Calendar 2005-2006

Fall Semester 2005
Day and evening classes begin Mon., Aug. 29
* Labor Day (day and evening) Mon., Sept. 5
Spring 2006 advancement to candidacy due Thu., Sept. 15
Veterans Day (classes held; staff holiday) Fri., Nov. 11
** Thanksgiving Break Thu.-Sun., Nov. 24-27
Classes resume Mon., Nov. 28
Final instructional day Sat., Dec. 10
Final examination period Mon.-Sat., Dec. 12-17
Commencement Sat., Dec. 17
Winter Intersession Sat.-Sat., Dec. 24-Jan. 14

Spring Semester 2006
Spring 2006 graduation applications due Tue., Jan. 3
Day and evening classes begin Tue., Jan. 17
* Martin Luther King Day Mon., Jan. 16
Summer 2006 advancement to candidacy due Wed., Feb. 15
* Presidents’ Day Tue., Feb. 21
Spring Break Mon.-Sat., Mar. 27-Apr. 1
Classes resume Mon., Apr. 3
Summer 2006 graduation applications due Wed., May 3
Final instructional day Sat., May 6
Final examination period Mon.-Sat., May 8-13
Commencements Sat.-Sun., May 13-14

Summer Sessions I, II and III 2006
First 5- and 10-week Sessions begin Mon., May 15
Fall 2006 advancement to candidacy due Mon., May 15
Commencement for School of Law Sun., May 21
* Memorial Day Mon., May 29
First 5-week Session ends Sat., Jun. 17
Second 5- & 10-week Sessions begin Mon., Jun. 19
* Independence Day Tues., Jul. 4
First 10- and second 5-week Sessions end Sat., Jul. 22
Third 5-week Session begins Mon., Jul. 24
Second 10- and third 5-week Sessions end Sat., Aug. 26
Summer Commencement Sat., Aug. 26

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

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.

Inquiries
Address inquiries concerning:
Graduate study to the Graduate School, The University of Akron, Akron, OH 44325-2101. 330-972-7663.
Athletics to the Athletic Director, The University of Akron, Akron, OH 44325-5201. 330-972-7080.
Registration, scheduling, residency requirements, and veteran’s affairs to the Office of the Registrar, The University of Akron, OH 44325-6208. 330-972-8300.
Undergraduate admissions information, campus tours, housing, and transfer of credits to the Office of Admissions, The University of Akron, OH 44325-2001. 330-972-7077 or toll-free inside Ohio, 1-800-655-4884.
The University switchboard number is 330-972-7111.

University Closing Policy
The president, or designee, upon the recommendation of the Director Environmental Health and Occupational Safety, 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 Chief of Police will promptly notify other designated University officials and members of the Department of Institutional Marketing, 330-972-7820, who will contact area media. University colleges/departments/schools are encouraged to establish a method for communicating the closing decision to departmental personnel. Closing information will be announced as early and as simply as possible to avoid confusion.
Cancellation of classes and closure announcements will be made as early as possible in the day and will clearly state the affected campus(es). Call 330-972-SNOW or 330-972-6238 (TDD/Voice) 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)

Graduate School
Vice President for Research, & Dean, Graduate School
Dr. George R. Newhouse ........................................... 972-6458
Associate Dean, Graduate School
Dr. Mark B. Tausig .................................................. 972-7664
Assistant to the Vice President for Research & Dean, Graduate School
Mrs. Dolli Quattroccoli Gold ..................................... 972-6737
Senior Executive Administrative Assistant
Mrs. Cynthia S. Angerstien ......................................... 972-6458
Administrative Assistant Senior
Ms. Heather A. Blake .............................................. 972-7664
Examiner Associate
Ms. Nancy J. Biewitt ............................................... 972-7663
Coordinator, Graduate Student Financial Aid
Mrs. Karen L. Caldwell ............................................. 972-6310
Assistant Director, McNair Scholars Program
Billi F. Copeland ..................................................... 972-2135
Student Services Counselor
Miss Brenda J. Henry .............................................. 972-7665
Student Services Counselor
Mrs. Jessica N. Isner ............................................... 972-5169
Coordinator, Graduate Admissions
Ms. Theresa M. McCune .......................................... 972-6405

Graduate School
World Wide Web Location
Graduate School Homepage .................................... http://www.uakron.edu/gradsch/
Graduate School E-mail .......................................... gradschool@uakron.edu

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

Other Offices
Accessibility, Office of ............................................ 972-7928
TTY/TDD .............................................................. 972-5764
Buchtelite, The (student newspaper) .......................... 972-7919
Careers Program, Arts and Sciences .......................... 972-5714
Center for Child Development ................................ 972-8210

Cooperative Education Programs ................................ 972-7747
Counseling, Testing, and Career Center
Counseling ........................................................... 972-7082
Testing ................................................................. 972-7084
English Language Institute ....................................... 972-7544
Financial Aid, Office of Student ................................ 972-7032
Scholarships (non-University) ................................ 972-6368
Scholarships (University) ......................................... 972-6343
Student Employment .............................................. 972-7405
Student Volunteer Program .................................... 972-6841
Work Study ............................................................ 972-8074
Health Services, Student ........................................ 972-7808
Information Centers
Student Union ....................................................... 972-INFO (4636)
Polsky’s High Street Info Center .............................. 972-2531
Polsky’s Main Street Info Center .............................. 972-2532
International Programs ........................................... 972-6349
Academic Advising ................................................ 972-6194
Immigration ........................................................... 972-6740
International Admissions ........................................ 972-6934
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
Multicultural Development, Office of ........................ 972-7658
Academic Support Services/Access and Retention ........ 972-6769
Pan-African Culture and Research Center .................. 972-7030
Parking Services .................................................... 972-7213
Peer Counseling Program ....................................... 972-8288
Photocopying
Bierce Library ........................................................ 972-6278
DocuZip (Student Union) ......................................... 972-7870
Polsky’s Center ....................................................... 972-2043
Registrar, Office of the University ............................ 972-8300
Graduation Office .................................................. 972-8300
Records and Transcripts ......................................... 972-8300
Residence Life and Housing ..................................... 972-7800
Student Affairs, Vice President for ........................... 972-7907
Special Services for Students ................................... 972-6048
Student Conduct .................................................... 972-7021
Student Union
Director’s Office .................................................... 972-7866
Information Center ................................................. 972-INFO (4636)
Study Abroad .......................................................... 972-7488
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

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

HISTORY

The connection between The University of Akron and its surrounding community has been a recurring theme in its history. The institution was founded as a small denominational college in 1870 and has grown to its current standing as a major metropolitan, state-assisted university. It is significant that the efforts, energy, and financial support of many Akron manufacturers, nurses, workers, and alumni were instrumental in persuading the Ohio Universalist Convention 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 such industries as cereals, clay products, matches, and rubber. Buchtel College’s emphasis on local rather than denominational interests became increasingly clear, and by 1913 those strong ties and the school’s financial situation caused its trustees to transfer the institution and its assets to the city. For the next 50 years, the Municipal University of Akron received its principal support from city tax funds and swelled from an enrollment of 198 to nearly 10,000.

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

Changes within the Municipal University’s curriculum reflected the strong interrelationship of town and gown. In 1914, a College of Engineering began instruction, and other professional schools followed: Education (1921), Business Administration (1923), Law (1929), the Community and Technical College (1964), Fine and Applied Arts (1967), and Nursing (1967).

Considering the institution’s location in the heart of a burgeoning rubber industry, it seemed only appropriate that the world’s first courses in rubber chemistry would be offered at Buchtel College in 1909. From those first classes in Professor Charles W. Knight’s laboratory would evolve the world’s first College of Polymer Science and Polymer Engineering (1968). 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 from the university.

Research, innovation, and creativity actively take many forms at the University—industries and in the arts and humanities. Today, University faculty study ways of matching workers with jobs to maximize performance; develop new ways to synthesize fuel; write and produce plays; provide health care in community clinics; and study political campaigns. While all of us have our individual backgrounds, outlooks, values, and principles, we all share certain principles of personal responsibility, mutual respect, and common decency. Our campus culture requires that we maintain and extend those 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.

The University of Akron is an educational community of diverse peoples, processes, and programs. While all of us have our individual backgrounds, outlooks, values, and styles, we all share certain principles of personal responsibility, mutual respect, and common decency. Our campus culture requires that we maintain and extend those principles, for without them we cannot thrive as a humane and worthwhile university.
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 will 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, united 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 responsibly his or 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 his/her 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 otherwise 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 responsibilities 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 select regional and national education associations, societies and councils. Accreditation serves two fundamental purposes: quality assurance and institutional and program improvement.

