school’s internal and external public. Field based research required.

606 EVALUATION IN EDUCATIONAL ORGANIZATIONS
3 credits
Prerequisites: 501 and 510. An examination of the general concepts, models, practical applications and considerations involved in the evaluation of educational organizations.

607 SCHOOL LAW
3 credits
Prerequisites: 501 and 510. An examination of the legal principles underlying education in the United States as reflected in statutory provisions, court decisions and administrative orders. Field based research required.

608 SCHOOL FINANCE AND ECONOMICS
3 credits
A study of financial operations of educational systems, including taxes, other sources of revenue, expenditures, budgeting and effects of economic factors.

609 PRINCIPLES OF CURRICULUM DEVELOPMENT
3 credits
Prerequisites: 501 and 510. A course intended to help the student develop the performance competencies necessary to engage in curriculum decision making.

610 PRINCIPLES OF EDUCATIONAL SUPERVISION
3 credits
Prerequisites: 501 and 510. A course of study in the principles and practices of curriculum supervision that includes instructional leadership and the content in which it operates, with emphasis on the processes, tasks, roles and relationships involved. Field based research required.
CURRICULAR AND INSTRUCTIONAL STUDIES

5500:

522 DEVELOPMENTAL READING IN THE CONTENT AREAS—ELEMENTARY 3 credits
- Prerequisite: 5200.330 or permission of instructor.

524 TEACHING READING TO CULTURALLY DIVERSE LEARNERS 3 credits
- Prerequisite: 5200.330. Knowledge skills and attitudes to employ effective methods of teaching reading to diverse populations and learners whose language is not dominant.

525 PRINCIPLES OF BILINGUAL/MULTICULTURAL EDUCATION 3 credits
- An introduction to the theoretical, cultural, sociopolitical bases of bilingual/multicultural education. Legislation. Most recent programs. Implementation, research

535 TEACHING READING AND LANGUAGE ARTS TO BILINGUAL STUDENTS 3 credits
- Prerequisite: permission of instructor. Course guides methodologies for teaching reading, language arts in the bilingual/multicultural classroom. The bilingual student's native language and culture are stressed.

542 TEACHING MATHEMATICS, SOCIAL STUDIES AND SCIENCE TO BILINGUAL STUDENTS 3 credits
- Prerequisite: advanced reading, English majors. Knowledge skills and attitudes to employ effective methods of teaching reading, language arts in the bilingual/multicultural classroom. The bilingual student's native language and culture are stressed.

543 TECHNIQUES FOR TEACHING ENGLISH AS A SECOND LANGUAGE IN THE BILINGUAL CLASSROOM 3 credits
- Prerequisite: permission of instructor. Course includes teaching language skills to limited English Proficient students in grades K-12, administration of language assessment tests, selection and evaluation of materials.

565 VOCATIONAL BUSINESS EDUCATION 3 credits
- Prerequisite: senior status or permission. Principles of program construction, organization, implementation, evaluation, administration, and development of program guides for both intensive and cooperative vocational business education.

570 MULTICULTURAL EDUCATION IN THE UNITED STATES 3 credits
- In-depth study of educational influence on cultural heritages. Comparisons of urban, suburban, and rural educational settings with reference to sociocultural differences.

571 CHARACTERISTICS OF CULTURALLY DIVERSE POPULATIONS 3 credits
- Course on characteristics of culturally diverse populations with focus on youth in low-income areas. Emphasis on the cultural, sociopolitical, and educational problems that affect their development.

592 PREPARATION FOR TEACHING CULTURALLY DIVERSE POPULATIONS 3 credits
- Basic knowledge of learning styles, interests, instructional, and management techniques. Approaches to instructional strategies for diverse populations.

595 INSTRUCTIONAL TECHNOLOGY APPLICATIONS 3 credits
- Prerequisite: 5100.520 or instructor permission. Focus on developing learner competency in the use of instructional technologies to enhance the instructor's personal and professional productivity.

590.12 WORKSHOP 3 credits
- Prerequisite: permission of instructor. Focus on developing teaching skills in a specific area of the curriculum. May be repeated for a maximum of 6 credits.

594 EDUCATIONAL INSTITUTES 1-12 credits
- Special studies designed to improve teaching skills in a specific area of the curriculum. May be repeated for a maximum of 6 credits.

601 CONCEPTS OF CURRICULUM AND INSTRUCTION 3 credits
- A study of the organizational and instructional theory of curriculum and instruction with special attention to educational development. Emphasis on curriculum design and instructional strategies.

610 SEMINAR IN PERSPECTIVES IN CURRICULUM AND INSTRUCTION 3 credits
- Prerequisite: 600. A study of recent research in curriculum and instruction with special emphasis to applications to educational decision making.

610 EDUCATION AND THE YOUNG CHILD 3 credits
- Course centers on educational settings of young children from birth through five years.

615 PHILOSOPHY AND ORGANIZATION OF MIDDLE SCHOOLS 3 credits
- Prerequisite: junior standing. Course includes an overview of middle school instructional, and assessment program components of middle level education.

616 MIDDLE SCHOOL CURRICULUM AND INSTRUCTION 3 credits
- Prerequisite: junior standing. Course includes an overview of middle school instructional, and assessment program components of middle level education.

617 ELEMENTARY AND SECONDARY LICENSURE SEMINAR 3 credits
- This course should be taken at the beginning of the M.S. with Licensure program as an introduction to curriculum and the practicalities of teaching.

618 ADVANCED INSTRUCTIONAL TECHNIQUES 3 credits
- Prerequisite: 617. Methods of teaching a particular area of the middle and secondary school curriculum for students in the Masters with Licensure program.

619 INSTRUCTIONAL AND MANAGEMENT PRACTICES 3 credits
- Prerequisite: 617. Students learn to use teaching models and management strategies in improving effective instruction. Also included are educational issues that relate to effective management and instruction.

620 LITERATURE FOR YOUNG CHILDREN 3 credits
- Literature for young children examined in depth in terms of value and purpose, methods and media for introducing children to children's culture and enjoy of books available.

622 CHILDREN'S LITERATURE IN THE CURRICULUM 3 credits
- Examination of literature with emphasis on methods and techniques for presenting literary to young children in preschool and primary grades.

625 CONTEMPORARY ISSUES IN READING INSTRUCTION 3 credits
- Prerequisite: 5200.335 or permission of instructor. Survey course examining recent trends in teaching and its relationships to reading. Synthetic, informal, and holistic approaches for diagnosing reading problems and strategies will be included.

626 READING DIAGNOSIS FOR SCHOOL PSYCHOLOGISTS AND SUPPORT PERSONNEL 3 credits
- Prerequisite: 5200.335 or permission of instructor. Course will survey developmental reading and its relationships to reading difficulties. Synthetic, informal, and holistic approaches for diagnosing reading problems and strategies will be included.

627 SPECIAL TOPICS IN LITERACY EDUCATION 3 credits
- May be repeated for a maximum of three credits. Independent study of current research in the field of literacy education.

628 LITERARY ASSESSMENT PRACTICUM 3 credits
- Prerequisite: 627. Supervised experience in the practice of assessing the reading abilities of individual students. Includes assessment of educational readiness and instructional strategies for students.

629 READING PROGRAMS IN SECONDARY SCHOOLS 3 credits
- For all subject teachers, both and without previous training in the teaching of reading. Material and organization, techniques and procedures for developing and presenting appropriate programs for all secondary school students.

635 SEMINAR IN TEACHING FOREIGN LANGUAGES 3 credits
- May be repeated for a total of six credits. Focuses on specific problems related to teaching foreign languages. Different topics will be offered from section to section.

637 TOPICAL SEMINAR IN RESEARCH AND THEORY IN FOREIGN LANGUAGE EDUCATION 3 credits
- Prerequisites: 627, 630. This course is concerned with current research and theory in the teaching of foreign languages. Different topics will be offered from section to section.

640 THEOLOGY AND PRACTICE IN ELEMENTARY SCHOOL MATHEMATICS 3 credits
- Prerequisite: 5200.335 or permission of instructor. Survey course examining recent trends in teaching and its relationships to reading. Synthetic, informal, and holistic approaches for diagnosing reading problems and strategies will be included.

650 ELEMENTARY SCIENCE CURRICULUM AND INSTRUCTION 3 credits

653 SECONDARY SCIENCE CURRICULUM AND INSTRUCTION 3 credits

656 ACTIVITIES TO INDIVIDUALIZE SOCIAL STUDIES 3 credits
- Prerequisite: 520. Development of materials and activities to provide for teaching in grades K-12, the teaching and learning of social studies.

660 CONCEPTS AND CURRICULUM DESIGNS IN ECONOMIC EDUCATION 2 credits
- Prerequisite: 5200.336. Focus on teaching economic education concepts, appropriate for grade levels K-12 and adult education classes.

661 EXPERIENCE COLLEGIATE 3 credits
- Prerequisite: permission of study abroad office. Course will include travel and instruction in the experience abroad office. Course may be repeated for a maximum of 3 credits.

662 FIELD EXPERIENCE: MASTER'S WITH LICENSURE 12 credits
- Prerequisite: permission of study abroad office. Experience in the study abroad office. Course may be repeated for a maximum of 12 credits.

665 FIELD EXPERIENCE: CLASSROOM INSTRUCTION 12 credits
- Prerequisite: permission of study abroad office. Experience in the study abroad office. Course may be repeated for a maximum of 12 credits.

670 EXPERIENCE: MASTER'S 16 credits
- Prerequisite: permission of study abroad office. Experience in an educational setting to open educational theory and research to practice.

682 PROFESSIONAL PROJECTS 16 credits
- Prerequisite: permission of advisor and department chair. Experience in an educational setting to open educational theory and research to practice.

684 INDEPENDENT STUDY 12 credits
- Prerequisite: permission of advisor and department chair. Selection of independent study under determined by advisor and related to student's academic needs.

695 MASTER'S THESIS 4 credits
- Prerequisites: 6200.552 and permission of advisor and department chair. Independent study of research problem in education. Course may be repeated for a maximum of 8 credits.

700 ASSESSMENT OF READING DIFFICULTIES 3 credits
- Prerequisite: 5200.335. Focus on formal and informal assessment and intervention strategies for children with reading difficulties

701 DIAGNOSIS AND TREATMENT OF PERFORMANCE DIFFICULTIES IN ELEMENTARY SCHOOL MATHEMATICS 3 credits
- Prerequisite: 5200.335. Focus on formal and informal assessment and intervention strategies for children with reading difficulties

702 CLINICAL PRACTICES IN ELEMENTARY MATHEMATICS 3 credits
- Prerequisite: 5200.335. Focus on formal and informal assessment and intervention strategies for children with reading difficulties

703 CURRENT RESEARCH AND THEORY IN SCIENCE EDUCATION 3 credits
- Prerequisite: 5200.335. Focus on formal and informal assessment and intervention strategies for children with reading difficulties

704 SEMINAR IN CURRICULUM AND INSTRUCTIONAL STUDIES 12 credits
- Prerequisite: permission of the instructor. Course may be repeated for a maximum of 4 credits.

5000 TO 5999. Other courses may be selected with the approval of the department and the advisor.
PHYSICAL EDUCATION 5550:

538 FOUNDATIONS AND ELEMENTS OF ADAPTED PHYSICAL EDUCATION 3 credits
Prerequisite: Permission of instructor.

541 ASSESSMENT IN ADAPTED PHYSICAL EDUCATION 3 credits
Prerequisite: 302/303; 650, 650 2 credits.

542 THERAPEUTIC MODALITIES AND EQUIPMENT IN SPORTS MEDICINE 3 credits
Prerequisite: 302/303; 650, 650 2 credits.

551 ASSESSMENT AND EVALUATION IN ADAPTATION PHYSICAL EDUCATION 3 credits
Prerequisite: Permission of instructor.

552 PRINCIPLES OF COACHING 3 credits
Prerequisite: Permission of advisor.

562 LEGAL/ETHICAL ISSUES IN PHYSICAL AND LIFESPAN ACTIVITIES 2 credits
Prerequisite: Permission of instructor.

590,1 WORKSHOP 1-3 credits
Prerequisite: Permission of instructor.