There are two types of accreditation of educational institutions: institutional accreditation and specialized accreditation. Institutional accreditation evaluates the entire institution and accredits it as a whole. The University of Akron has been approved by The Higher Learning Commission of The North Central Association of Colleges and Schools (30 North LaSalle Street, Suite 2400 Chicago, IL 60602 1-800-621-7400) since 1914 and has been reaccredited at the highest level as a comprehensive doctoral degree-granting institution.

Institutional accreditation is separate from the accreditation given by professional associations or organizations. Specialized accreditation evaluates particular units, schools or programs within an institution and is often associated with national professional associations or with specific disciplines.

Accreditation 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.

Institutional Accreditation:
The Higher Learning Commission of The North Central Association of Colleges and Schools

Specialized Accreditations:

AACSB-The Association to Advance Collegiate Schools of Business
Accreditation Board for Engineering and Technology
America Association for Family and Consumer Science
American Association of Marriage and Family Therapy (provisional)
American Association of Nurse Anesthesia-Council on Accreditation
American Dietetic Association
American Psychological Association
American Speech-Language-Hearing Association
Association of Collegiate Business Schools and Programs
Commission on Collegiate Nursing Education
Committee on Allied Health Education and Accreditation of American Medical Association
Council for the Accreditation of Counseling and Related Educational Programs (provisional)
Council on Social Work Education
Foundation for Interior Design Education Research
International Fire Service Accreditation Congress
National Academy of Early Childhood Programs
National Association of Education for Young Children
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 (NASPA)
National Athletic Training Association
National Certification Board of Pediatric Nurse Practitioners and Nurses
National Council for Accreditation of Teacher Education
National League of Nursing Accrediting Commission
North Central Association for Teacher Education
Ohio Department of Education
Professional Society for Sales & Marketing Training (SMIT)

The School of Law is accredited by or holds membership in the following:

American Bar Association
Association of American Law Schools
League of Ohio Law Schools
Council of the North Carolina State Bar
State of New York Court of Appeals

The University also holds membership in the following educational organizations:

American Association of Colleges for Teacher Education
American Association of Colleges of Nursing
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
Department of Baccalaureate and Higher Degree Programs (National League for Nursing)
International Council on Education for Teaching (associate)
Midwestern Association of Graduate Schools
National Association of Graduate Admission Professionals
National Association of State Universitie

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

Currently, the Akron campus covers 218 acres and encompasses 81 buildings. Recent and continued growth with new academic, administrative, and recreational spaces, in addition to major renovations to existing buildings, are attributable to the current Master Plan, “A New Landscape for Learning.”

LOCATION

The University is situated in a large metropolitan area. The campus, although centrally located within the city, is a park-like setting with pedestrian areas. Students have easy access to retail outlets, transportation, and churches. The University is located between East Market Street and East Exchange Street on the south side of downtown Akron. It is easily reached by automobile from major national east-west routes (Interstates 80, 90, 76, and the Ohio Turnpike) and north-south routes (Interstates 71 and 77), all of which link Akron to the surrounding states and regions. For airline passengers, limousine service is available from the Cleveland Hopkins International Airport located to the north and Akron-Canton Regional Airport, located to the south.

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:

Akron Polymer Training Center. Located at 225 East Mill Street is an instructional classroom and laboratory facility for Polymer Engineering and Science Technology. Polymer Science classes.

Arts & Sciences Building. Located at 290 E. Buchtel, the College of Arts & Sciences Building is occupied by the Dean of the Buchtel College of Arts & Sciences, Computer Science, Economics, Geography and Planning, History, Mathematics, Statistics, Anthropology, Biology, and Chemistry.

Buchtel Field House. The newly constructed building is adjacent to the new Student Recreation Center and the Ocasek Natatorium and is one of the best indoor facilities in the nation. The field house features a full 120-yard Astro Track field, 300 meter six-lane Mondo track, 8,000 square foot strength and condition center, batting cages, indoor golf training facility, locker rooms, sports medicine and rehabilitation facility, and spectator seating for 1,200.

Auburn Science and Engineering Center. Named for Dr. Norman P. Auburn, 10th president of the University, this complex is one of the largest academic buildings in the state. The complex houses the College of Engineering Dean’s office, the Engineering Co-op Office; Mechanical, Electrical, Chemical, and Civil Engineering; as well as the Department of Biology and Biology Research Facility.

Ayer Hall. Named for the first dean of the College of Engineering, Frederic E. Ayer, Ayer Hall provides classrooms and offices for the department of Physics. Ballet Center. This center, located at 354 East Market Street, houses dance studios, a choreography laboratory, faculty offices, and the College of Business, the Ohio Ballroom, and the Dance Institute.

Bierce Library. Named for General Lucas 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 collection, the facility houses audio-visual materials, maps, and microfilms.

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

Buckingham Center. Located at 220 Wolf Ledges Parkway in the renovated Union Depot Building. This building houses the offices of the Associate Provost, Multicultural Development, Office of Multicultural Development, Black Cultural Center, Academic Achievement Programs, and a repository of African-American history.

Business Administration Building. This facility, located at 259 South Broadway, houses offices, classrooms, and laboratory facilities for the dean of the College of Business Administration, the George V. Daver School of Accountancy, and the departments of Finance, Marketing, and Management.

Carroll Hall. This facility houses the Faculty Senate and Adult Focus in addition to classrooms, laboratories, and offices for departments of Counseling and Developmental Programs.

Center for Child Development. The former GirF Scout regional headquarters building at 1095 Fir Hill has been renovated to accommodate the University’s Center for Child Development.

Computer Center. This building at 185 Carroll Street houses the University’s Information Services offices, main computers, and workshops.

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

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

Folk 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 art, photography, painting, drawing, metalsmithing, ceramics, and computer design. The Emily Davis Art Gallery is also located in the facility.

Mary E. Gladwin Hall. Housing the College of Nursing and biology laboratories, this building was named in honor of distinguished alumna Mary E. Gladwin (1887), who rendered unparalleled service to the nation during World War I. The $10 million facility 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 1991. This building is the largest academic building in the state. The complex houses the College of Polymer Science and Polymer Engineering. The facility features a 200-seat lecture hall, offices, classrooms, and research laboratories for the Institute and Department of Polymer Science.

Guzzetta Hall. 157 University Avenue, Guzzetta Hall is occupied by the Dean of the College of Fine and Applied Arts and the Department for the School of Dance, Theatre, and Arts Administration, Firestone Conservatory, and the School of Music in addition to student practice rooms, an experimental theatre, and 300-seat recital hall.

James A. Rhodes Health and Physical Education Building (JAR). This structure on Buchtel Common is connected to Memorial Hall by a pedestrian bridge over South Union Street and contains an intercollegiate basketball and volleyball arena with seating for 5,500. The facility also serves as a concert and special event venue, and houses an indoor walking/jogging track, physical education laboratories, classrooms, meeting rooms, offices, and the intercollegiate offices, locker rooms, sports medicine room, and a ticket office.

Hower 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, in 1909. Opened in 1979, 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 $73 million. Additions to and remodeled space within the building have provided space for faculty and staff offices, TV studio areas, WZIP-FM radio station, computer labs and classrooms. The building also houses the Paul A. Daum Theatre.

Leigh Hall. Located at 308 Buchtel Common, Leigh Hall is named in honor of Warren W. Leigh, first dean of the College of Business Administration. This newly renovated building is occupied by the Distance Education Center, Institute for Teaching and Learning, Center for Collaboration and Inquiry in addition to The John S. Knight Auditorium.

Paul E. Martin University Center. Located at 105 Fir Hill, the Paul E. Martin University Center has changed from a private club serving dues-paying members to a University-operated restaurant and banquet center. The table service restaurant is open for breakfast 7-11:30 a.m. and lunch and dinner 5-11 p.m., and informal dining is available by banquets, receptions, and parties can be scheduled during the hours of 7:30 a.m. to 11 p.m. The Office of the Department of Development is located on the upper floors of the building.

McDowell Law Center. Named for C. Blake McDowell, prominent local attorney, alumnus, and benefactor of the University, the center houses the School of Law. Opened in 1975 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 $2.8 million addition to this building includes 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 men and women who died in World War II, this is the companion building to the JAR. It contains offices of the Department of Sport Science and Wellness Education, a 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 lab, a weight room, an athletic training lab, the intramurals sports office, and classrooms.

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

Olin Hall. Named in honor of Professor Oscar E. Olin and Mr. Charles Olin, this facility houses the following departments and institutes: Arts & Sciences Careers Program, Ray C. Bliss Institute of Applied Politics, Philosophy, English Language Institute, Sociology, Political Science, English, Modern Languages, Classical Studies, Anthropology, and Archaeology.

The University of Akron 2005-2006
Olson Research Center. This facility, adjacent to the new Polymer Engineering Academic Center on Forge Street, houses space for the Department and Institute of Biomedical Engineering and the Department and Institute of Polymer Engineering.

Physical Facilities Operations Center. This building, located at 146 Hill Street, houses physical facilities offices, craft shops, the central heating and cooling distribution center, and the campus Police/Security Department.

The Polsky Building. The largest academic building in Ohio, this renovated downtown department store is home to the Graduate School. Also located here 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 College of Education, the Office of International Programs, the Associate Vice President for Research and Technology Transfer, including the Office of Research Services and Sponored Programs, the Institute for Policy Studies, the Center for Health and Social Policy, and Taylor Institute for Direct Marketing. A University food service facility and a campus bookstore are in operation on the High Street level (third floor).

Polymer Engineering Academic Center. The newly constructed 31,900 sq. ft. addition to the Olson Research Center houses departmental, faculty, and graduate student offices, the Rubber Division offices of the American Chemical Society, classroom space and a 134-seat lecture hall.

Robertson Dining Hall. This building at 246 East Buchtel Avenue has a cafeteria and dining room for students, as well as the campus infirmary, which provides health services for the University.

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

Schrank Hall. Named for Harry P. Schrank, longtime member and chairman of UA Board of Trustees, this complex, which adjoins Auburn Science and Engineering Center, is composed 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, and general purpose classroom space. Schrank Hall South provides facilities for the School of Family and Consumer Sciences.

Simmons Hall. This newly constructed building, located at 277 East Buchtel Avenue is occupied by departments of Student Affairs, University College, and Business and Finance. Major services provided in this building are Undergraduate Admissions, Center for Career Management, Student Financial Aid, Office of the Registrar, University College, New Student Orientation, and Business and Finance (Student Financials).

Sitzlein Alumni Association Center. Named for Harry P. and Rainey G. Sitzlein, this recently remodeled building, north of East Buchtel Avenue at Fir Hill, houses the Office of The Alumni Association.

Student Recreation Center. This newly constructed facility, located at 382 Carroll Street, houses facilities and services for student recreation and wellness. Major activities are leveled fitness, racquet courts, lazy river water spa, weight training, and a six-lane running track.

Student Union. The Student Union, 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 facility houses various food service facilities, meeting rooms, the union theater, 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. Visit our website at http://www.uakron.edu/studentunion.

Whitby Hall. Located at 200 Buchtel Common, Whitby Hall is named in honor of G. Stafford Whitby, a pioneer in the development of polymer science. This building is occupied by the Department of Chemical Engineering, faculty offices, research labs, and a computer lab classroom.

Zook Hall. Named to honor George F. Zook, president of the University from 1925 to 1933, this Buchtel Common facility houses the College of Education offices of the Dean, Associate Dean for Academic Affairs, Assistant Dean for Student Affairs, and administrative support departments. Other facilities include a lecture room that seats 245, general classrooms, a science and mathematics classroom/laboratory, a distance learning classroom, a Center for Literacy, two technology-enhanced demonstration classrooms, two computer training classrooms, and a multi-media laboratory.

Background Information

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 a scanning electron microscope, a light microscope (differential interference contrast, fluorescence), electron microscopes (scanning and transmission), sputterion counters, 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 the Knight Chemical Laboratory building. The department is home to state-of-the-art facilities for the spectroscopic identification and characterization compounds. These include the centers for Laser spectroscopy, Mass spectrometry, Nuclear Magnetic Resonance spectroscopy, and X-ray crystallography. Students have access to the department’s computer lab for internet and Web assignments, data analysis, computations, word-processing, and printing. The Chemical Stores facility maintain an inventory of more than 1,100 items, including chemicals, glassware, and apparatus. Additional information about the Department of Chemistry can be found on the department website located at www.chemistry.uakron.edu.

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 graphics software, three dual-monitor authoring workstations as well as desktop machines, flatbed 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 hominid fossil casts, archeological collections, and a variety of equipment used in field research projects as well as computers for use with faculty and student projects using computer and video cameras. 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 Computer Science is located on the second floor of the new College of Arts and Sciences Building. Students in Computer Science have access to a wide variety of computing facilities. Classrooms, laboratories, and offices are supported by a variety of modern computers, printers, and plotters. Department computers provide access to the Internet, the World Wide Web, and the computational resources of the Ohio Supercomputing Center in Columbus. In addition, there are connections to the VBSN Internet II network. Many department courses are accessible via the University dial-up lines or the Internet. The proximity of the faculty offices to the computer laboratories encourages regular interaction between students and faculty. Staff members are always available to help students. A friendly, informal, helpful atmosphere makes the department an enjoyable place to learn and gain practical experience.

The Department of Economics is housed on the fourth floor of the College of Arts and Sciences Building in a modern office complex with space for faculty and graduate students. 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 Windows environment. In addition, the lab is equipped with a variety of software, including economic tutorials, word processing programs, SAS/MVS, SAS/VAX, and SAS/PC. The lab is also 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, allowing interaction between faculty and students, and enhances the students’ educational experiences.

The Department of English has a state-of-the-art Computer Classroom. The department faculty includes editors of the journals Composition Forum, Journal of Teaching Academic Survival Skills, Seventeenth Century News, and The Social History of Alcohol Review. Additional information about the department, the faculty, and the programs is available on the department website at www.uakron.edu/english.

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 analysis software as well as digital scanners, scanners, printers and plotters. The department also houses a diverse collection of maps, aerial photographs and satellite images.

The Department of Geology has modern instrumentation for field and laboratory studies which includes an automated electron microprobe, automated X-ray diffraction system, ion-coupled plasma spectrometer, atomic absorption spectro meter, ion chromatograph, electron microscopes, scanning and transmission electron microscopes (differential interference contrast, fluorescence), electron microscopes (scanning and transmission), sputterion counters, 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 History occupies one wing on the second floor of the new College of Arts and Sciences Building. This new office complex includes a multi-
media room for web-based computer work in close proximity to faculty offices, enhancing students-faculty interaction. The endowed interdisciplinary Sally A. Miller Humanities Center is housed within the department and offers fellowships, sponsors speakers, and runs pedagogical workshops. The online Journal of Northeast Ohio History with editorial experience and publication, has its offices in the department. The History suite contains three separate seminar rooms, where graduate students work closely with faculty. More information about the department can be found on its website: www3.uakron.edu/history.

The Department of Modern Languages has a Language Resource Center in Oval 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 listen to and read up-to-date news and cultural material from foreign languages. Magazines and dictionaries are also available for student use. Additional information about the department and its programs is available on the Internet at www.uakron.edu/modlang.

The Department of Philosophy is located on the second floor of Olin Hall. It houses a small computer lab and a private library for philosophy students. Brief biographies and pictures of each faculty member in the department can be found on the University website at www.uakron.edu/philosophy.

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 microcomputer labs for undergraduate and graduate student use. Most of the department's computers are networked. The department has an email system and a web page (www.physics.uakron.edu) for use by the faculty and physics 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 laboratory space and computing facilities and reading room offers a diverse learning experience to the student in an attractive and hospitable environment.

The Department of Political Science maintains an instructional computer laboratory consisting of 16 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 new College of Arts and Sciences Building. The department maintains three computer labs that are available for graduate students in Psychology. All labs have access to the Internet. Supported throughout the labs are statistical packages which include SAS, SPSS and Lisrel. 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 and has videotaping capabilities for the study of counseling processes and outcomes. Also, the department's Center for Organization Research maintains two offices on the ground floor of the College of Arts and Sciences Building for students in psychology and related research experience for students. Additional facilities of the Psychology Department include: research areas for individual computer research and for small group behavior research, and a Test Room where current psychological testing materials are kept. Additional information about the department, faculty, and its programs, is available on the Internet at http://www.uakron.edu/psychology.

The Department of Public Administration and Urban Studies is appropriately located on Main Street in downtown Akron in the Polsky Building. The office suite includes a computer laboratory that is available exclusively for graduate students. The lab has twenty computers and computer projection equipment to facilitate web-enhanced course offerings. Each computer has SPSS X, SAS, and other statistical packages. Research design, methods, and computer applications classes are taught in the lab. In 2002, the department co-sponsored the creation of the Center for Public Sector Research and Training in the Institute of Health and Social Policy (a more detailed description of the Center is found in this bulletin). The Center is the focus for public service outreach and community engagement for the University. Much of the public and non-profit sector research and grant activity of the department faculty is supported through the Center.

The Department of Sociology facilities include research laboratories used for funded research projects. The Newman Library, providing many current professional journals, is open for student use. The Department is also affiliated with the Institute for Health and Social Policy. Additional information about the department can be found at http://www.uakron.edu/sociology.

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 the College of Arts and Sciences Building, room 108. The other lab, also in the College of Arts and Sciences, Room 109, 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 use the values of statistics in the practical applications of statistics while interacting with faculty and clients.