593 EDUCATIONAL INSTITUTIONS AND FOUNDATIONS 3 credits
Prerequisite: Permission of instructor.

601 SPORTS ADMINISTRATION AND SUPERVISION 3 credits
Prerequisite: Permission of instructor.

602 MOTOR BEHAVIOR APPLIED TO SPORTS 3 credits
Prerequisite: Permission of instructor.

603 TACTICS AND STRATEGIES IN THE SCIENCE OF COACHING 3 credits
Prerequisite: Permission of instructor.

604 PHYSIOLOGY OF MUSCULAR ACTIVITY AND EXERCISE 3 credits
Prerequisite: Permission of instructor.

605 STATISTICS: QUANTITATIVE AND QUALITATIVE METHODS 3 credits
Prerequisite: Permission of instructor.

606 PGYTHICAL ASPECTS OF PHYSICAL ACTIVITY 3 credits
Prerequisite: Permission of instructor.

607 SPECIAL TOPICS IN HEALTH AND PHYSICAL EDUCATION 4 credits
Prerequisite: Permission of instructor.

608 FIELD EXPERIENCE: MASTERS 4 credits
Prerequisite: Permission of instructor.

609 INDEPENDENT STUDY 3 credits
Prerequisite: Permission of instructor.

OUTDOOR EDUCATION 5560:

550 APPLICATION OF OUTDOOR EDUCATION TO THE SCHOOL CURRICULUM 4 credits
Prerequisite: Permission of instructor.

552 RESEARCH AND RESOURCE MANAGEMENT FOR THE TEACHING OF OUTDOOR EDUCATION 4 credits
Prerequisite: Permission of instructor.

554 OUTDOOR EDUCATION: RURAL INFLUENCES 4 credits
Prerequisite: Permission of instructor.

555 PRACTICUM IN OUTDOOR EDUCATION 4 credits
Prerequisite: Permission of instructor.

556 INDEPENDENT STUDY 2-4 credits
Prerequisite: Permission of instructor.

557 MASTERS' THESIS 2 credits
Prerequisite: Permission of instructor.

558 MASTER'S PROJECT 1-3 credits
Prerequisite: Permission of instructor.

559 MASTER'S PROBLEM 1-3 credits
Prerequisite: Permission of instructor.

HEALTH EDUCATION 5570:

529 COMMUNITY HEALTH 2 credits
Prerequisite: Permission of instructor.

530 SCHOOL HEALTH 4 credits
Prerequisite: Permission of instructor.

531 METHODS AND MATERIALS OF HEALTH EDUCATION 3 credits
Prerequisite: Permission of instructor.

532 PRACTICUM IN HEALTH EDUCATION 3 credits
Prerequisite: Permission of instructor.

534 GUIDANCE AND COUNSELING 5600:

535 COUNSELING PROBLEMS RELATED TO LIFE-THREATENING ILLNESS AND DEATH 3 credits
Prerequisite: Permission of instructor.

536 COUNSELING PROBLEMS RELATED TO LIFE-THREATENING ILLNESS AND DEATH 3 credits
Prerequisite: Permission of instructor.

537 COUNSELING PROBLEMS RELATED TO LIFE-THREATENING ILLNESS AND DEATH 3 credits
Prerequisite: Permission of instructor.

538 EDUCATIONAL GUIDANCE AND COUNSELING 4 credits
Prerequisite: Permission of instructor.
708 Supervision in Counseling Psychology I, II
3 credits each
Prerequisites: doctoral residency or permission; instructional experience in supervising grad-
uate students in counseling

710 Theories of Counseling and Psychotherapy
4 credits
Prerequisites: comprehensive understanding of various theories and techniques in exper-
iential and cognitive-behavioral therapy; advanced knowledge of research methods in psy-
chological science; proficiency in written and oral communication

711 Vocational Behavior
4 credits
Prerequisite: permission of instructor. Topics in vocational behavior include occupational psychology, career development, vocational counseling, and psychological methods in counseling

PRINCIPLES AND PRACTICE OF INTELLECTUAL INTELLIGENCE TESTING
4 credits
Prerequisites: completion of required research methods course or permission of instructor. Topics include: the history and development of intelligence testing, including the use of various intelligence tests for children and adults

713 Professional, Ethical, and Legal Issues in Counseling Psychology
3 credits
Prerequisites: Research Methods and Introduction to Counseling Psychology. Topics include: ethical and legal issues in counseling psychology, with emphasis on professional codes of conduct, legal implications of therapeutic relationships, and research ethics

714 Issues of Diversity in Counseling Psychology
3 credits
Prerequisites: Research Methods and Introduction to Counseling Psychology. Topics include: understanding and addressing issues of diversity in counseling psychology, with emphasis on cultural competence, multicultural issues, and the importance of cultural considerations in counseling

715 Research Design in Counseling
3 credits
Prerequisites: Research Methods and Introduction to Counseling Psychology. Topics include: research design and methodology in counseling psychology

716 Research Design in Counseling II
3 credits
Prerequisites: Research Methods and Introduction to Counseling Psychology. Topics include: advanced research design and methodology in counseling psychology

717 TOPIC SEMINAR: GUIDANCE AND COUNSELING
3 credits
Prerequisite: permission of instructor. The seminar focuses on a variety of topics in guidance and counseling

718 DOCTORAL PROFESSIONAL DEVELOPMENT SEMINAR
3 credits
Prerequisite: permission of instructor. Seminar focuses on professional development for doctoral counseling psychology students

722 ADDICTION COUNSELING II: ASSESSMENT AND TREATMENT PLANNING
3 credits
Prerequisites: Addiction Counseling I or equivalent. Topics include: assessment and planning for addiction treatment

725 COUNSELING PSYCHOLOGY PRACTICUM
4 credits
Prerequisites: permission of advisor. The practicum provides hands-on experience in counseling psychology, with emphasis on client-centered therapy, therapeutic relationships, and ethical considerations

730 Field Experience: Doctoral
3 credits
Prerequisites: permission of advisor and successful completion of coursework. The experience is intended to provide professional and developmental opportunities for doctoral students

731 Field Experience: Doctoral II
0 credits
Prerequisites: permission of advisor. The experience is intended to provide professional and developmental opportunities for doctoral students

732 Field Experience: Doctoral III
0 credits
Prerequisites: permission of advisor. The experience is intended to provide professional and developmental opportunities for doctoral students

733 Field Experience: Doctoral IV
0 credits
Prerequisites: permission of advisor. The experience is intended to provide professional and developmental opportunities for doctoral students

734 Advanced Counseling Practicum
4 credits
Prerequisites: permission of advisor and successful completion of coursework. The practicum provides hands-on experience in counseling psychology, with emphasis on client-centered therapy, therapeutic relationships, and ethical considerations

850 SPECIAL EDUCATION 5610:
540 Developmental Characteristics of Exceptional Individuals
2 credits
Prerequisite: permission of instructor. Understanding the characteristics of individuals with special educational needs

541 Special Education: Methods and Materials
3 credits
Prerequisites: permission of instructor. Topics include: special education methods and materials, with emphasis on effective teaching strategies for students with special needs

542 Special Education: Assessment and Evaluation
3 credits
Prerequisites: permission of instructor. Topics include: assessment and evaluation techniques for students with special educational needs

543 Emotional and Behavioral Disorders
3 credits
Prerequisites: permission of instructor. Understanding the characteristics and treatment of emotional and behavioral disorders

544 Intellectual Disabilities
3 credits
Prerequisites: permission of instructor. Understanding the characteristics and treatment of intellectual disabilities

547 DEVELOPMENTAL CHARACTERISTICS OF INDIVIDUALS WITH MILD/MODERATE EDUCATIONAL NEEDS 4 credits
Preparatory: 460/265 and 460/260 (Survey of the etiology, identification, classification, and developmental characteristics of individuals with mild/moderate educational needs)

548 DEVELOPMENTAL CHARACTERISTICS OF INDIVIDUALS WITH MODERATE/INTENSIVE EDUCATIONAL NEEDS 4 credits
Preparatory: 460/265 and 460/260. Survey of the etiology, classification, and developmental characteristics of individuals with moderate/intensive educational needs.

550 SPECIAL EDUCATION PROGRAMMING: EARLY CHILDHOOD 3 credits
Prerequisites: Admission to a College of Education Teacher Preparation Program. 450/550, 520/210, 520/245, 520/246, 530/345, or permission of instructor. Instructional strategies for infants, young children with disabilities, and developmentally/behaviorally appropriate practices with respect to programming and instruction.

551 SPECIAL EDUCATION PROGRAMMING: MODERATE/INTENSIVE 3 credits
Prerequisites: Admission to a Special Education Professional Program. 450/550, 530/345, 520/246, 530/345, or permission of instructor. Instructional strategies for infants, young children with disabilities, and developmentally/behaviorally appropriate practices with respect to programming and instruction.

555 SPECIAL EDUCATION PROGRAMMING: MODERATE/INTENSIVE 3 credits
Prerequisite: 460/265. Survey of programs, services, and educational practices designed to accommodate developmental patterns of intellectually gifted individuals.

557 SPECIAL EDUCATION PROGRAMMING: MILD/MODERATE I 3 credits
Prerequisites: 443/543 or 447/543. Study of programs, services, and educational practices designed to accommodate developmental patterns of mild/moderate educationally handicapped individuals.

558 INTERDISCIPLINARY PROGRAMMING IN SPECIAL EDUCATION 3 credits
Prerequisite: Permission of instructor. An introduction to interdisciplinary services and techniques designed to accommodate the needs of exceptional individuals and developmentally handicapped individuals.

559 COLLABORATION AND CONSULTATION IN SCHOOLS AND COMMUNITY 3 credits
Prerequisite: 450/550, 453/653, or 460/560. Preparation for providing consultation and collaboration services to school and community members with respect to the needs of exceptional individuals.

563 ASSESSMENT IN SPECIAL EDUCATION 3 credits
Prerequisite: 460/560. Prepared student to select, administer, and interpret formal and informal assessment procedures and use resulting data in planning educational programs for exceptional individuals.

565 ASSESSMENT AND EVALUATION IN EARLY CHILDHOOD SPECIAL EDUCATION 3 credits

566 RECREATIONAL PROGRAMS FOR EXCEPTIONAL INDIVIDUALS 3 credits
Preparatory: 450/560. An introduction to experiential methods which examine sports and outdoor recreation programs for exceptional individuals.

567 MANAGEMENT STRATEGIES IN SPECIAL EDUCATION 3 credits

568 ADVANCED BEHAVIOR MANAGEMENT 3 credits
Preparatory: 450/560. Review of advanced behavior management techniques for the classroom teacher and other educators.

570 CLINICAL PRACTICUM IN SPECIAL EDUCATION 3 credits
Prerequisite: Permission of instructor. Field experience in special education. 12 credits (May be repeated for a total of four credits. A total of 24 credits of directed clinical experience may be used to meet the 30 hours of clinical supervision required by Massachusetts Department of Education in order to be fully licensed to work with children with disabilities.)

573 SEMINAR: INVITATIONAL STUDIES IN SPECIAL EDUCATION 3 credits
Prerequisite: Successful completion of 460/573. Advanced study designed to enhance understanding of exceptional children and youth.

575 SEMINAR SPECIAL EDUCATION CURRICULUM PLANNING 3 credits
Prerequisite: Successful completion of 460/573. Advanced study designed to enhance understanding of exceptional children and youth.

578 SUPERVISION OF INSTRUCTION 3 credits
Prerequisite: Successful completion of 460/573. Advanced study designed to enhance understanding of exceptional children and youth.

580 COLLABORATION AND CONSULTATION SKILLS FOR SPECIAL EDUCATORS 3 credits
Prerequisites: Admission to graduate program in special education or permission of instructor. Advanced consideration of the roles and responsibilities of specialists, professionals, and individuals with disabilities in the development and implementation of educational interventions to resolve special issues.

581 INCLUSION MODELS AND STRATEGIES 3 credits
Prerequisite: Admission to graduate program in special education. Study of inclusion in general education settings through a historical and theoretical perspective.

582 RESEARCH APPLICATIONS IN SPECIAL EDUCATION 3 credits
Prerequisite: Admission to graduate program in special education. The collection and analysis of data related to special education issues.

583 SEMINAR: LEGAL ISSUES IN SPECIAL EDUCATION 3 credits
Prerequisite: Admission to graduate program in special education. Analysis of special education law and its application to the field of special education.

584 SEMINAR: SOCIAL/ETHICAL ISSUES IN SPECIAL EDUCATION 3 credits
Prerequisite: Admission to graduate program in special education. Analysis of social and ethical issues related to special education.

585 STUDENT TEACHING SEMINAR 1 credit
Prerequisite: Successful completion of 580/680. A seminar devoted to issues raised during teaching experience.

586 STUDENT TEACHING: SCHOOL AULOGY 6 credits
Preparation: Permission of advisor. Directed teaching under supervision of a special education specialist.

587 STUDENT TEACHING: SPEECH-LANGUAGE PATHOLOGY 6 credits
Preparation: Permission of advisor. Directed teaching under supervision of a special education specialist.

588 PROJECT IN SPECIAL AREA (SCHOLARLY PAPER) 3 credits
Prerequisite: Cummation of instructor's program. An indepndent study of an identified topic in a scholarly paper.