The Department of Theoretical and Applied Mathematics is located on the second floor of the new College of Arts and Sciences Building. It provides students in mathematics and applied mathematics with a wide variety of computing facilities, operating environments, programming languages, and software. These facilities are being constantly upgraded to maintain currency in a rapidly changing field. Most computers in the department also provide Internet access to encourage students and faculty to keep current on subjects of interest. Access to the facilities at the Ohio Supercomputing Center in Columbus, Ohio and vBNS Internet II network are also available for students involved in research. The department homepage at www.math.uakron.edu provides updated information about the department, its facilities, faculty, and programs. The proximity of the faculty offices to the computer labs encourages regular interaction between students and faculty. Staff members are always available to help students. A friendly, informal, helpful atmosphere makes the department an enjoyable place to learn and gain practical experience.

College of Business Administration

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

Tered, amphitheater-style classrooms permit close contact between students and professors. The Milton and Henrietta Kushkin Computer Laboratory provides three computer classrooms, each equipped with 36 personal computers and a homework laboratory for students with more than 75 computers. Each PC is equipped with current versions of word processors, spreadsheets, database managers, and multi-media software, and all are connected to Internet.

The nationally acclaimed Carl V. and Clyde A. Fisher Sales Laboratory offers six desk labs connected by one-way mirrors to a central monitoring and control room. Sophisticated videotape equipment permits the recording of activities 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 audio-visual system capable of projecting textbook material, transparencies, slides, videotapes, computer screen images, and the like onto the room's 100-by-10 foot screen. Other classrooms also offer multi-media 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.

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. In the area of leadership, the department provides graduate courses in school administration and higher education administration. The department members also teach the core curriculum of historical, philosophic, 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 elementary and doctoral programs in Educational Administration, and the master's program in Higher Education Administration.

The Department of Sport Science and Wellness Education prepares students for careers in teaching, athletic training for sports medicine, sport and exercise science, community and school health education, coaching, related recreational fields, and the health professions. 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 indoor running track, a multipurpose room, and four teaching station areas), Memorial Hall (classrooms, as well as large and small gymnasiums, Ocasek Natatorium (a classroom, a swimming pool, nine raquetball courts, and a weight room), and Lee Jackson Field (an outdoor running track and two softball fields).

The Department of Curricular and Instructional Studies includes the areas of early childhood, middle childhood, secondary (adolescent to young adult), preschool to third grade (K-12) education, and fourth grade through high school education as an intervention specialist for early childhood (P-3 mild/moderate/intensive), mild to moderate (K-12) or moderate to intensive (K-12). 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 students to teach grades four through nine with 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 twelve to teach language arts, mathematics, science, social stud-
ies, family and consumer science (grades 4-12), or vocational business (grades 4-12). The P-12 program prepares teachers for diverse settings including remedial classes and special education. The University Center for Child Development, a collaborative unit with the College of Fine and Applied Arts, provides care for children while serving as an experimental learning site for teacher education students.

The Department of Counseling offers graduate programs leading to the Ph.D. as well as the Master's degree. The Ph.D. is offered in Counseling Education and Supervision (with specializations in Counselor Education and Marriage and Family Therapy, Counseling Therapy, and Counseling Psychology—a collaborative program with the Department of Psychology in the College of Arts and Sciences). Masters programs are offered in Community Counseling, Marriage and Family Counseling/Therapy, School Counseling, and Classroom Guidance for Teachers. The department also operates a multidisciplinary clinic, the Clinic for Child Study and Family Therapy.

College of Engineering

The offices, undergraduate laboratories, classrooms, research facilities, machine shops, computer laboratories, and other facilities of the College of Engineering are located in the Auburn Science and Engineering Center, Schranker Hall North, Whitby Hall, and the Olson Research Building. The current active research centers include the Computational Mechanics Research Center, the Institute for Biomedical Engineering Research, and the Microscale Physical Engineering Center.

The Department of Biomedical Engineering is located in the Olson Research Center and has classrooms, instructional laboratories, and research laboratories. There are nine major research laboratories located in the Biomedical Engineering Department. The department provides graduate educational opportunities in the M.S. and Ph.D. programs, as well as the joint M.D./Ph.D. program with Northeast Ohio Universities College of Medicine.

The Musculoskeletal Biomechanics Laboratory is equipped with materials testing equipment and finite element analysis capabilities. The Human Interface Laboratory conducts research in virtual reality, telemanipulation, biofeedback therapy and minimally invasive surgery. The Rehabilitation Engineering Laboratory is equipped to conduct collaborative research on problems related to stroke, head injury and arthritic patients. 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 anemometer and Doppler ultrasound techniques. The Motion Analysis Laboratory studies all aspects of human movement. This laboratory is equipped with a Vicon Motion Analysis System, two AMTI force plates, a MA-100EMG system, and associated computer hardware and software.

The Biostereometrics Laboratory is equipped to perform spatial analysis using three-dimensional sensing technology, which includes a Kern Maps-200 Digitizing System and a JK Laser Holographic camera for laser holographic interferometry.

The Department of Chemical Engineering is located in Whitby Hall with research laboratories in the North Tower of the Auburn Science and Engineering Center. The Applied Colloid and Surface Science Laboratory has a state-of-the-art laser light scattering system including a double beam argon-ion laser, a Malvern Instruments Zeta Meter and a Brookhaven EKA Streaming Potential instrument for measuring electrokinetic potentials. The Thin Film Laboratory is equipped with plasma systems, thermal chemical vapor deposition, and in situ microbalance.

The Department of Civil Engineering is located in the Auburn Science and Engineering Center and Schranker Hall North and has five major laboratories. In the Environmental Engineering Laboratory, students learn to analyze water, wastewater and contaminated soils to assess its quality and to determine the most effective treatment techniques. Laboratory equipment includes UV-visible spectrophotometers, gas chromatographs, high-performance liquid chromatographs, toxicity analyzers, and a total organic carbon analyzer. Water and wastewater analytical kits and specialized meters are also available for field studies. In the hydraulics laboratory, a titling flume enables the student to visualize water flow in streams and rivers. A pressurized pipe module is used to study frictional losses in different size pipes. Instructional laboratories introduce several hydraulic software tools such as Tiger, SIRC, and Open Channel Flow Calculations, ERFANet, for water distribution pipe network analysis, and HEC-RAS, for calculating water surface profiles for natural streams and channels.

In the soil mechanics and foundation engineering lab, students 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. The laboratory also has a computer-controlled cycled triaxial testing system, pneumatically loaded consolidometers, flexible wall permeameters, a portable static/dynamic cone penetrometer, a pile-driving analyzer, and capability for ground vibration monitoring and analysis.

In the structural materials laboratory, the opportunity to observe experimental verifications of the behavior of structural members subjected to tension, compression, bending, and torsion. Physical tension is accomplished with the use of two universal testing machines with a maximum capacity of 50,000 pounds, five closed-loop servohydraulix testing machines with a loading capacity to 100,000 pounds, a load frame used to test full scale members and structural systems and a Charpy impact machine as well as the capacity to test local and/or torsional loads. Further, a full array of data acquisition equipment is available.

The computer laboratory is equipped with a complete signal control system supported by video and laser speed/charge detection systems to provide traffic data for systems operation and analysis. The global positioning system tracks the position of probe vehicles on transportation network and the spread spectrum radio transmits the video and traffic data from one such system to another wirelessly.

The Department of Electrical and Computer Engineering is located in the South Tower of the Auburn Science and Engineering Center. Included are laboratories for the study of circuits, analog and digital electronics, control, computers, energy conversion, microprocessor interfacing, power electronics, and electromagnetic/microwaves.

In the circuits laboratory, students learn the basics of circuit design, instrumentation, and measurements. The laboratory is equipped with digital oscilloscopes, digital voltmeters, 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 microcomputers, 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 and are equipped with digital measuring equipment, analog and digital computers and interfacing components.

The energy conversion laboratory is equipped with motors, generators and controls, as well as digital and analog. Emphasis is placed on computer control of machines.

The microprocessor interfacing laboratory includes personal computers, single-board micro computers and industrial controllers in addition to measurement equipment and components. The microprocessor interfacing laboratory is dedicated to interfacing the computer to the outside world.

Digital controls and all digital measuring equipment account for a very modern computer electronics laboratory.

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

The Department of Mechanical Engineering is located in the Auburn Science and Engineering Center. There are eight laboratories in the Department of Mechanical Engineering. The Thermal and Fluid Science Laboratory has internal combustion engine facilities, a supersonic wind tunnel, and a subsonic wind tunnel with a variable area nozzle. The Heat Transfer Laboratory has temperature measurement systems, a gas laser, and a spectrum of heat exchangers. The Mechanical Measurements Laboratory has a complete comple ment of transducers, calibration equipment and standards, signal conditioners, analog recording devices and microprocessor-based digital data acqui-
siton systems. The Materials Testing Laboratory has a computer controlled servo-hydraulic structural testing machine and a uniaxial universal testing machine for performing static, quasistatic, cyclic and dynamic tests on a spectrum of engineering materials and several types of hardness testing equipment. The Parker Hannifin Motion and Control Laboratory has hydraulic and pneumatic servo systems as well as serval pilot systems controlled by PLCs and computer controllers. The Experimental Mechanics Laboratory has photoelastic strain measuring equipment and associated facilities, coupled 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 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 Smart Materials and Structure Laboratory has piezoelectric and shape memory based actuators, transducers, and the relevant control systems.

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 source of problem solving and data. Processing laboratories include unique blending/compounding and molding 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 associated in Polymer Engineering include and Extension Laboratory, the Electromagnetic Radiation and Electron Optics Laboratory, the Thermal and Dielectric 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 generators and automated word processors. 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 WZJR on an air wave 7500 watt FM radio station serving Northeast Ohio. WZJR-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/editing laboratory-classroom supports class instruction.

News, publications, and other writing classes have access to a Macintosh computer laboratory with complete desktop publishing layout, graphics, and print capabilities.

The School of Dance, Theatre, and Arts Administration is located in the Ballet Center and Guzzetta Hall. The Theatre Program offers graduate programs in Theatre and Dance Administration. The program utilizes the Student Center, which houses the Sandefur Theatre as well as rehearsal, teaching, and shop facilities. Folks Hall is the site of the ZAF-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 22, 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. Nine laboratories, including a computer center, are available for authentic student learning experiences. All programs provide community experiences through internships, client services, and student teaching. These programs 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 Center for Child Development 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 Hall. Guzzetta Recital Hall seats 250 and 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 modules) 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 communities 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 practicum training arm as well as a service agency for persons in the region who have speech, language, and/or hearing problems.

**College of Nursing**

The College of Nursing, located in Mary Gladwin Hall, provides professional nursing education at the master’s and doctoral levels. The college is approved by the Ohio Board of Nursing and the master’s program has preliminary approval from the Commission on Collegiate Nursing Education and is 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 linked to the Akron community and is used by faculty and students for community service, practice, education and research. The College of Nursing also has a Center for Gerontological Health Nursing and Advocacy whose primary goal is to improve the health care and quality of life for elders. For more information visit [http://www.3.uakron.edu/nursing](http://www.3.uakron.edu/nursing).

**College of Polymer Science and Polymer Engineering**

The facilities of the Department of Polymer Science and the Maurice Morton Institute of Polymer Science support fundamental and applied research in polymer chemistry, physics, and many aspects of polymer 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. 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 reliable source of problem solving and data. The total value of major instrumentation and equipment housed in the polymer science laboratories exceeds $15 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/compounding facilities with five twin-screw extruders, a microscale compounding, and seven internal mixers including flow visualization capability, eight 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, plug assist thermoforming and compression molding with compresses capacity. The Institute of Polymer Engineering is the home of the EPIC-M.A. Hanna Compounding 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, rheological and mechanical testing, including elongational flow, rotational and capillary shear rheometry, dynamic mechanical, tensile and impact testing.

The Akron Polymer Training 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 provides classrooms and laboratories for graduate students in Mechanical and Polymer Engineering.

**University Libraries**

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

Library services include reference and research assistance, user education, bibliographic instruction, and computer-based information searching. Materials can be borrowed from the University Libraries through the circulation department or obtained from other libraries through the OhioLINK network or other resource-sharing arrangements.

The University Libraries’ collections contain more than 2.8 million items; books, periodicals, government documents, curricular materials, microforms, maps, audiovisual materials, and archival documents. The library receives nearly 11,000 magazines, journals, newspapers, and other serial publications. Through the library’s memberships 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 function as library cards. Group study rooms, photocopy services, and equipment for use in making paper copies from microforms are available in Bierce Library and in the Science Library. Bierce Library, students can use one of the 180 circulating laptop computers. 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 has a collection of instructional materials in various media formats (films, strips, slides, etc.) to supplement classroom instruction. Audio Visual Services designs, installs, and maintains technology-enhanced general purpose classrooms, offering permanent room projection, sound reinforcement and a sophisticated media retrieval system.

Information Technology Services Division

Providing Information Technology (IT) Direction, Services and Support for The University of Akron

The Information Technology Services (ITS) Division supports all of the University’s technology needs including data and communications. In today’s University environment, professors, students, administrators, and staff use the same technology and products. Personal productivity tools, network connectivity, and services provide a common infrastructure for the dissemination of information and communications.

Distributed Technology Services provides technology and support services for the campus community. Computer Solutions, a unit of DTS, is the central point of computer hardware and software acquisitions for students, faculty, and staff.

Computer Solutions (www.uakron.edu/its/compstore) is a higher education reseller for computer hardware, software, and many peripheral devices. Educational pricing allows Computer Solutions to provide the lowest prices to its customers. Computer Solutions offers a variety of services to students, faculty, and staff of the University. The state-of-the-art Apple, Dell, and Gateway desktops and wireless laptops can be purchased at Computer Solutions. Computer Solutions has licensing agreements with Microsoft, Adobe, SPSS, SAS, and Macromedia. Software can be purchased at greatly reduced prices. Computer Solutions is located in Student Union, 307 and have the following hours of operation:

Monday - Thursday 8:00 a.m.-6:00 p.m.
Friday 8:00 a.m.-5:00 p.m.

The Computing Help Desk located in Bierce Library, Room 69, provides call-in (330-972-6888), e-mail helpdesk@uakron.edu, walk-in support for all students, faculty, and staff. Hours of operation during the fall and spring semesters are:

Monday - Thursday 7:30 a.m.-Midnight
Friday 7:30 a.m.-9:00 p.m.
Saturday 9:00 a.m.-8:00 p.m.
Sunday Noon-Midnight

Technology Learning Support Services (TLSS) provides the campus community with support services for computing hardware and peripherals, consultation in planning and development, and implementation of departmental computing labs, second level technical support for departmental computer labs, as well as hardware and software support for faculty, staff, and student personal computing equipment.

Computer Labs: A combination of 270 Dell and IBM wireless laptops are available for two- and four-hour loans in Bierce Library, Room 361, the Science & Technology Library, Circulation desk and the Student Union information desk. The wireless laptops can be used anywhere within the libraries and Student Union to access the internet, to get mail, or to do class assignments. Two general purpose computer labs for students are located in Polsky Building, Room 267 and the College of Arts & Sciences Building, Room 103A. Each is equipped with 20 state of the art Windows desktop PCs, HP printers, and scanning stations. Both the wireless and general purpose labs have the same productivity tools such as Microsoft Office, Adobe e-Books, SPSS and SAS. All computers have internet and e-mail capabilities.

Internet Kiosks: 31 strategically placed internet kiosks provide instant access to e-mail and Web registration on campus

Student Computer Support Services: SCSS, located in the Lincoln Building, Room 103, (330) 972-8026, provides University of Akron students with knowledgeable assistance in the setup and operation of their personal computer equipment. SCSS will install University approved software and assist in installing hardware peripherals. SCSS will also provide hardware diagnostics, software diagnostics (within reason) and basic troubleshooting. SCSS will not install or troubleshoot any software or hardware relating to games. If a hardware problem is detected or suspected, our student technicians will give you an idea as to where the problem lies, so that you can seek assistance from your hardware provider or service center. SCSS can also help you set up your dial-in access to the University Computer Network as well as direct network connections or wireless for residence hall students. All Microsoft software must be purchased by the student prior to installation. Microsoft software products are available to students through Computer Solutions at significantly reduced prices.

Student Computer Support Services hours of operation are:

Monday - Friday 7:30 a.m.-4:00 p.m.
Weekends By appointment

Computer and Laptop Repair: The University of Akron Electronic Repair and the Bierce Laptop Service Center are the certified service centers for the IBM laptops as well as for Apple, Dell, Gateway, and HP computer products. Service for the laptops is provided as a carry-in service. Electronic Repair is located in the Lincoln Building, Room 103, (330) 972-7628.

The hours of operation are:

Monday - Friday 7:30 a.m.-4:00 p.m.
Bierce Laptop Service Center hours of operation are:

Monday - Friday 1:30 p.m.-9:30 p.m.
Saturday 9:00 a.m.-6:00 p.m.
Sunday 1:00 p.m.-10:00 p.m.

Software Training Services develops web-based tutorials and documentation for student self-service applications, the portal (zlPLine), WebCT, and e-mail (WebMail). For more information, visit Software Training Service’s web site at http://www.uakron.edu/its/training/index.pl.

Computer Based Assessment & Evaluation provides support to students who are required to take surveys, assessments, and tests online. The testing lab is located in Carroll Hall 325 and reservations for test appointments can be made at http://jcit.uakron.edu.