590 FIELD EXPERIENCE: MASTER'S 12 credits
May be repeated for a total of eight credits. Enrolled in a master's special education program on an individual basis.

591 INDEPENDENT STUDY 12 credits
May be repeated for a total of eight credits. Preparation for individuals with permission of the instructor. Open to graduate students.

592 MASTER'S PROBLEM 12 credits
Preparation for individuals with permission of the instructor. Open to graduate students.

593 MASTER'S THESIS 12 credits
Preparation for individuals with permission of the instructor. Open to graduate students.

594 WORKSHOP 12 credits
Prerequisite: Permission of instructor. Open to students with permission of instructor.

595 WORKSHOP 12 credits
Prerequisite: Permission of instructor. Open to students with permission of instructor.

596 SCHOOL PSYCHOLOGY INSTITUTES 12 credits
Preparation: Permission of instructor. Specialized training program in the field of school psychology.

597 ROLE AND FUNCTION OF THE SCHOOL PSYCHOLOGIST 3 credits
Preparation: Permission of instructor. Seminar on the role and function of school psychologist. This course, tailored to the needs of individual students, is a continuation of specialized training in school psychology.

598 COGNITIVE FUNCTION MODELS FOR PRESCRIPTIVE EDUCATIONAL PLANNING 3 credits
Preparation: Permission of instructor. Cognition and educational planning.

599 PRACTICAL PERSPECTIVES IN SCHOOL PSYCHOLOGY FALL/SPRING 4 credits
Preparation: Permission of instructor. Field experience in school psychology.

600 CONSULTATION STRATEGIES IN SCHOOL PSYCHOLOGY 3 credits
Preparation: Permission of instructor. Seminar on consultation strategies in school psychology.

601 EDUCATIONAL DIAGNOSIS 3 credits
Preparation: Permission of instructor. Seminar on educational diagnosis.

602 BEHAVIORAL ASSESSMENT 3 credits
Preparation: Permission of instructor. Seminar on behavioral assessment.

603 PROFESSIONAL ISSUES FOR SCHOOL SLPHOLGY 3 credits
Preparation: Permission of instructor. Seminar on professional issues for school psychology.

604 INDEPENDENT STUDY 3 credits
Preparation: Permission of instructor. Seminar on independent studies.

605 SUPERVISION OF INSTRUCTION 3 credits
Preparation: Permission of instructor. Seminar on supervision of instruction.

606 FIELD SEMINAR: CURRENT PROFESSIONAL TOPICS/ISSUES IN SCHOOL PSYCHOLOGY 3 credits
Preparation: Permission of instructor. Seminar on current professional topics/ issues in school psychology.

610 SCHOOL PSYCHOLOGY 5620:

590 WORKSHOP 12 credits
Prerequisite: Permission of instructor. Open to students with permission of instructor.

591 WORKSHOP 12 credits
Prerequisite: Permission of instructor. Open to students with permission of instructor.

594 WORKSHOP 12 credits
Prerequisite: Permission of instructor. Open to students with permission of instructor.

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Preparation: Permission of instructor. Seminar on consultation strategies in school psychology.

601 EDUCATIONAL DIAGNOSIS 3 credits
Preparation: Permission of instructor. Seminar on educational diagnosis.

602 BEHAVIORAL ASSESSMENT 3 credits
Preparation: Permission of instructor. Seminar on behavioral assessment.

603 PROFESSIONAL ISSUES FOR SCHOOL PSYCHOLOGY 3 credits
Preparation: Permission of instructor. Seminar on professional issues for school psychology.

604 INDEPENDENT STUDY 3 credits
Preparation: Permission of instructor. Seminar on independent studies.

605 SUPERVISION OF INSTRUCTION 3 credits
Preparation: Permission of instructor. Seminar on supervision of instruction.

606 FIELD SEMINAR: CURRENT PROFESSIONAL TOPICS/ISSUES IN SCHOOL PSYCHOLOGY 3 credits
Preparation: Permission of instructor. Seminar on current professional topics/ issues in school psychology.

Courses of Instruction 117
### SPECIAL EDUCATIONAL PROGRAMS

**5800:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>590</td>
<td>WORKSHOP IN ECONOMIC EDUCATION OR IN SOCIAL STUDIES</td>
<td>1-3 credits</td>
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<tr>
<td>591</td>
<td>WORKSHOP IN ARITHMETIC OR IN PHYSICAL SCIENCE</td>
<td>1-3 credits</td>
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<td>592</td>
<td>WORKSHOP IN READING</td>
<td>1-3 credits</td>
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<td>593</td>
<td>WORKSHOP ON EXCEPTIONAL CHILDREN</td>
<td>1-3 credits</td>
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<td>594</td>
<td>INTERNATIONAL SCHOOL STUDY</td>
<td>2-6 credits</td>
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### ACCOUNTANCY

**6200:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>520</td>
<td>ADVANCED ACCOUNTING</td>
<td>3 credits</td>
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<tr>
<td>521</td>
<td>TAXATION</td>
<td>3 credits</td>
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<tr>
<td>540</td>
<td>GOVERNMENTAL AND INSTITUTIONAL ACCOUNTING</td>
<td>3 credits</td>
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<tr>
<td>588</td>
<td>CPA PROBLEMS: AUDITING</td>
<td>2 credits</td>
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<tr>
<td>590</td>
<td>SPECIAL TOPICS IN ACCOUNTING</td>
<td>1-3 credits</td>
</tr>
<tr>
<td>611</td>
<td>BUSINESS SYSTEMS WITH PROCESSING APPLICATIONS</td>
<td>2 credits</td>
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<tr>
<td>612</td>
<td>PROCESS ANALYSIS AND COST MANAGEMENT</td>
<td>2 credits</td>
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<tr>
<td>621</td>
<td>CORPORATE ACCOUNTING AND FINANCIAL REPORTING</td>
<td>3 credits</td>
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<tr>
<td>622</td>
<td>CORPORATE ACCOUNTING AND FINANCIAL REPORTING I</td>
<td>3 credits</td>
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<tr>
<td>627</td>
<td>SURVEY OF FEDERAL TAXATION</td>
<td>3 credits</td>
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<tr>
<td>631</td>
<td>CORPORATE TAXATION I</td>
<td>3 credits</td>
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<tr>
<td>633</td>
<td>ESTATE AND GIFT TAXATION</td>
<td>3 credits</td>
</tr>
<tr>
<td>637</td>
<td>ADVANCED ACCOUNTING THEORY</td>
<td>3 credits</td>
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</tbody>
</table>

**Prerequisites:**

- Prerequisite: must be able to demonstrate critical and analytical skills, and must be able to handle a problem in school psychology.
- Prerequisite: permission of advisor. Study, analysis and reporting of school psychology problems.
- Prerequisite: permission of advisor. Prerequisite: permission of advisor. Study, analysis and reporting of school psychology problems.
ENTREPRENEURSHIP

6300:

640 FINANCING THE ENTREPRENEURIAL VENTURE
Prerequisite: 6000:501. Exploration of financing, legal, taxation, and insurance issues and trends involved with entrepreneurial ventures.

670 MANAGING ENTREPRENEURIAL GROWTH
Prerequisites: 6000:501 and 6000:640. Interdisciplinary capstone course focusing on management and strategic issues of growth and development of the entrepreneurial venture. Includes a field project.

FINANCE

6400:

438 INTERNATIONAL BANKING
Prerequisite: 601 or 602. Examination of recent trends in the expansion of international banking activities and associated international financing strategies.

591 WORKSHOPS IN FINANCE
May be repeated for a total of 12 credits. May be repeated for a total of 12 credits. May be repeated for a total of 12 credits.

662 MANAGERIAL FINANCE
Prerequisites: 6000:501 or equivalent. 6500:620. May be taken concurrently with 6500:621. Emphasis on financial decision making by managers. Required for finance majors. May be used for elective credit only with permission of the instructor.

672 LEGAL ASPECTS OF BUSINESS TRANSACTIONS
Prerequisites: 6300:640. A study of the legal aspects of business transactions, with an emphasis on the decision making processes involved in a rapidly changing legal environment, and the regulatory, ethical, and compliance issues involved.

681 FINANCIAL MARKETS AND INSTITUTIONS
Prerequisites: 602. A study of the role of financial markets and financial institutions, including the analysis of financial market instruments and strategies, and the analysis of the risks and rewards associated with financial market participation.

683 MANAGEMENT OF FINANCIAL INSTITUTIONS
Prerequisites: 602 and 6000:622. Policy determination, administrative decision making in banks, savings and loans, and other financial institutions.

684 FINANCIAL PLANNING FOR INDIVIDUALS
Prerequisite: 602. Study of issues involved in personal financial planning, including tax planning, estate planning, and retirement planning.

685 INVESTMENT ANALYSIS
Prerequisite: 602. A study of the economic and financial factors that influence investment decisions in financial markets.

686 DERIVATIVES
Prerequisite: 602 or equivalent. A study of the applications and uses of financial derivatives, including options, futures, and other derivative securities.

689 PORTFOLIO MANAGEMENT
Prerequisite: 602 or permission of instructor. Advanced techniques used by financial managers of large portfolios.

590 TECHNIQUES OF FINANCIAL ANALYSIS
Prerequisites: 602 and 6500:602. Current techniques and methods of financial analysis are examined, including the use of financial models for short and long term profitability decisions.

665 GOVERNMENT AND BUSINESS
Prerequisites: 6300:640 and 6000:622. A study of the impact of government policies on business, with an emphasis on the relationship between government and business.

674 STRATEGIC FINANCIAL DECISION MAKING
Prerequisites: 6000:650 and 6500:620. Examination of the role of financial decision making in strategic planning and decision making in the financial industry.

676 MANAGEMENT OF FINANCIAL STRUCTURE
Prerequisites: 602 or equivalent. A study of the structure and organization of financial institutions, including the roles of banks, savings and loans, and other financial institutions.

678 CAPITAL BUDGETING
Prerequisite: 602 or equivalent. A study of the process of making capital budgeting decisions, including the use of financial models for short and long term profitability decisions.

681 MULTINATIONAL CORPORATE FINANCE
Prerequisites: 602 or equivalent. A study of the financial decisions of multinational corporations, including the analysis of foreign investments, exchange rates, and international financial markets.

685 E-BUSINESS: LEGAL ISSUES
Study of the legal aspects of e-commerce, including the development of legal frameworks for electronic commerce.

686 E-BUSINESS: STRATEGIC DECISION MAKING
Prerequisites: 6000:650 and 6500:620. Examination of the role of financial decision making in strategic planning and decision making in the financial industry.

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687 MANAGEMENT OF FINANCIAL STRUCTURE
Prerequisites: 602 or equivalent. A study of the structure and organization of financial institutions, including the roles of banks, savings and loans, and other financial institutions.
MANAGEMENT

600:

508 ENTREPRENEURSHIP
Pre-requisite: Undergraduate or graduate standing and 300 or equivalent. Examines the environment and behavior for entrepreneurship. Focuses on the role of entrepreneurship in society and the importance of personal values and strategies. Case studies and field projects.

510 SELECTED TOPICS IN ENTREPRENEURSHIP
Pre-requisite: Graduate standing and 300 or equivalent. Focuses on specific topics and case studies in entrepreneurial behavior. 3 credits.

511 PROJECTS IN ENTREPRENEURSHIP
Pre-requisite: 670. Students apply modern management principles, practices, theory to and in a project in entrepreneurship. 3 credits.

601 INTRODUCTION TO HEALTH-CARE MANAGEMENT
Pre-requisite: 650 or equivalent. Focuses on the administrative, financial, and managerial aspects of health care organizations. 3 credits.

602 HEALTH SERVICES OPERATIONS MANAGEMENT
Pre-requisite: 580 or 600 or equivalent. Focuses on the management of healthcare operations. 3 credits.

603 MANAGEMENT AND ORGANIZATIONAL BEHAVIOR
Pre-requisite: 600 or equivalent. Course examines management principles, concepts, functions, and processes. 3 credits.

604 MARKETING DECISION MAKING
Pre-requisite: 603. Focuses on mathematical modeling and decision aids for marketing decisions. 3 credits.

605 COMPUTER TECHNIQUES FOR MANAGEMENT
Pre-requisite: 604. Introduction to the use of personal computer software and the application of management information systems. 3 credits.

606 BUSINESS APPLICATIONS DEVELOPMENT
Pre-requisite: 605. Focuses on the analysis and automation of standard business processes with examples from diverse business functions. 3 credits.

607 BUSINESS FOUNDATIONS
Pre-requisite: 600. Focuses on the basics of business management. 3 credits.

610 MANAGEMENT INFORMATION SYSTEMS
Pre-requisite: 580 or equivalent. Focuses on the design and implementation of a functional business information system. 3 credits.

611 SMALL BUSINESS FUNDAMENTALS
Pre-requisite: 600. Focuses on the management and marketing of small businesses. 3 credits.

612 SYSTEMS SIMULATION
Pre-requisite: 607. Focuses on the use of simulation in business and management. 3 credits.

613 ANALYSIS AND DESIGN OF BUSINESS SYSTEMS
Pre-requisite: 603. Focuses on the analysis and design of business systems. 3 credits.

614 KNOWLEDGE MANAGEMENT
Pre-requisite: 600. Focuses on the management of knowledge. 3 credits.

615 ADVANCED MANAGEMENT INFORMATION SYSTEMS
Pre-requisite: 610. Focuses on advanced topics in management information systems. 3 credits.

616 PROCESS REDESIGN WITH ENTERPRISE RESOURCE PLANNING
Pre-requisite: 615. Focuses on the use of enterprise resource planning systems in process redesign. 3 credits.

617 MANAGEMENT OF TELECOMMUNICATIONS
Pre-requisite: 616. Focuses on the management of telecommunications resources in an enterprise. 3 credits.

618 FUNDAMENTALS OF HUMAN RESOURCE ADMINISTRATION
Pre-requisite: 600. Focuses on the principles and practices of human resource management. 3 credits.

619 MANAGEMENT OF ORGANIZATIONAL TRANSFORMATION
Pre-requisite: 600 or equivalent. Focuses on the management of organizational change. 3 credits.

620 ORGANIZATIONAL BEHAVIOR
Pre-requisite: 620. Focuses on the study of factors which influence human behavior in organizations. 3 credits.

621 ORGANIZATIONAL THINKING
Pre-requisite: 620. Focuses on the structure, design, and analysis of business organizations. 3 credits.

622 INDUSTRIAL RELATIONS
Pre-requisite: 600. Focuses on the study of the relationship between labor and management policies. 3 credits.

623 COMPENSATION ADMINISTRATION
Pre-requisite: 620. Focuses on the design and implementation of compensation programs. 3 credits.

624 MANAGEMENT OF INTERNATIONAL OPERATIONS
Pre-requisite: 600 or equivalent. Focuses on the management of international organizations. 3 credits.

625 THE LEADERSHIP ROLE IN ORGANIZATIONS
Pre-requisite: 600. Focuses on the leadership role in organizations. 3 credits.

626 HUMAN RESOURCES MANAGEMENT
Pre-requisite: 600 or equivalent. Focuses on the management of human resources. 3 credits.

630 INTERNATIONAL HUMAN RESOURCES MANAGEMENT
Pre-requisite: 600. Focuses on the management of human resources in international settings. 3 credits.

631 EMPLOYMENT REGULATION
Pre-requisite: 600 or equivalent. Focuses on the legal and regulatory aspects of employment. 3 credits.

632 APPLIED OPERATIONS RESEARCH
Pre-requisite: 600 or equivalent. Focuses on the application of operations research techniques to business problems. 3 credits.

633 DATA ANALYSIS FOR MANAGERS
Pre-requisite: 600 or equivalent. Focuses on the use of data analysis techniques in business decision making. 3 credits.

634 QUALITY IMPROVEMENT TECHNIQUES
Pre-requisite: 600 or equivalent. Focuses on the application of quality improvement techniques in business. 3 credits.

635 QUALITY MANAGEMENT
Pre-requisite: 600 or equivalent. Focuses on the management of quality in business. 3 credits.

636 ADVANCED QUALITY AND PRODUCTIVITY TECHNIQUES
Pre-requisite: 634. Focuses on the advanced application of quality and productivity improvement techniques. 3 credits.

637 SUPPLY CHAIN MANAGEMENT
Pre-requisite: 630. Focuses on the management of the supply chain. 3 credits.

638 MANAGEMENT OF PRODUCTION AND OPERATIONS
Pre-requisite: 602, 610, 618, and permission of instructor. Focuses on the management of resources used to produce goods or services. 3 credits.

639 INDEPENDENT STUDY IN BUSINESS ADMINISTRATION
Pre-requisite: 630. Focuses on the study of a topic related to business administration. Must be approved in writing by the student and the instructor and must be completed in an approved course. 3 credits.

640 HEALTH SERVICES SYSTEMS MANAGEMENT
Pre-requisite: 600, 601, 602. Focuses on the management of health care systems. 3 credits.

641 HEALTH SERVICES RESEARCH PROJECT
Pre-requisite: 610. Focuses on the management of research projects in health care. 3 credits.

642 INDEPENDENT STUDY IN HEALTH SERVICES ADMINISTRATION
1-3 credits. May not be repeated for more than three credits. 3 credits.

643 BUSINESS STRATEGY AND POLICY
Pre-requisite: 600 or equivalent. Focuses on the development of business strategy and policy. 3 credits.

644 INDUSTRIAL RELATIONS
Pre-requisite: 600. Focuses on the study of the relationship between labor and management policies. 3 credits.
MARKETING
6600:

540 PRODUCT AND BRAND MANAGEMENT 3 credits
Prerequisite: 662. Applied investigation into the management of new product development, product life cycle management, product mix strategies, brand positioning, brand image, and brand equity.

560 STRATEGIC RETAIL MANAGEMENT 3 credits
Prerequisite: 650 or permission of instructor. Investigation of strategies and tactics related to retailing, including study of trends and issues through the use of case analysis, computer applications, experiential games, and field projects. (Graduate credit requires additional research paper.)

575 BUSINESS NEGOTIATIONS 3 credits
Examines key principles, practices, and skills that facilitate business negotiation.

580 SALES MANAGEMENT 2 credits
Develops analytical and managerial skills through case studies and other learning activities relating to the organization, selection, training, motivation, and control of a sales force. (Graduate credit requires additional research paper.)

585 GLOBAL SALES STRATEGY 3 credits
Examines the concepts and complexities of selling on a global basis. Covers international aspects of selling, sales management, and negotiations.

600 MARKETING CONCEPTS 3 credits
Introductory course examining buyer behavior, environmental influences, target marketing, product development, distribution, promotion, and pricing for business firms and nonprofit organizations on a global context.

620 STRATEGIC MARKETING MANAGEMENT 2 credits
Prerequisite: 630 or equivalent. Managerial assessments of opportunities, trends, and strategy development and management of appropriate strategic marketing plans and their practical implementation.

630 MARKETING OF SERVICES 3 credits
Prerequisite: 660 or permission of instructor. Examines marketing strategies within the service industry. Focuses on demand factors, competition, and the development of services marketing plans.

635 E-BUSINESS: ELECTRONIC MARKETING STRATEGIES AND TACTICS 3 credits
Prerequisites: 6050, 620, and 6500:620. Covers the impact of electronic technology on marketing strategies and tactics. Investigations include enhancement of consumer websites, product life cycles, and product support services.

640 BUSINESS RESEARCH METHODS 3 credits
Prerequisites: 6500 and 660. Covers research methods and techniques used in business research.

650 CONSUMER BEHAVIOR 3 credits
Prerequisite: 660. Examines the marketplace behavior of individuals, households, and organizations. Focus is on integrating theoretical models with managerial applications.

655 MARKETING COMMUNICATIONS 3 credits
Prerequisite: 660. The role of marketing communication tools is examined individually and in the context of planning, developing, and implementing a systematic and integrated communication program.

670 COMPETITIVE BUSINESS STRATEGY 3 credits
Prerequisites: 650 and 660. An advanced course designed to develop an understanding of global business environment and the integrated functions of the multinational corporation.

680 APPLICATIONS OF MARKETING THEORY 3 credits
Prerequisite: 600. Examines marketing theories and their applications to business problems. Emphasizes research and decision-making. Selected readings and field projects are used to enhance the student's managerial skills.

897 INDEPENDENT STUDY IN MARKETING 1-3 credits
May be repeated for a total of six credits. Focus on special topics of study and research in marketing on an independent basis.

INTERNATIONAL BUSINESS
6800:

605 INTERNATIONAL BUSINESS ENVIRONMENTS 3 credits
Prerequisite: All MBA foundation courses. The course is intended to develop an understanding of the global business environment and the integrated functions of the multinational corporation.

630 INTERNATIONAL MARKETING POLICIES 3 credits
Prerequisites: 660, 620, and 6500:620. Emphasizes the principles of formulating and implementing marketing strategies and tactics within complex and changing multinational organizations and institutions. A planning framework is emphasized.

635 INTERNATIONAL CORPORATIONS 3 credits
Prerequisite: 600. An advanced course designed to develop an understanding of global businesses, their functions, structures, and competitive strategies.

690 SEMINAR IN INTERNATIONAL BUSINESS 3 credits
Prerequisite: 600 and a total of 15 Phase I 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 six credits. Focus on special topics of study and research in international business on an independent basis.

PROFESSIONAL
6700:

690 PROFESSIONAL RESPONSIBILITY 1 credit
Prerequisite: Nine graduate credits. Seminar on the professional responsibilities of business men and women to make them aware of the business organization in which they work and the role of ethical decision makers.

692 INTERNATIONAL BUSINESS 1 credit
Prerequisite: Nine graduate credits. Enhances understanding of global business issues, present relevant trends and issues, facilitates cross-cultural interaction, and explores applied practices of international business.

694 APPLIED BUSINESS DOCUMENTATION AND CONTACT 1 credit
This course is designed to offer a practical approach to the skills and strategies for handling specialized documents, business presentations, and business presentations.

695 INTERNSHIP IN BUSINESS 3 credits
Prerequisite: permission of instructor. On-the-job experience with cooperating private and public sector organizations. Individual assignments made by supervising faculty member. Periodic reports and research papers required. Credit/Noncredit.

696 SPECIAL TOPICS IN PROFESSIONAL DEVELOPMENT 1 credit
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 COLOQUIUM IN BUSINESS 1.5 credits
Prerequisite: permission of Graduate Director. Study of business administration through a seminar of several lectures in business planning 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. Credit/Noncredit.
ART 7100:

500 ART IN THE UNITED STATES BEFORE WORLD WAR II 3 credits
Prerequisite: 101 or permission of instructor. Consideration of development of art in the United States from earliest evidences to approximately World War II.

501 SPECIAL TOPICS IN HISTORY OF ART 1-3 credits
Prerequisite: 201 or permission. A lecture course focusing on a particular movement, period, art, or medium. (May be repeated when a different subject or level of investigation is selected.)

502 MUSICOSCOPY 3 credits
Lecture course dealing with museum science, including museum history, staff structures, handling, storage, presentation, and exhibition preparation.

505 HISTORY OF ART SYMPOSIUM 1-3 credits
May be repeated for credit when a different subject or level of investigation is indicated. Prerequisite: one art history course beyond 201 or permission of instructor. Lecture, individual research and evaluation, group discussion related to a specific time period or an art historical problem.

506 WORKSHOP IN ART 1-4 credits
May be repeated for credit when a different subject or level of investigation is indicated. Prerequisite: 103 or permission of instructor. A studio course dealing with museum science, education techniques, emphasis on a variety of rendering mediums.

507 INDEPENDENT STUDIES 1-3 credits
May be repeated: Prerequisites for art majors: advanced standing in a specific area of instruction. Prerequisite for non-majors: permission of instructor. Investigation in depth of aesthetic and technical problems within a student-selected area of specialization. Student must be present in writing a proposal study plan and time schedule for instructor approval.

588 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: 141 or permission of instructor. Individual research in art history defined around limited topics. Specific time-frame, library techniques of a single artist or movement in art history. No more than 12 credits will be counted toward major.

525 ADVANCED TEXTILES 3 credits
Prerequisite: 121. Evaluation of physical, aesthetic, comfort, and durability properties of textile products and testing procedures to determine suitability for desired end uses.

527 GLOBAL ISSUES IN TEXTILES AND APPAREL 3 credits
Prerequisite: 119. Examining the global scope and scale of the textile and apparel industries emphasizing an economic perspective.

532 INTERIOR TEXTILES AND PRODUCT ANALYSIS 3 credits
Prerequisite: 158. Examination of the materials and analysis of products for interiors with emphasis on textile finishes, color, and styles.

535 PRINCIPLES AND PRACTICES OF INTERIOR DESIGN 3 credits
Prerequisite: 519. Principles and practices of textile conservation with emphasis on procedures appropriate for collectible and small historical artifacts.

536 TEXTILE CONSERVATION 3 credits
Prerequisite: 121, 213, 219. Principles and practices of textile conservation with emphasis on procedures appropriate for historic and small historical artifacts.

537 HUMAN SEXUALITY 3 credits
Prerequisite: 133 or permission of instructor. Introduction to problems and values. Emphasis is on the role of values in intimate relationships, the diverse dimensions of sexual responsibility.

539 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.