Design and Development supports faculty and students who participate in distributed learning courses and programs. Support is provided through the following activities: design, develop and support selected curriculum-based distributed learning programs and courses, design and develop customized computer-based multimedia programs, and digital video taping, editing, and asynchronous video streaming. For further information contact Design & Development Services at (330) 972-2431. For web course support, e-mail webhelp@lists.uakron.edu.

Distributed Education Facilities provides synchronous videoconferencing and web collaboration capabilities to the classroom environment. Students at the University are able to interact and share materials with students at one or more remote locations via classrooms equipped with state-of-the-art videoconferencing and web collaboration technologies. In addition to accommodating traditional course offerings, Distributed Education Facilities provides corporate videoconferencing, a relationship with a network of content service providers, and special even connections that support educational initiatives. For further information please contact (330) 972-6522.

Network and Communication Services provides network connectivity and remote access for faculty, staff, and students. Network connections are available in the Residence Halls and the entire campus is covered with 802.11b wireless services. Remote access is provided by the use of modern dial-in lines and VPN access. High speed cable modem service from the local area cable provider is also available at a reduced rate. UAs computer network, named UAnet provides access to ZipLink,OhioLink, E-mail, the Internet, UAnet’s web pages, and network file storage and printing.

RESEARCH CENTERS AND INSTITUTES

The University Research Council is responsible for encouraging, supporting, and making recommendations pertaining to sponsored and contractual research carried out at the University’s departments, schools, centers, and institutes. The council consists of the Vice President for Research and Dean of the Graduate School, 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 Vice President for Research and Dean of the Graduate School and the Director of Research Services and Sponsored Programs.

Akron Global Polymer Academy

Charles R. Parsons, Assistant to the Dean

As a world leader in polymer research and education, The University of Akron’s College of Polymer Science and Polymer Engineering uses the Akron Global Polymer Academy for synchronous and asynchronous distance learning to support K-12 science instruction, global research collaboration, internet instrument sharing, virtual laboratories, graduate education, and workforce development.

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
Daniel B. Sheffer, Ph.D., Director
This institute was established in 1979 to promote interdisciplinary studies in the rapidly growing areas of knowledge which overlap the fields of biology and medicine, on the one hand, and engineering and the physical sciences, on the other. It conducts seminars, courses and degree programs in biomedical engineering in association with the College of Engineering and individual departments.

In addition to its research and educational functions, the institute provides a research service to local hospitals and industry, as well as to private and government agencies. The premise for this program is that the combined resources of the University, Northeastern Ohio Universities College of Medicine and affiliated organizations will often permit more cost-effective solutions than would be possible by an individual or group doing the research independently.

The work of the institute is carried out by faculty of the Department of Biomedical Engineering in association with “members” selected from the faculties of The University of Akron and Northeastern Ohio Universities College of Medicine, as well as from the ranks of area physicians, engineers and scientists. The institute and the department occupy the third floor of the Olson Research Center on the north edge of the campus.

Center for Applied Polymer Research
Robert H. Seiple, M.S., Manager
Operating under the Institute of Polymer Science, the Applied Polymer Research Center (APRC) provides technical services to thousands of companies. Industrial clients of all sizes gain access to top researchers, knowledge bases, and advanced equipment. With a full-time professional staff, the APRC is dedicated to providing timely and reliable contractual technical services for industrial and government clients. Key areas of technical service include: polymer characterization, additive identification, defect analysis, thermal analysis, dynamic mechanical thermal analysis (RPA, DMA), electron microscopy (STEM, TEM, SEM, AFM), chromatography and spectroscopy.

Center for Collaboration and Inquiry
Operated jointly by the Buchtel College of Arts and Sciences and the College of Education, the Center for Collaboration and Inquiry was created in 2002 to promote the practice, research and dissemination of inquiry-based teaching and learning. The Center supplies the resources and assistance necessary for P-16 teachers to create effective learning environments and fosters collaborative research efforts between experts of both content and educational methods.

Center for Conflict Management
William T. Lyons, Jr., Ph.D., Director
The University of Akron has a long and proud history of the interdisciplinary study of conflict, because understanding the nature of conflict is the first step toward reducing conflict and violence at home, in our communities, workplaces, and schools. The Center for Conflict Management, jointly administered by the departments of Political Science and Sociology, seeks to build on that tradition by combining courses in several departments to enhance the capacity of students to effectively work toward reducing the harms associated with conflict and violence—from interpersonal to international.

For more information, contact the office, 202 Olm Hall, 330-972-5655, wtyons@uakron.edu, or www.uakron.edu/centers/conflict.

H. Kenneth Barker Center for Economic Education
Fred M. Carr, Ph.D., Director
The center exists to improve the economic literacy of individuals to help them function competently as citizens, producers and consumers.

The center conducts workshops, seminars and economic programs for teachers, students and interested groups. It provides consulting services in the area of economic education and acts as a clearinghouse for the gathering and dissemination of economic education materials and programs. It also fosters an understanding and appreciation of the American economic system.
Center supports literacy development of children and adults through courses and workshops, teacher professional development, research and scholarship, and service projects that assist in this integrative process.

Center for Nursing
Elizabeth Kinion, Ed.D., R.N., C.N.P., 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.

The Center for Nursing opened in 1982 as one of the first academic nurse-managed centers in the United States. College of Nursing faculty and students provide non-emergency, episodic health care and health education to community residents who do not have health insurance.

Center for Organizational Development
Andrew Thomas, M.B.A., Interim 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, programs, 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 Organizational Research
Dennis Doverspike, Ph.D., Director
The Center for Organizational Research is a business research and consulting center managed by the Industrial/Organizational Psychology Department at the University of Akron. The Industrial/Organizational Psychology Department at the University of Akron consistently ranks as one of the top ten programs in the nation (according to U.S. News & World Report).

The Center’s mission is to provide top quality consultation and research-based interventions to the business community. The Center also offers the following services: professional training and research opportunities for graduate and undergraduate students; provides a tailored approach to the client’s needs because of its smaller client base and research orientation. The Center offers larger organizations access to solutions based on cutting-edge research from a nationally regarded academic program.

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 University Linkage 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 Public Service Research and Training
Peter J. Leahy, Ph.D., Director
The Center for Public Service Research and Training (CPSRT), established in 2002, is a division of the Institute for Health and Social Policy (IHSP), a multipurpose research institute of the University of Akron. CPSRT evolved from the Center for Urban Studies, established at the University of Akron in 1967. CPSRT’s mission is to assist the local and regional community in policy analysis and evaluation, applied research, professional service and the resolution of social, economic and public management problems. CPSRT offers its services to governments of all levels, to community foundations, to human service agencies and to community organizations. Particular expertise is available in program evaluation and program improvement strategies, strategic program planning, strategic management, community needs assessment, community planning and the conceptualization and design of research projects.

CPSRT draws upon the full range of senior research associates, professional staff and related research centers available in the IHSP, as well as upon faculty and doctoral students from the Department of Public Administration and Urban Studies. In tandem with the Center for Policy Studies (CPS), another division of the IHSP, CPSRT also offers clients a state of the art computer assisted telephone interviewing (CATI) facility, a state of the art focus group room and GIS mapping services. The Center for Public Service Research and Training also plans to offer workshops and professional training on a regular basis.

Center for Statistical Consulting
Chand Midha, Ph.D., Director
The mission of the Center for Statistical Consulting in the Department of Statistics is to provide the university community and the community at large with professional assistance in the design and analysis of statistical problems. The office, located in the College of Arts and Sciences Building, Room 118A, is open for consultation by appointment. Call (330) 972-6888.

Center for Urban and Higher Education
Duane Covrig, Ph.D., Director
The Center for Urban and Higher Education is a public education and research unit within the College of Education with the broad purpose of improving student achievement pre-K through higher education. It serves both the University and the community by fostering collaboration among faculty, students, practitioners, and community leaders in educational conferences and seminars, research, evaluation, and training.

Center for Workforce Development and Training
Daniel L. Hickey, Interim Director
The mission of Workforce Development and Continuing Education is to serve the people of Northeastern Ohio by offering courses and programs that increase access to The University of Akron, linking it with community, business and industrial workforce needs.

Workforce Development and Continuing Education at The University of Akron provides a wide range of educational, technical, and research services that enhance the effectiveness and quality of workforce learning. In addition, Workforce Development and Continuing Education provides services that require the special expertise of the faculty and staff to better serve the economic and social development of Northeastern Ohio.

English Language Institute
Debra L. Deane, M.A., Director
Established in 1979, the English Language Institute (ELI), part of Buchtel College of Arts and Sciences, offers two programs in English as a Second Language (ESL) instruction. The English for Academic Purposes Program provides non-credit ESL courses 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 program also serves individuals who wish to improve their English to meet their own professional and/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 efficiently, writing clearly, taking lecture notes, and communicating effectively in English. 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 to facilitate their transition to life and study in the United States.