485 BEFORE AND AFTER SCHOOL CHILD CARE 3 credits
Study of the development, implementation and evaluation of scholastic childcare programs for before and after school and vacation periods.

487 FLAT PATTERN DESIGN 3 credits
Prerequisite: 123 or equivalent. Theory and experience in clothing design using flat pattern techniques.

516 CHILD IN THE HOSPITAL 4 credits
Prerequisite: 205 or permission of instructor. Seminar dealing with special needs and problems of hospitalized child and family. Literature related to effects, isolation, illness and stress. Examination of strategies for coping.

517 PRACTICUM EXPERIENCE IN A CHILD LIFE PROGRAM 3 credits
Prerequisites: 461/561. Field experience in a child life program. Application activities including critical analysis of current child life programs and program administration.

518 ORGANIZATION 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.

611 CASE MANAGEMENT FOR CHILDREN AND FAMILIES I 3 credits
Prerequisites: 461/561. Provides an overview of Case Management based on a multi-systems collaborative context, includes roles, values, principles, and service systems, and service coordination.

612 CASE MANAGEMENT FOR CHILDREN AND FAMILIES II 3 credits
Prerequisite: 611. Explores the principles and practices of child welfare services in the community setting. Emphasis on the social and family systems in the provision of comprehensive services.

542 FAMILY AND CONSUMER SCIENCES 7400:

500 NUTRITION COMMUNICATION AND EDUCATION SKILLS 4 credits
Prerequisite: 103 or 219. Theory and development of communication and education skills essential to dietary practice. Interpersonal communication, interviewing, nutrition counseling, education techniques, media, and current technology.

501 FAMILY LIFESTYLE PATTERNS IN THE ECONOMICALLY DERIVED HOME 2 credits
Study of family lifecycle and lifestyle patterns as they are economically derived with emphasis on impact of socioeconomic and psychological phenomena on family members through the family life cycle.

502 ADVANCED FOOD PREPARATION 2 credits
Prerequisite: 111 or 245 or permission of instructor. Study of advanced techniques of food preparation. Introduction to and interpretation of classical and foreign cuisines. Emphasis on individual or group development and evaluation of procedures and results.

506 ADULTHOOD IN THE FAMILY CONTEXT 3 credits
Prerequisites: 201, 205, or permission or instructor. Emphasis on the accelerated behavior of the family and the influence of the family environment on adult development.

506 FAMILY FINANCIAL MANAGEMENT 3 credits
Prerequisite: An analysis of the family as a financial unit including financial problems and their resolution, decision-making patterns and financial practice behavior. Emphasis on budgeting, problem-solving, and computer applications.

518 HISTORY OF INTERIOR DESIGN I 4 credits
The study of interior design, interior architecture and furniture 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 interior design, interior architecture and furniture from the eighteenth century through the eighteenth century, with emphasis on the social and cultural influences shaping their development.

520 EXPERIMENTAL FOODS 3 credits
Prerequisite. 245 and 320. Theory and methods used in the study of food preparation. Analytical procedures in sensory and instrumental evaluation of food quality. Individual research emphasis. Lecturer-laboratory.

523 PROFESSIONAL IMAGE ANALYSIS 3 credits
The study of the different consumer shopping patterns of theories, associated with purchasing and morning an appropriate professional image consistent with career goals and objectives.

524 NUTRITION IN THE LIFE CYCLE 3 credits
Prerequisite: 245. Study of the physiological changes for nutritional requirements, interactions of factors which affect growth, development, nutrition and nutritional status from conception through the elderly years.

526 ADVANCED TEXTILES 3 credits
Prerequisite: 121. Evaluation of physical, aesthetic, comfort, and durability properties of textile products and testing procedures to determine suitability for desired end uses.

527 GLOBAL ISSUES IN TEXTILES AND APPAREL 3 credits
Prerequisite: 119. Examining the global scope and scale of the textile and apparel industries emphasizing an economic perspective.

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Prerequisite: 611. Explores the principles and practices of child welfare services in the community setting. Emphasis on the social and family systems in the provision of comprehensive services.

542 FAMILY AND CONSUMER SCIENCES 7400:
565 SEMINAR IN FAMILY AND CONSUMER SCIENCES 3 credits
Prerequisite: permission of instructor. Exploration and evaluation of current developments in selected areas.

567 SPORTS NUTRITION 3 credits
Prerequisite: 350/450/550 or permission of instructor. Emphasis on energy metabolism and utilization before, during, and after exercise. Effects of nutrition and physical activity on performance. Special emphasis on the effects of different dietary populations are emphasized.

588 PRACTICUM IN DENTISTRY 3 credits
Prerequisite: advisor's permission. Practical experience in application of the principles of dental hygiene.

590 PROFESSIONAL PREPARATION FOR DIETETICS 1 credit
Prerequisite: open to those elective students in the Didactic Program or Graduate program who plan to apply for a Dietetic Internship. Historical aspects of dietetics and where the profession is headed. Special areas of dietetics practice are explored. Students complete the dietetic internship.

594 PRACTICUM IN PARENT AND FAMILY EDUCATION 2 credits
Prerequisite: 566/665. Provides unique opportunities to apply parent and family education skills. Includes a review of strategies, ethical considerations, and supervision of the by the director.

596 PARENT EDUCATION 3 credits
Prerequisite: 1065, comparable course, or permission. Practical application that reviews and analyzes variables pertaining to major emphasis on the evaluation of parent education programs.

602 FAMILY IN LIFE-SPAN PERSPECTIVE 3 credits
Stress-related individual and family development across life span. Emphasis on adjustment and special concerns in each developmental stage and interpersonal competencies. Implications for education theory and social policy.

603 FAMILY RELATIONSHIPS IN MIDDLE AND LATER YEARS 3 credits
Study of family unit dynamics during youth and middle and later years of life with emphasis on psychological and biological changes and economic and social reality. Research methods and gerontological considerations.

604 ORIENTATION TO GRADUATE STUDIES IN FAMILY AND CONSUMER SCIENCES 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
Prerequisite: 2005/3005/4005/5005 or permission. Emphasis on historical influences and varying family characteristics and structures.

607 FAMILY DYNAMICS 3 credits
Development of techniques in home economics programs focusing on the family stressors. Understanding the family across the life span.

610 CHILD DEVELOPMENTAL THEORIES 3 credits
Comparative study of developmental theories of the child in the family context. Application of the theories to child rearing in the family will be emphasized.

612 ADVANCED HOME NURSING 1 credit
Prerequisite: 624 or equivalent proficiency in nutrition and head of household. Advanced study of human nutrition emphasizing metabolism, physiological functions, and nutrition of the elderly, and the determination of human energy requirements.

615 ADVANCED HOME NURSING II 3 credits
Prerequisite: 624 or equivalent. In-depth study of nutrition with emphasis in the utilization of physiological functions and the interrelation of nutrition and health.

619 PROBLEMS IN DESIGN 3 credits
May be repeated no more than 6 credits will apply to M.A. Prerequisite: written approval of advisor. Individual problems in specific design problems within the student's area of clothing, textiles, or interior specialization.

622 ADVANCED FOOD TECHNOLOGY & APPLICATIONS 3 credits
Prerequisite: 4205/5205 or permission. Laboratory study of the chemistry and physics of food components, with emphasis on the characteristics of foods critical evaluation of current basic and applied research emphasized.

624 MATERIAL CULTURE STUDIES 3 credits
Methods of studying clothing, baskets, and textiles from a cultural and historical perspective.

627 THEORIES OF FASHION 3 credits
In-depth analysis of the theories underlyng fashion and evaluation of current research related to the study of fashion.

640 NUTRITION IN DIMINISHED HEALTH 3 credits
Prerequisite: 420 or permission. An examination of concepts related to nutritional intervention associated with selected physiological and pathological conditions throughout the life cycle. Emphasis on current literature.

651 FAMILY AND CONSUMER LAW 3 credits
Study of law which govern and protect individuals within family. Emphasis on current legal, ethical, and social issues. Course taught by attorney.

656 PROFESSIONAL PRESENTATION IN FAMILY AND CONSUMER SCIENCES 3 credits
Developing effective home economics professional presentations. Emphasis on visual, display, and audio-visual aids, as well as general management, portfolio development, and product styles.

660 PROGRAMMING FOR CHILD CARE CENTERS 3 credits
Prerequisite: 360/460 or permission. An introduction to menu planning and program development for child-care centers. Evaluation of current programs available for preschool children. Implications, legal analysis, application, evaluation, and revision.

662 DEVELOPMENT IN INFANCY AND EARLY CHILDHOOD 2 credits
Analysis of research and theoretical frameworks regarding infant and child development from conception through cognitive, social, and moral evolve.

677 SOCIAL PSYCHOLOGY OF DRESS AND THE NEAR ENVIRONMENT 3 credits
Study of social psychological and the environmental factors that affect human behavior at the micro and macro level.

680 HISTORICAL AND CONCEPTUAL BASES OF FAMILY AND CONSUMER SCIENCES 3 credits
History of the field of home economics and family ecology with emphasis on the leaders and the conceptual basis of the field.

685 RESEARCH METHODS IN FAMILY AND CONSUMER SCIENCES 3 credits
A study of research design and research methods emphasizing conceptual and methodological development, policy appication, and ethical considerations.

688 PRACTICUM IN FAMILY AND CONSUMER SCIENCES 3 credits
Prerequisite: permission of advisor. Minimum of 150 hours of supervised experience in an approved community setting to acquire skills related to area of specialization.

689 ADVANCED RESEARCH AND PRACTICE IN FAMILY AND CONSUMER SCIENCES 3 credits
Prerequisite: permission of advisor. Supervised research and related research topics in approved areas of study. May be repeated once.

694 MASTER'S PROJECT 1 credit
Prerequisite: permission of advisor. Development of specific purpose of in-depth research project which makes a significant contribution to the field and may lead to publication.

699 MASTER'S THESIS 3 credits
Prerequisite: permission of advisor. Supervised research in a specialized area of home economics and family ecology which contributes a significant contribution to the field and may lead to publication.

MUSIC 7500:

526 GRADUATE MUSIC THEORY REVIEW 2 credits
Prerequisite: Undergraduate music theory equivalent to four semesters. Review of basic terminology, theory, and practice. Coverage includes the harmonic vocabulary of the 19th, 20th, and 21st centuries.

527 GRADUATE MUSIC HISTORY REVIEW 2 credits
Prerequisite: Undergraduate music history equivalent to four semesters of music history. Prerequisite for Basic Music History for graduate students. Coverage includes major historical periods from the Baroque to the present. 8 credits reading and listening assignments will be required.

532 MUSIC TEACHING AND LITERATURE PERCUSSION INSTRUMENTS 2 credits
To high undergraduate and graduate percussion students. Techniques of performance. Emphasis on research, literature, performance, and techniques from elementary through secondary levels.

551 INTRODUCTION TO MUSICOLOGY 2 credits
Prerequisite: 562. Comprehensive musicology, acoustics, psychology, and physiology of music, aesthetics, and theory of music; historical musicology.

553 MUSIC SOFTWARE SURVEY AND USE 2 credits
Prerequisite: 122 or permission of instructor. Survey and evaluation of music software in the various forms of music instruction. Students will design a course suitable for submission to a programming.

565 ADVANCED CONDUCTING: INSTRUMENTAL 2 credits (350/450/550/650)
Prerequisite: 200 or equivalent. Conductive techniques to choral ensemble, including lead sheets, enter detection, tonal development, stylistic analysis, and analysis methods. One hour lab required.

566 ADVANCED CONDUCTION: ORAL 2 credits
Prerequisite: 200 or equivalent. Conductive techniques to the oral ensemble, including lead sheets, enter detection, tonal development, stylistic analysis, and analysis methods. One hour lab required.

567 REPORTAGE AND PEDAGOGY ORGAN 3 credits
Prerequisite: permission of instructor. Survey of organ literature of all eras and styles, and of methods of teaching organ, applying principles to practice. 3 credits reported.

569 REPORTAGE AND PEDAGOGY STRING INSTRUMENTS 3 credits
Prerequisite: permission of instructor. Study in depth of the four bowed string instruments, their teaching, and their relationship. Despite obvious differences in physical implications of different bows and 'vamps from violin and viola, methods of teaching, training and culture are closely related. Applications of the instruments to solo, chamber, and orchestral playing.

570 GUITAR PEDAGOGY 2 credits
Prerequisite: permission of instructor. Study of basic techniques of guitar instruction. Subjects are directors of instruction.

572 ADVANCED GUITAR PEDAGOGY 2 credits
Prerequisite: credit in Guitar Pedagogy. Study of advanced guitar techniques and performance. May be repeated once.