The Community and Corporate ESL Program, designed specifically for non-native English speakers living and working in Northeast Ohio, offers a variety of small group, non-intensive courses (e.g., business writing, conversation, and vocabulary development, pronunciation); private tutoring; consulting (e.g., editing of documents, language assessment); and workspace ESL classes contracted through employers for job-related English instruction. The ELI can also provide specialized courses for UA departments (e.g., thesis/dissertation writing, speaking for international graduate students).

In addition to these instructional programs, the ELI administers the University of Akron Developed English Proficiency Test (the U-ADEPT), which assesses the speaking ability of prospective international teaching assistants at UA and determines their readiness to provide classroom-related services in their graduate departments.

The ELI serves as a resource on issues relating to language proficiency for University faculty, staff, and students as well for members of the local community. For
more information, visit the ELI web site at www.uakron.edu/eli, e-mail uael@uakron.edu, or call 330-972-7544.

**Fisher Institute for Professional Selling**

Jon M. Hawes, 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**

Todd A. Finkle, Ph.D., Director

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.

For information, contact the Institute, CBA 330, 330-972-7038.

**Institute for Global Business**

Bruce Keillor, Ph.D., 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 offers an international executive MBA and also develops short courses and seminars to assist in improving international competitiveness of area business.

**Institute for Health and Social Policy**

Sonia A. Alemagno, Ph.D., Director

The Institute for Health and Social Policy, located on the fifth floor of the Polasky 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 non-profit 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 technologies.

**Institute for Teaching and Learning**

David B. Baker, Ph.D., Director

The Institute for Teaching and Learning promotes, coordinates, and supports faculty efforts to improve, assess, and document teaching effectiveness and student learning quality by consulting with colleges, departments, and individual faculty on teaching, learning, evaluation, and assessment issues.

The Institute focuses on developing and providing targeted professional development activities through information gathering and sharing. The Institute also documents, publishes, and celebrates teaching and learning innovation and excellence.

For more information visit the ITL website at www.uakron.edu/itl or contact The Institute at (330) 972-2574.

**Intellectual Property Law and Technology Center**

Jeffrey M. Samuels, J.D., Director

The Intellectual Property Law and Technology Center in the School of Law is one of approximately 14 such centers in the nation. The center exposes the community to critical thinking in the intellectual property law field, coordinates and implements Law School Intellectual Property law curriculum, and hosts an annual Conference on Intellectual Property Law and Policy. The Center works with other schools within the University in the design and implementation of interdisciplinary courses relating to intellectual property law. Commencing the fall of 2005, the Center implemented a new Master of Laws in Intellectual Property Law Program, one of only 17 such programs in the country and the only one in Ohio.

**Institute for Life-Span Development and Gerontology**

Harvey L. Sterns, Ph.D., Director

The Institute for Life-Span Development and Gerontology, founded in 1976, coordinates multidisciplinary credit certificate programs in gerontology at the undergraduate and graduate levels. There is a combined graduate certificate program with Kent State University. Combined, the two universities offer a diverse range of graduate courses with aging-related content and join faculty that are nationally and internationally recognized scholars in gerontology. In addition, the undergraduate 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 6 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 Andus Foundation, Ohio Department of Aging, and Area Agency on Aging 10B. The Institute has served as a major site for the Rehabilitation Research and Training Center Consortium, with students having participated in 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 and The Tri-County Senior Olympics.

The institute is a member of the Northeastern Ohio Consortium on Geriatric Medicine and Gerontology, joining together with the Office of Geriatric Medicine and Gerontology, Northeastern Ohio Universities College of Medicine; Gerontology Center, Kent State University; and Gerontology Committee, Youngstown State University.

**Institute of Polymer Engineering**

Lloyd A. Goettler, 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, is a major intellectual and research resource in northeast Ohio. The institute maintains up-to-date and futuristic processing and characterization laboratories, with continued interest in development investigation of new process technology and new materials.

**The Maurice Morton Institute of Polymer Science**

Frank W. 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 science 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 and the Applied Polymer Research Laboratory. 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 1996 by faculty with a common research interest in materials composed of very small particles and fibers. These particles and fibers can be used in applications including heterogeneous catalysis, fluid/solid separations, paper-pulp processing, soil remediation, waste water decontamination, and solid transport.
The unique feature of MPEC is the ability to form multi-disciplinary teams of faculty and graduate students to solve specific industrial problems.

The Center 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
Don V. Laconi, 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, Private Security, Academies, Police Refresher Training, Firearms Requalification, and In-service Seminars.

Training Center for Fire and Hazardous Materials
David H. Hoover, Ph.D., Director
Phillip W. McLean, Training Coordinator

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 National Fire Academy, the Division of State Fire Marshal, and other related organizations. Training in all phases of hazardous materials containment and fire prevention and control is provided under contract to various communities, 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.

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 Simmons Hall. Phone numbers are: Counseling Services 330-972-7082, and Testing Service 330-972-7084. Visit our website at http://www.uakron.edu/counseling

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 programs and workshops. 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.

Center for Career Management

The Center for Career Management’s mission is to provide career services to all students and alumni of The University of Akron. Career Services for graduating students include opportunities to participate in on-campus interviews with representatives from business, industry, education, and branches of the government. In addition, career strategy seminars are offered on resume writing, interviewing skills, and job search strategies through the academic year. Career consultations are available for current students and alumni and may be scheduled by contacting the Center for Career Management. The Center also boasts a career resource library that contains computers, employer literature, videotapes, job search information, current job openings, and career related books and periodicals. The Center also supports career expos in collaboration with academic colleges, giving students the opportunity to network with hundreds of potential employers. The Center is located in Simmons Hall, Room 301 and can be contacted at (330) 972-7474 or via the web at http://www.uakron.edu/ccm.

Student Health Services

The goal of Health Services is to assist students to achieve their educational and personal goals by addressing their health care concerns while they are enrolled at The University of Akron. Health Services is located in the Student Recreation and Wellness Center.

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 available to those students enrolled for six or more credit hours. Student Health Insurance is required of all international students except those who present proof of similar coverage. 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.

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 to enable 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 330-972-5764 (TTY) or visit the Simmons Hall, Room 105.

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 year round between 7:30 a.m. and 6:00 p.m. Monday through Friday. The program offers hourly flextime and half-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 program is also offered for school-aged children. This program is offered for 10 weeks from 7:30 a.m. until 6:00 p.m. For more information call the Center for Child Development, 330-972-8210.

The Student Union

The Student Union, located in the center of campus, is a department that oversees numerous functions of student life and student engagement, and serves the students, faculty, and staff. This facility also houses various food service facilities, recreation, a movie theater, a game room, Computer Solutions—The University of Akron’s computer technology store, a ZipCard office, the DocuZip copy center, a bank, a Ticketmaster outlet, the Information Center, Barnes & Noble Bookstore, Planet Underground, a DVD and CD store, student organization offices, and Starbucks Coffeehouse. Visit our website at www.uakron.edu/studentunion.

- Food Areas in the Student Union offer a variety of food items. On the first level is Zee’s convenience store which has a variety of items, including freshly brewed coffee and a selection of sundries items, for the busy student. On the second level are Subway, Sizzling Zone, Union Market, and Starbucks.
The UA Police Department works closely with the Akron Police Department and law enforcement authority and responsibilities identical to the local police or sheriff. The Department of Police. University police provide 24-hour-a-day patrol protection to the campus, parking lots, residence halls, and on-campus fraternity and sorority.

The Information Center, located on the second floor of the Student Union, is operated seven days a week during the normal building operating hours. The Information Center staff can answer questions regarding department and student organizations, on-campus and off-campus events, and the Metro buses and University Bus Loop. Laptops can be checked for use in the Information Center. The Information Center staff can also print student class schedules. Please call 972-4836 if you need a question answered.

The Bookstore at The University of Akron, located on the first level, 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, and clothing.

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.

The University hopes students will read and become familiar with this material and be responsible for their own safety and the security of others.

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 also are 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.

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 and 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 security of others.

University Police

Campus law enforcement is primarily the responsibility of The University of Akron Department of Police. University police provide 24-hour-a-day patrol protection to the campus, parking lots, residence halls, and on-campus fraternity and sorority houses. The police station is located in the Physical Facilities Operation 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 UA 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.

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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 on University premises or as part of any University activity. Any misuse 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 illicit drugs and alcohol that contribute to the unrecoverable 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 walk-
ways 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 330-972 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. Protect your identity and personal information.

**Crime Statistics**
The University of Akron Police Department complies with reporting standards set by the United States Department of Education guidelines. Our crime statistics can be found at our police department website, http://www3.uaakron.edu/police/crimprev.htm. A hard copy of crime statistics can be obtained at The University of Akron’s Police Department located at 146 Hill St., Akron, OH 44325-0462.