575 HISTORY AND LITERATURE OF THE GUITAR AND LUTE 2 credits
Prerequisite: permission of instructor. Study of history, tradition, string instruments from the 15th through the 18th century, their use in performance, notation, and performance practice. Modern editions and recordings will be used.

585 STUDIES IN CHORAL LITERATURE: MEDIEVAL-ENGLISH RENAISSANCE 2 credits
Prerequisite: credit in Choral Literature in terms of general structure, character, voicing, notation, phrasing, analysis, interpretation, and integration of important stylistic differences. History, articulation, and tempo.

586 STUDIES IN CHORAL LITERATURE: BAROQUE 2 credits
Prerequisite: credit in Choral Literature in terms of general structure, character, voicing, notation, phrasing, interpretation, articulation, and integration of important stylistic differences. History, articulation, and tempo.

587 STUDIES IN CHORAL LITERATURE: CLASSIC-ROMANTIC 2 credits
Prerequisite: credit in Choral Literature in terms of general structure, character, voicing, notation, phrasing, interpretation, articulation, and integration of important stylistic differences. History, articulation, and tempo.

588 STUDIES IN CHORAL LITERATURE: 20TH CENTURY 2 credits
Prerequisite: credit in Choral Literature in terms of general structure, character, voicing, notation, phrasing, interpretation, articulation, and integration of important stylistic differences. History, articulation, and tempo.

Courses of Instruction 123
Chapter 1: INTRODUCTION TO MUSIC EDUCATION

- Overview of music education programs and their impact on society.
- Historical development of music education in the 20th century.

Chapter 2: MUSIC HISTORY AND THEORETICAL FOUNDATIONS

- Survey of music from ancient times to the 20th century.
- Study of major compositional techniques, styles, and genres.

Chapter 3: MUSIC RESEARCH AND INSTRUCTIONAL METHODS

- Research methods in music education.
- Instructional strategies for effective music teaching.

Chapter 4: MUSIC THEORY AND ANALYSIS

- Analysis of musical structures and forms.

Chapter 5: MUSIC PERFORMANCE

- Study of performance techniques and repertoire.
- Practice and performance in various instrumental and vocal ensembles.

Chapter 6: MUSIC TECHNOLOGY AND INSTRUMENTATION

- Introduction to music technology and digital recording.
- Study of various musical instruments and their construction.

Chapter 7: MUSIC EDUCATION IN PRACTICE

- Design and implementation of music education programs.
- Evaluation of music education programs and outcomes.

Chapter 8: MUSIC EDUCATION AND SOCIETY

- Study of the role of music education in society.
- Analysis of music education policies and curricula.

Chapter 9: MUSIC EDUCATION AND THE LAW

- Legal issues in music education.
- Compliance with state and federal regulations.

Chapter 10: MUSIC EDUCATION AND THE ENVIRONMENT

- Study of the impact of music education on the environment.
- Sustainable practices in music education.

Chapter 11: MUSIC EDUCATION AND THE FUTURE

- Exploration of future trends in music education.
- Preparation for the evolving field of music education.

Appendix A: MUSIC EDUCATION RESOURCES

- List of professional organizations and journals.
- Resources for music educators and students.

Appendix B: MUSIC EDUCATION PROJECTS

- Examples of successful music education projects.
- Guidelines for developing music education projects.

Appendix C: MUSIC EDUCATION CASE STUDIES

- Case studies of music education programs in various settings.
- Analysis of successful and less successful programs.

Appendix D: MUSIC EDUCATION PRACTICAL WORKSHEETS

- Practice worksheets for music educators.
- Tools for planning and implementing music education programs.

Appendix E: MUSIC EDUCATION GLOSSARY

- Definitions of key terms in music education.
- Cross-references for related terms and concepts.

Appendix F: MUSIC EDUCATION ANTHOLOGIES

- Anthologies of music education literature.
- Selections of classic and contemporary works.

Appendix G: MUSIC EDUCATION DATABASES

- List of online databases and resources.
- Tools for searching and accessing music education literature.
**Courses of Instruction**

### Applied Music 7520:

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>521-569</td>
<td>Applied Music for Music Majors</td>
<td>2-4 credits each</td>
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<tr>
<td>521</td>
<td>Percussion</td>
<td>1 credit</td>
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<td>522</td>
<td>Classical Guitar</td>
<td>1 credit</td>
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<td>523</td>
<td>Harp</td>
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<td>Violin</td>
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<td>528</td>
<td>Cello</td>
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<td>530</td>
<td>String Bass</td>
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<td>531</td>
<td>Trumpet or Cornet</td>
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<td>532</td>
<td>French Horn</td>
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<td>533</td>
<td>Trombone</td>
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<td>534</td>
<td>Baritone</td>
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<tr>
<td>535</td>
<td>Tuba</td>
<td>1 credit</td>
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<tr>
<td>536</td>
<td>Flute or Piccolo</td>
<td>1 credit</td>
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<tr>
<td>537</td>
<td>Oboe or English Horn</td>
<td>1 credit</td>
</tr>
<tr>
<td>538</td>
<td>Clarinet or Basset Clarinet</td>
<td>1 credit</td>
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<tr>
<td>539</td>
<td>Bassoon or Contrabassoon</td>
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<td>540</td>
<td>Saxophone</td>
<td>1 credit</td>
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<tr>
<td>541</td>
<td>Harpsichord</td>
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<tr>
<td>542</td>
<td>Private Lessons in Music Composition</td>
<td>2-4 credits each</td>
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**Jazz Vocal Styles 761-661**: 2-4 credits each

- Jazz Singers
- Jazz Vocalists
- Jazz Vocal Techniques
- Jazz Vocal Performance

**Communication 7600**:

<table>
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<tr>
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<tr>
<td>500</td>
<td>History of Journalism in America</td>
<td>3 credits</td>
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<td>536</td>
<td>Women, Minorities and News</td>
<td>1 credit</td>
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<td>561</td>
<td>New Media Writing</td>
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<td>New Media Production</td>
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<td>563</td>
<td>Analyzing Organizational Communication</td>
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<td>564</td>
<td>Theory and Methods of Communication</td>
<td>3 credits</td>
</tr>
<tr>
<td>565</td>
<td>Theory of Group Processes</td>
<td>2 credits</td>
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<tr>
<td>566</td>
<td>Audience and Mass Media</td>
<td>3 credits</td>
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<tr>
<td>567</td>
<td>Public Speaking in America</td>
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<td>568</td>
<td>Advanced Media Writing</td>
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<tr>
<td>569</td>
<td>Audio and Video Editing</td>
<td>2 credits</td>
</tr>
<tr>
<td>571</td>
<td>Theories of Rhetoric</td>
<td>3 credits</td>
</tr>
<tr>
<td>575</td>
<td>Film as Art: An Introduction to the Film Forum</td>
<td>3 credits</td>
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</table>
SPEECH-LANGUAGE PATHOLOGY AND AUDILOGY 7700:

530 ASPECTS OF NORMAL LANGUAGE DEVELOPMENT 3 credits

Introduction to the developmental processes involved in the acquisition and use of language. Focuses on the study of language development from birth through adulthood. (Not open to students with credit in 560)

540 AUGMENTATIVE COMMUNICATION 3 credits

Introduces students to the history and current practices of augmentative communication. Focuses on the selection, implementation, and evaluation of augmentative communication systems, devices, and strategies. (Not open to students with credit in 560)

550 AURAL/VERBAL COMMUNICATION 3 credits

Introduces students to the history and current practices of aural-verbal communication. Focuses on the selection, implementation, and evaluation of aural-verbal communication systems, devices, and strategies. (Not open to students with credit in 560)

560 SOCIAL SKILLS FOR COMMUNICATION 3 credits

Introduces students to the history and current practices of social skills for communication. Focuses on the selection, implementation, and evaluation of social skills for communication systems, devices, and strategies. (Not open to students with credit in 560)

570 ASPECTS OF LANGUAGE DISORDERS 3 credits

Introduces students to the history and current practices of aspects of language disorders. Focuses on the selection, implementation, and evaluation of aspects of language disorders systems, devices, and strategies. (Not open to students with credit in 560)

580 ASPECTS OF DEAFNESS 3 credits

Introduces students to the history and current practices of aspects of deafness. Focuses on the selection, implementation, and evaluation of aspects of deafness systems, devices, and strategies. (Not open to students with credit in 560)

590 ASPECTS OF HEARING LOSS 3 credits

Introduces students to the history and current practices of aspects of hearing loss. Focuses on the selection, implementation, and evaluation of aspects of hearing loss systems, devices, and strategies. (Not open to students with credit in 560)

600 ASPECTS OF VISION IMPAIRMENT 3 credits

Introduces students to the history and current practices of aspects of vision impairment. Focuses on the selection, implementation, and evaluation of aspects of vision impairment systems, devices, and strategies. (Not open to students with credit in 560)

610 ASPECTS OF MOTOR DISORDERS 3 credits

Introduces students to the history and current practices of aspects of motor disorders. Focuses on the selection, implementation, and evaluation of aspects of motor disorders systems, devices, and strategies. (Not open to students with credit in 560)

620 ASPECTS OF COGNITIVE DISORDERS 3 credits

Introduces students to the history and current practices of aspects of cognitive disorders. Focuses on the selection, implementation, and evaluation of aspects of cognitive disorders systems, devices, and strategies. (Not open to students with credit in 560)

630 ASPECTS OF EMOTIONAL DISORDERS 3 credits

Introduces students to the history and current practices of aspects of emotional disorders. Focuses on the selection, implementation, and evaluation of aspects of emotional disorders systems, devices, and strategies. (Not open to students with credit in 560)

640 ASPECTS OF BEHAVIORAL DISORDERS 3 credits

Introduces students to the history and current practices of aspects of behavioral disorders. Focuses on the selection, implementation, and evaluation of aspects of behavioral disorders systems, devices, and strategies. (Not open to students with credit in 560)

650 ASPECTS OF NEUROLOGICAL DISORDERS 3 credits

Introduces students to the history and current practices of aspects of neurological disorders. Focuses on the selection, implementation, and evaluation of aspects of neurological disorders systems, devices, and strategies. (Not open to students with credit in 560)

660 ASPECTS OF DEVELOPMENTAL DISORDERS 3 credits

Introduces students to the history and current practices of aspects of developmental disorders. Focuses on the selection, implementation, and evaluation of aspects of developmental disorders systems, devices, and strategies. (Not open to students with credit in 560)

670 ASPECTS OF COMMUNICATION AND LEARNING DISABILITIES 3 credits

Introduces students to the history and current practices of aspects of communication and learning disabilities. Focuses on the selection, implementation, and evaluation of aspects of communication and learning disabilities systems, devices, and strategies. (Not open to students with credit in 560)

680 ASPECTS OF COMMUNICATION AND HEALTH DISABILITIES 3 credits

Introduces students to the history and current practices of aspects of communication and health disabilities. Focuses on the selection, implementation, and evaluation of aspects of communication and health disabilities systems, devices, and strategies. (Not open to students with credit in 560)

690 ASPECTS OF COMMUNICATION ANDocial DISABILITIES 3 credits

Introduces students to the history and current practices of aspects of communication and social disabilities. Focuses on the selection, implementation, and evaluation of aspects of communication and social disabilities systems, devices, and strategies. (Not open to students with credit in 560)

700 ASPECTS OF COMMUNICATION AND ENVIRONMENTAL DISABILITIES 3 credits

Introduces students to the history and current practices of aspects of communication and environmental disabilities. Focuses on the selection, implementation, and evaluation of aspects of communication and environmental disabilities systems, devices, and strategies. (Not open to students with credit in 560)
SOCIAL WORK

7750:

501 SOCIAL WORK PRACTICE I
Prerequisite: 276 or permission of instructor. Concepts and methods of social work practice, particularly relating to understanding and working with individuals and families.

502 SOCIAL WORK PRACTICE II
Prerequisite: 276 or permission of instructor. Concepts and methods of social work practice, particularly relating to understanding and working with groups in various settings in our society.

503 SOCIAL WORK PRACTICE III
Prerequisite: 407 or permission of instructor. Development of understanding and working with individuals and families in social work practice, particularly relating to understanding and working with groups in various settings in our society.

504 SOCIAL WORK PRACTICE IV
Prerequisite: 407 or permission of instructor. Development of understanding and working with individuals and families in social work practice, particularly relating to understanding and working with groups in various settings in our society.

510 MINORITY ISSUES IN SOCIAL WORK PRACTICE
Prerequisite: 276 or permission of instructor. Social work perspective on human development across the life cycle, major diversity issues confronting the social work profession, and the ethical and professional responsibilities of social workers to minority communities.

515 WOMEN'S ISSUES IN SOCIAL WORK PRACTICE
Prerequisite: 276 or permission of instructor. Social work perspective on human development across the life cycle, major diversity issues confronting the social work profession, and the ethical and professional responsibilities of social workers to minority communities.

525 SOCIAL WORK ETHICS
Prerequisite: 276 or permission of instructor. Social Work: A Code of Ethics as applied to social problems and issues in social work.

527 HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT I
Prerequisites: 421, 422, and permission of instructor. An interdisciplinary exploration of the interplay among the biological, psychological, and social forces that influence human development and behavior. Focus is on the impact of social policies and programs on individuals, families, and communities.

528 HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT II
Prerequisites: 421, 422, and permission of instructor. An interdisciplinary exploration of the interplay among the biological, psychological, and social forces that influence human development and behavior. Focus is on the impact of social policies and programs on individuals, families, and communities.

540 SOCIAL WORK RESEARCH I
Prerequisites: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

541 SOCIAL WORK RESEARCH II
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

542 SOCIAL WORK RESEARCH III
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

543 SOCIAL WORK RESEARCH IV
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

544 SOCIAL WORK RESEARCH V
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

545 SOCIAL WORK RESEARCH VI
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

546 SOCIAL WORK RESEARCH VII
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

547 SOCIAL WORK RESEARCH VIII
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

548 SOCIAL WORK RESEARCH IX
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

549 SOCIAL WORK RESEARCH X
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

550 SOCIAL WORK RESEARCH XI
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

551 SOCIAL WORK RESEARCH XII
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

552 SOCIAL WORK RESEARCH XIII
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

553 SOCIAL WORK RESEARCH XIV
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

554 SOCIAL WORK RESEARCH XV
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

555 SOCIAL WORK RESEARCH XVI
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

556 SOCIAL WORK RESEARCH XVII
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

557 SOCIAL WORK RESEARCH XVIII
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

558 SOCIAL WORK RESEARCH XIX
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

559 SOCIAL WORK RESEARCH XX
Prerequisite: 441, 442, and permission of instructor. Research in the field of social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

560 ADMINISTRATION AND SUPERVISION IN SOCIAL WORK
Prerequisites: 441, 442, and permission of instructor. Preparation for a career in social work, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

561 LAW FOR SOCIAL WORKERS
Prerequisite: 441, 442, and permission of instructor. Introduction to the legal framework within which social workers practice, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

562 SUBSTANCE ABUSE AND SOCIAL WORK PRACTICE
Prerequisite: 441, 442, and permission of instructor. Introduction to the legal framework within which social workers practice, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

563 SPECIAL TOPICS IN SOCIAL WORK AND SOCIAL WELFARE
Prerequisite: 441, 442, and permission of instructor. Introduction to the legal framework within which social workers practice, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

564 INDIVIDUAL INVESTIGATIONS IN SOCIAL WORK AND SOCIAL WELFARE
Prerequisite: 441, 442, and permission of instructor. Introduction to the legal framework within which social workers practice, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

600 FUNDAMENTAL PRACTICE
Prerequisite: 441, 442, and permission of instructor. Introduction to the legal framework within which social workers practice, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

601 FUNDAMENTAL PRACTICE I
Prerequisite: 441, 442, and permission of instructor. Introduction to the legal framework within which social workers practice, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

602 FUNDAMENTAL PRACTICE II
Prerequisite: 441, 442, and permission of instructor. Introduction to the legal framework within which social workers practice, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.

603 FUNDAMENTAL PRACTICE III
Prerequisite: 441, 442, and permission of instructor. Introduction to the legal framework within which social workers practice, with emphasis on the development and evaluation of social work programs and practices. Focus is on the impact of social policies and programs on individuals, families, and communities.
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<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
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<tr>
<td>603</td>
<td>ADVANCED PRACTICE WITH SMALL SYSTEMS II</td>
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<td>608</td>
<td>SOCIAL WORK PRACTICE WITH SMALL SYSTEMS</td>
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<tr>
<td>611</td>
<td>DYNAMICS OF RACISM AND DISCRIMINATION</td>
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<td>621</td>
<td>FUNDAMENTALS OF RESEARCH I</td>
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<tr>
<td>622</td>
<td>FUNDAMENTALS OF RESEARCH II</td>
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<td>631</td>
<td>HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT: SMALL SOCIAL SYSTEMS</td>
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<td>645</td>
<td>ADVANCED PRACTICING INTERVENTION SEMINAR</td>
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<td>646</td>
<td>SOCIAL WELFARE POLICY I</td>
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<td>647</td>
<td>SOCIAL WELFARE POLICY II</td>
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<td>650</td>
<td>ADVANCED STANDING INTEGRATIVE SEMINAR</td>
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<td>655</td>
<td>SUPERVISION AND STAFF DEVELOPMENT</td>
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<td>671</td>
<td>SOCIAL WORK ADMINISTRATION</td>
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<td>STRATEGIES OF COMMUNITY ORGANIZATION</td>
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<td>673</td>
<td>COMMUNITY ORGANIZATION AND PLANNING</td>
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<td>COMMUNITY, ECONOMIC SYSTEMS AND SOCIAL POLICY ANALYSIS</td>
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<td>675</td>
<td>PROGRAM EVALUATION</td>
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<td>676</td>
<td>FISCAL MANAGEMENT OF SOCIAL AGENCIES</td>
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<td>AGING AND SOCIAL WORK PRACTICE</td>
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<td>685</td>
<td>SOCIAL WORK PRACTICE: FAMILY AND CHILDREN</td>
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<td>690</td>
<td>ADVANCED PRACTICE AND POLICY IN SUSTAINANCE BEHAVIOR</td>
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THEATER ORGANIZATIONS
7810:

601 PRODUCTION PRACTICUM/DESIGN/TECHNOLOGY 5-2 credits
Prerequisite: permission of instructor. Practice in selected production design/technology operations, applications and techniques as they apply to production projects and major department productions.

605 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
Prerequisite: Advanced standing or permission. Group study or group projects investigating particular phase of dance not covered by other courses in curriculum.

DANCE PERFORMANCE
7920:

590 WORKSHOP IN DANCE 1-2 credits
Prerequisite: Advanced standing or permission. Group study or group projects investigating particular phase of dance not covered by other courses in curriculum.

College of Nursing

NURSING
8200:

509 INTERNATIONAL HEALTH 2 credits
Prerequisite: Admission to RN to BSN program. A combination of nursing roles and responsibilities in an international environment. The influences of education, ethics, government, demography, and geography on health care will be considered.

598 SPECIAL TOPICS: NURSING 1-6 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.

598 WORKSHOPS 1-6 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 college.

598 SPECIAL READINGS 1-6 credits
Prerequisite: permission of student's advisor or dean. Special readings in an area of concentration may be taken to satisfy elective credit. Special readings may not be used to satisfy requirements of the major.

603 THEORETICAL BASIS FOR NURSING 3 credits
Prerequisite: Admission to Graduate Program. Overview of current nursing science. Examination and critique of nursing conceptual models. Analysis of the relationships of theory, research, and practice.

605 COMPUTER APPLICATIONS IN NURSING 2 credits
Prerequisite: Admission to Graduate Program. Computer systems influencing nursing practice, research, education, and national knowledge exchange are examined. The complex issues surrounding use in nursing are explored.

607 POLICY ISSUES IN NURSING 2 credits
Prerequisite: Admission to Graduate Program. Analysis of policy issues that impact on nursing care delivery to diverse populations. Examine methods to shape policy, distribution, and allocation of resources.

608 PATHOPHYSIOLOGICAL CONCEPTS OF NURSING CARE 4 credits
Prerequisite: Admission to Graduate Program. An in-depth study of pathophysiologic conditions and related treatment modalities. The course focuses on specific nursing interventions related to these pathophysiologic abnormalities.

610 ADVANCED ADULT/GERONTOLOGICAL ASSESSMENT 3 credits
Prerequisite: Admission to Graduate Program, permission of instructor. 624, 621 Advanced adult/gerontological assessment and clinical reasoning in primary care, acute care, and long-term care settings. Focus on the adult/gerontological nurse role in the assessment of health and illness.

611 ADVANCED CLINICAL PHARMACOLOGY 3 credits
Prerequisite: Admission to Graduate Program. Update on research and evidence-based practices in the administration and use of pharmacological agents used by advanced practice nurses. Focus on the adult/gerontological nurse role in the assessment of health and illness.

613 NURSING INQUIRY I 3 credits
Prerequisite: prerequisite: graduate level statistics. Admission to Graduate Program. Concepts and critical issues relating to scientific inquiry are examined, emphasizing the phases of the research process. Students participate in critical analysis of nursing research.

615 ADVANCED CLINICAL PRACTICE SEMINAR 2 credits
Prerequisite: Admission to Graduate Program. An in-depth study of advanced clinical practice issues. Focus on the adult/gerontological nurse role in the assessment of health and illness.

618 NURSING INQUIRY II 3 credits
Prerequisite: prerequisite: graduate level statistics. Admission to Graduate Program. Concepts and critical issues relating to scientific inquiry are examined, emphasizing the phases of the research process. Students participate in critical analysis of nursing research.

620 ADULT/GERONTOLOGICAL HEALTH NURSING NP II 4 credits
Prerequisite: Admission to Graduate Program. Focus on the adult/gerontological nurse role in the assessment of health and illness. Focus on the adult/gerontological nurse role in the assessment of health and illness.

621 ADULT/GERONTOLOGICAL HEALTH NURSING NP III 4 credits
Prerequisite: prerequisite: graduate level statistics. Admission to Graduate Program. Focus on the adult/gerontological nurse role in the assessment of health and illness. Focus on the adult/gerontological nurse role in the assessment of health and illness.

622 ADULT/GERONTOLOGICAL HEALTH NURSING NP IV 4 credits
Prerequisite: prerequisite: graduate level statistics. Admission to Graduate Program. Focus on the adult/gerontological nurse role in the assessment of health and illness. Focus on the adult/gerontological nurse role in the assessment of health and illness.

623 PRACTICUM: ADULT/GERONTOLOGICAL HEALTH NURSING 1 credits
Prerequisite: prerequisite: graduate level statistics. Admission to Graduate Program. Focus on the adult/gerontological nurse role in the assessment of health and illness. Focus on the adult/gerontological nurse role in the assessment of health and illness.

624 POSTMAS NP ADULT/GERONTOLOGICAL PRACTICUM I 2 credits
Prerequisite: Admission to Graduate Program. Focus on the adult/gerontological nurse role in the assessment of health and illness. Focus on the adult/gerontological nurse role in the assessment of health and illness.

625 POSTMAS NP ADULT/GERONTOLOGICAL PRACTICUM II 2 credits
Prerequisite: prerequisite: graduate level statistics. Admission to Graduate Program. Focus on the adult/gerontological nurse role in the assessment of health and illness. Focus on the adult/gerontological nurse role in the assessment of health and illness.

626 POSTMAS NP ADULT/GERONTOLOGICAL PRACTICUM III 2 credits
Prerequisite: prerequisite: graduate level statistics. Admission to Graduate Program. Focus on the adult/gerontological nurse role in the assessment of health and illness. Focus on the adult/gerontological nurse role in the assessment of health and illness.

630 RESOURCE MANAGEMENT IN NURSING SETTINGS 3 credits
Prerequisite: Admission to Graduate Program. Focus on the adult/gerontological nurse role in the assessment of health and illness. Focus on the adult/gerontological nurse role in the assessment of health and illness.
PUBLIC HEALTH

8355  NURSING AND HEALTH CARE POLICY  3 credits
  Prerequisite: Admission to the Ph.D. Program or permission of the professor. Critical examination of theories and processes of formulating institutional health care policy. Focus on health services, the political and legislative process, and contemporary policy determination. (KSU 7035)

8400  NURSING SCIENCE SEMINAR I  3 credits
  Prerequisite: 8390. Seminar on in-depth analysis, synthesis, and evaluation of one substantive area within nursing and related disciplines focusing on the generation and dissemination of nursing knowledge. (KSU 8391, 85291, 86991)

8401  ENVIRONMENTAL BIOSTATISTICS IN PUBLIC HEALTH  3 credits
  Prerequisite: Admission to the Ph.D. Program or permission of the professor. Advanced seminar on selected areas related to research development, methods, and evaluation essential to the advancement of nursing knowledge. (KSU 7035, 7099)

8550  EPIDEMIOLOGY IN PUBLIC HEALTH  3 credits
  Prerequisite: 8401. In-depth focused analysis and synthesis of a substantive area relevant to the student's specific research focus, culminating in a written product for dissemination. (KSU 8391)

8599  DOCTORAL DISSERTATION  3 credits
  Prerequisite: Advanced to candidacy; independent dissertation research under the guidance of a faculty chairperson and a dissertation committee. (KSU 8529)

COLLEGE OF POLYMER SCIENCE AND POLYMER ENGINEERING

POLYMER ENGINEERING

9841:

525  INTRODUCTION TO BLENDING AND COMPOUNDING POLYMERS  3 credits
  Prerequisite: 4200:321 or 4600:310 or permission. Nature of polymer blends and compounds and their applications. Preparation and technology using batch and continuous mixers. Mixing Mechanisms.

537  MOLD DESIGN  3 credits
  Prerequisite: 4200:321 or 4600:310 or permission. Molding methods to manufacture polymer products. Machinery, materials, molds, equipment, computer-aided design.

550  ENGINEERING PROPERTIES OF POLYMERS  3 credits
  Prerequisite: 4200:321 or permission. Introduction to polymer properties and polymer processing. Analyzing mechanical polymer tests in rubber, plastics, and fiber systems. Product design, life cycle optimization, and product disassembly concepts.

551  POLYMERS AND ENGINEERING LABORATORY  3 credits
  Prerequisite: 4200:321; corequisite: 422. Laboratory experiments on the rheological characterization of polymer melts, fabrication of engineering products, structural investigation of polymeric systems.

600  POLYMER ENGINEERING SEMINAR  1 credit
  Presentations of current research topics in polymer engineering by internal and external speakers.

611  STRUCTURAL CHARACTERIZATION OF POLYMERS WITH ELECTROMAGNETIC RADIATION  2 credits
  Characterization of orientation, morphology, superstructure in polymers using x-ray, light scattering, infrared, magnetic susceptibility, and calorimetry determination.

621  RHEOLOGY OF POLYMERIC FLUIDS  3 credits

622  ANALYSIS AND DESIGN OF POLYMER PROCESSING OPERATIONS I  3 credits
  Prerequisite: 4200:321. Mathematical modeling and engineering design analysis of polymer processing operations including extruder design, injection molding, die, fibers, film formation.

623  ANALYSIS AND DESIGN OF POLYMER PROCESSING OPERATIONS II  3 credits
  Prerequisite: 4200:321. Mathematical modeling and engineering design analysis of polymer processing operations including extruder design, injection molding, die, fibers, film formation.

631  ENGINEERING PROPERTIES OF SOLID POLYMERS  3 credits
  Prerequisite: 4200:321. Mathematical modeling and engineering design analysis of polymer processing. Emphasis on deformation, mechanics, stress, strain, fracture, and mechanical testing of polymeric materials.

635  MECHANICAL STRENGTH OF POLYMERIC SOLIDS  2 credits
  Extended chain crystal and theoretical strength of polymeric solids. Impact and high speed testing. Tensile testing, modulus, toughness, and fatigue. Characterization of materials and their behavior. Mechanical testing of polymeric materials.

641  POLYMERIC MATERIALS ENGINEERING SCIENCES  4 credits
  Polymer structure, properties, and applications. Rheology of polymer melts, solutions, emulsions. Characterization of orientation, morphology, superstructure in polymers using x-ray, light scattering, infrared, magnetic susceptibility, and calorimetry determination.

642  ENGINEERING ASPECTS OF POLYMER COLLIDOLS  2 credits
  Thermodynamic properties of polymer colloids, solgel transformation, rheology of polymer solutions, gelation, emulsion formation, and phase separation. Applications to paints and plastics technology.

650  INTRODUCTION TO POLYMER ENGINEERING  3 credits
  Basic concepts of polymer engineering taught in a lecture/laboratory format intended for orientation of new graduate students.

651  POLYMER ENGINEERING LABORATORY  3 credits
  Prerequisite: 4200:321 or permission. Characteristic properties of polymer melts, solutions, and emulsions. Characterization of orientation, morphology, superstructure in polymers using x-ray, light scattering, infrared, and dielectric testing.

661  POLYMERIZATION REACTOR ENGINEERING  3 credits
  Polymerization kinetics, reactor design, comparison of polymerization in batch and continuous stirred tank reactors. Reaction rates and reactor design.

6999  MASTER'S THESIS  16 credits
  May be repeated. Supervised original research in a specific area of polymer engineering.

711  ADVANCED ELECTRO/MAGNETIC AND OPTICAL PROPERTIES AND APPLICATIONS OF POLYMERS  2 credits

712  RHEO-OPTICS OF POLYMERS  2 credits
  Applications of theoretical models as means of determining stress and strain polymer glasses and fluids during deformation, rheological properties of polymer melts, and polymer fluids in glassy, rubbery, and plastic states. Theory of dynamic birefringence and its application to mechanical relaxations of amorphous and semi-crystalline polymers and recent experimental results.
706 IONIC AND MONOMER INSERTION REACTIONS
2 credits
Prerequisite: 3150:463/563 or permission of instructor. Covers the scope, kinetics, and mechanisms of polymerizations initiated by cations, cationic ions and anion ions as well as polymerizations induced by coordination catalysts. Living polymerizations, molecular weights, molecular weight distributions, stereochemistry, solvent effects, concentration effects, temperature effects, Ziegler-Natta catalysis, olefin metathesis, functionalization of polymers, graft, and block copolymer synthesis.

707 KINETICS OF POLYMERIC PROCESSES
2 credits
Prerequisite: 631 and 675 or permission of instructor. Principles of kinetic theory and statistical mechanics are applied to a polymer diffusion, polymerization kinetics, polymer absorption, membrane transport, polymeric phase transformations, gel formation and colloidal devolatilization.

708 MACROMOLECULAR CHAIN STRUCTURE
3 credits
Prerequisites: either 3150:314, 3500:318, or 4200:205 or permission. Chain-like structure of large molecules. Fundamental theories of chemical conformation and statistical mechanics developed to degree that their applications to polymeric problems can be discussed.

709 MACROMOLECULAR CHAIN STRUCTURE
3 credits
Prerequisite: 708 or permission. Continuation of topics in 708 including experimental techniques used in elucidation of chain structure.

711 SPECIAL TOPICS: POLYMER SCIENCE
3 credits
Prerequisite: permission. Topics of current interest in polymer science, encompassing chemistry, physics, or technological aspects of macromolecular substances, including laboratory work where applicable.

712 SPECIAL TOPICS: POLYMER SCIENCE
2 credits
Prerequisite: permission. Topics of current interest in polymer science, encompassing chemistry, physics, or engineering aspects of macromolecular science.

713 CHAIN STRUCTURE LABORATORY
2 credits
Prerequisite or co-requisite: 708 or permission of instructor. Designed to apply principles discussed in 708 to laboratory determination of polymer structure.

899 DOCTORAL DISSERTATION
11 credits
Open to properly qualified students accepted as candidates for Doctor of Philosophy in Polymer Science depending on the availability of staff and facilities.
Appendix

Grievance Procedures for Graduate Students

Intellectual Property Rights and Obligations

Family Educational Rights and Privacy Act
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 review 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 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. The 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: (1) the Dean of the Graduate School wishes to have a Hearing Committee render a recommendation on the grievance, or (2) 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 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 five 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.

8. At any point in the grievance process, the Chairperson may extend the deadlines with the mutual consent of all parties.

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 chosen at random from an established pool selected by the Graduate Council 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. A graduate student not involved with the complainant and not from the complainant's department, selected jointly by the Department Chair and the President of the Graduate Student Government. If the grievance is filed against the Department Chair, the Academic Dean shall substitute for the Department Chair. If the grievance is filed against the Department Chair, the Senior Vice President and Provost shall substitute for the Department Chair.
   b. A faculty member not involved with the complainant and not from the complainant's department, selected jointly by the Department Chair and the President of the Graduate Student Government. If the grievance is filed against the Department Chair, the Academic Dean shall substitute for the Department Chair. If the grievance is filed against the Department Chair, the Senior Vice President and Provost shall substitute for the Department Chair.
   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 three 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 advisor/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, department, 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 fairness 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.
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 or the authors, employer or sponsor 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 of a purely academic nature 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 authorship are often best handled informally between potential joint authors.

Patents

All discoveries and inventions made by you while associated with 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 a 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

In the event you think you have been improperly omitted from the list of authors, you should first discuss the matter with your faculty advisor. If you have further questions or consider the matter unresolved, you should inform the following order the appropriate department chair, the college dean, and finally the Dean of the Graduate School. (Questions are usually, and most quickly, resolved at the lowest administrative levels.)

In the event you think you have been omitted as an inventor on a patent application, you should first discuss the matter with your faculty research advisor and, thereafter, with your department chair and finally with your academic dean. Following such consultations, either you and/or your faculty advisor, or your department chair, or your dean can request the patent attorney who prepared the application to recheck the findings and then prepare a formal report on inventorship. The whole patent application file may then be referred to the Office of General Counsel for a re-evaluation of valid inventors. However such re-evaluation by patent counsel shall only occur with the prior knowledge of your faculty advisor, Department Chair and Dean.
THE UNIVERSITY OF AKRON
INVENTION PATENT AGREEMENT

Name: ________________________________

Social Security No.: ________________________________

The University of Akron graduate students are required to sign this form as a condition of being permitted to participate in any research activity at the University.

1. As a condition of and in consideration of my participating in sponsored research or other financially supported activity at The University of Akron, I hereby agree to communicate fully with my Faculty Advisor, including discussing the details of any work conducted by me and the results which flow therefrom. I recognize that this communication is essential as it relates to any sponsored research, to any course and thesis/dissertation research, and to my safety and the safety of everyone else using the same facility that I use.

2. I further agree to disclose promptly to the director of the research and to my Faculty Research Advisor any invention conceived and/or reduced to practice by me whether jointly with others or solely, which results in whole or in part from such sponsored research or financially supported activity. I agree that I will comply with the provisions of any agreement between The University of Akron and any sponsor for any information and laboratory practice to which I am privileged to know. I will cooperate in assuring that the sponsor's rights, including rights in inventions, patents, copyrights, are fully protected. Further, I hereby assign all rights, title and interest to The University of Akron for its disposal at its sole discretion.

3. I also acknowledge that certain technical information that may arise as a result of the sponsored research or supported activity may be of a confidential nature. I agree to be bound to the reasonable terms of any nondisclosure agreement as it has been agreed to by the University.

4. Finally, I acknowledge and agree that any rights which arise as a result of the sponsored research or supported activity belong to The University of Akron or to the sponsor as determined by agreement between The University of Akron and the sponsor.

Date ________________________________

Student's Signature ________________________________
Family Educational Rights and Privacy Act (FERPA)

A student has a right to:

• Inspect and review education records pertaining to the student;
• Request and amendment to the student’s records; and
• Request a hearing (if the request for an amendment is denied) to challenge the contents of the education records, on the grounds that the records are inaccurate, misleading, or violate the rights of the student.

The parent or eligible student has a right to:

• Inspect and review the student’s education records;
• Request the amendment of the student’s education records to ensure they are not inaccurate, misleading, or in otherwise in violation of the student’s privacy or other rights.
• Consent to disclosures of personally identifiable information contained in the student’s education records, except to the extent that FERPA authorizes disclosure without consent.
• File with the U.S. Department of Education a complaint concerning alleged failures by the school to comply with the requirements of FERPA; and
• Obtain a copy of the school’s FERPA policy.

Disclosure of Personally Identifiable Information

• FERPA regulations list conditions under which “personally identifiable information” from a student’s education record may be disclosed without the student’s prior consent.
• Disclosure may be made to authorized representatives of the U.S. Department of Education, the Office of Inspector General, or state and local education authorities. These officials may have access to education records as a part of an audit or program review, or to ensure compliance with Student Financial Assistance program requirements. (Representatives of the Department include research firms that are under contract with the Department to conduct studies of financial aid procedures, using student information provided by the schools selected for the study. The term also includes the Student Financial Assistance program public inquiry contractor.)
• Disclosure may be made if it is in connection with financial aid that the student may receive a request from the Immigration and Naturalization Service (INS) or the Federal Bureau of Investigation (FBI) for access to a student’s records. Such a request may be granted only if the student information is needed to determine the amount of the aid, the conditions for the aid, the student’s eligibility for the aid, or to enforce the terms or conditions of the aid.
• Disclosure may be made to the student’s parent, if the student is dependent on the parent, as defined by the Internal Revenue Service. If the student receives more than half of his or her support from the parent, under the IRS definition, the student is a dependent of the parent. (Note that the IRS definition is quite different from the rules governing dependency status for the Student Financial Assistance programs.)
• Disclosure may be made to organizations that are conducting studies concerning the administration of student aid programs on behalf of educational agencies or institutions.
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CAMPUS CONSTRUCTION SITES
A. Parking deck under renovation; limited parking available, to be completed Dec. 2000.
B. Parking deck under renovation; limited parking available, to be completed Dec. 2000.
E. Student Union construction, to be completed Dec. 2000.
G. Ritchie Residence Hall renovation, to start July 2000.