**EMERGENCY PHONE NUMBERS**
Call extension 911 on campus to reach UA police immediately.

Police.................................................................7123
Campus Patrol..................................................7263
(Police Nonemergency)..................................8123
Environmental and Occupational Health and Safety....................8866
Fire .................................................................911
EMS/Medical ..................................................911
Electrical/Plumbing...........................................7415
Hazardous Materials.........................................8123
Closing Information...........................................7669

Emergency numbers are monitored 24 hours a day. If calling from an off-campus phone, dial 330-972 and then the four-digit number you wish to reach. Use 911 for emergencies when dialing from all campus extensions.
leading to master's degrees with majors in diverse areas as delineated in the following pages.
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 content in the graduate programs 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, and
- activity in profession or discipline.

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

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

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

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

*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 Chapter
Counseling Psychology Graduate Student Organization
Graduate Nursing Student Association
Industrial/Organizational Psychology Graduate Students
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)

SECTION 2. General Information

REGULATIONS

Student Responsibility

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

Admission

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

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

First-time applications to the Graduate School must be accompanied by an application fee. The fee for domestic students is $30. The fee for international students is $40. A fee of $25 must accompany all domestic and international reapplications.

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

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

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

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

Nonaccredited American School Graduates

A student holding a baccalaureate degree from a non-accredited American college or university is required to complete at least 10 semester credits of postbaccalaureate work at a 3.00 level before being considered for admission to the Graduate School. The accreditation status of the school at the time of the student's graduation shall apply. A student should consult with the department 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 admissibility to enter a graduate program or eligibility to continue in one is the prerogative of the departments offering graduate programs. The department has the right to select the examination and mini-

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mum acceptable level of performance. Information and procedure may be obtained from the chair of the appropriate department.

**Classification**

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

- **Full Admission** may be 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 or 3.00 for the last two years (64 semester credits or equivalent); or holds an advanced degree from an accredited college or university in or appropriate to the intended field; or holds a baccalaureate or master's degree from a foreign college or university with first-class standing or its equivalent, plus satisfactory evidence of competence in English. Full admission may also be granted to applicants to the College of Business Administration who meet the college's admission requirements.

- **Provisional Admission** may be granted to a person who has not met all of the requirements for full admission (2.74-2.5 overall GPA or 2.75 over the last two years). This admission status permits a student to take up to 15 semester credits of graduate coursework. Graduate courses taken under this admission status may be applied to a graduate degree program, but only when all requirements for full admission have been met.

- **Deferred Admission** may be granted to a person who has not yet attained the required proficiency in English. This proficiency can be demonstrated by an official TOEFL score of at least 550 (213 on the computer-based TOEFL) or by the successful completion of courses offered by the University's English Language Institute (ELI). Students may not enroll in graduate courses until the English proficiency requirement has been satisfied. Note: Some academic departments require higher TOEFL scores.

- **Conditional Admission** may be granted to a person who has not yet attained the required acceptable level of performance. Information and procedure may be obtained from the chair of the appropriate department.

- **Academic Dismissal status** refers to any student who fails to make satisfactory progress toward degree requirements. The maximum number of graduate credits that may be taken by an undergraduate and applied later toward a graduate degree is 12.

- **Academic Probation status** refers to any student whose cumulative grade point average falls below 3.00 and is no longer in good academic standing. Full-time status is placed on academic probation are expected to return to good academic standing (overall GPA of 3.00 or above) after two consecutive semesters (excluding summers). Part-time students are expected to return to good academic standing (overall GPA of 3.00 or above) within the attempting of 15 semester credits of graduate credits. Failure to return to good academic standing may result in academic dismissal.

- **Academic Dismissal status** refers to any student who fails to make satisfactory progress toward declared goals or who accumulates six semester credits of “F” or below. The accumulation of six semester credits of “F” will result in mandatory dismissal. A student who is dismissed from the Graduate School may not be readmitted for one calendar year and then only if evidence for satisfactory performance is submitted and found to be acceptable.

- **Postdoctoral status** is divided into three categories:
  - a **Fellow** is a person holding an earned doctorate who is engaged in advanced research. A fellow shall be considered a guest of the University and provided space and use of facilities within limits of practical need of the undergraduate and graduate programs. Tuition and fees shall be collected if allowed under sponsoring contract for any courses the fellow may choose to take;
  - a **Special is** a person holding an earned doctorate who desires an additional graduate degree. A special is may be admitted to any program upon submission of application forms, application fee (if new student) and an official transcript from the institution awarding the doctorate. This student will be treated as a regular student subject to registration fees and program degree requirements;
  - a **Guest is** a person holding an earned doctorate who desires to attend courses and seminars relevant to individual work or interest without registering or receiving academic credits. A written application should be submitted to the dean of the Graduate School for each course to be taken, and approval of the instructor, department chair and college dean shall be obtained. A guest is welcome to register for any course or seminar provided space is available. Normally, space and facilities for research cannot be provided for a postdoctoral guest but special requests will be considered. Requests should be submitted, in writing, to the dean of the Graduate School who will review such requests with the appropriate college dean and department chair.

**Sixty-Plus (60+) Program**

Developed in accordance with State Law 3345:27, passed in 1976 and amended in March 1999, the Sixty-Plus Program provides residents 60 and older the opportunity to audit credit classes or take courses for credit on a space-available, non-tuition basis.

To qualify for the Sixty-Plus Program, the prospective student must be 60 years of age or older and have resided in the State of Ohio for at least one year.

Sixty-Plus students are exempt from payment of tuition and general service fees but are expected to pay for any books, special fees, laboratory or instructional fees and parking, if needed. Auditing allows students to attend classes, but college credit is not awarded.

Sixty-Plus participants may enroll for 11 or fewer credits unless request to enroll in a greater number of credits is approved by the Senior Vice President and Provost. Participants in this program may be prohibited from enrolling in certain courses or classes for which special course or training prerequisites apply or in which physical demands upon students are inappropriate for persons persons 60 years of age or older, or in which the number of participating regular students is insufficient to cover the University's or college's course-related expenses as determined by the University.

Space availability is determined after the degree-seeking students have registered. Sixty-Plus registrations are held immediately before the start of each term and participants must register in person.

Sixty-Plus participants are subject to the same disciplinary and/or governance rules affecting all students. A Sixty-Plus student will be issued a Student ID Card which will permit them to use specific University facilities and services and obtain student rates for purchases of goods and services.

To be eligible to enroll in a course for credit, the student's family income must be less than 200 percent of the Federal poverty guidelines as revised annually by the U.S. Secretary of Health and Human Services for a family size equal to the size of the family of the person whose income is being determined.

**Course Load**

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

**Cross Registration**

Under specific circumstances a graduate student may take one or more graduate courses at Cleveland State University, Kent State University, The University of Akron, or Youngstown State University without registering as a transient student. The course for which a student wishes to register should contribute to the student's program of study and be unavailable when needed to complete the student's program at the home institution. The student must be in good standing (GPA=3.0) and within the time limits for degree completion. The graduate program unit at the student's home institution will establish a graduate special topics or independent study course identification capable of being "tagged" by the home university with a title that will correspond to the course title at the host university and with the initials of that university; i.e. CSU, KSU, or YSU. Registration for such a course is controlled...
Financial Assistance

The University awards a number of graduate assistantships to qualified students. These assistantships provide stipends of $6,000 to $18,000 plus remission of tuition and fees and are available in all departments with graduate degree programs. A graduate assistant renders service to the University through teaching and/or research. For information and applications, contact the department chair or school director. Partial tuition scholarships may be available for first-time graduate students on a limited basis in some departments.

A number of fellowships sponsored by industry and government agencies are available in some departments. 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 can be obtained online at http://www.uakron.edu/gradsch/docs/gahandbook.pdf.

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 85 countries pursue studies and research at The University of Akron.

Admission

International students may apply to begin their graduate studies for the Fall, Spring, or Summer Sessions. Students should submit their applications at least six months in advance of the date they wish to begin studying. Graduate students applying for assistantships should submit applications nine months before the term begins for best consideration. The following procedures should be followed:

- Access the online graduate application through the Graduate School website at http://www.uakron.edu/gradsch. A nonrefundable application fee of $40 must also be submitted.
- An official transcript and degree from all institutions and universities attended. Original records in languages other than English must be accompanied by exact English translations and certified by the school, U.S. consulate, or other legal certifying authority.
- Proof of adequate financial support. An international student should submit to the Office of International Programs, The University of Akron, Polsky Building, Room 483, Akron, OH 44325-3101, 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 DS-2019) upon receipt of adequate financial support and admission to the University.
- International applicants, U.S. citizens, and Permanent Residents whose native language is not English must submit evidence that they have a sufficient level of English to undertake graduate studies at The University of Akron.

After submitting acceptable academic credentials and proof of English proficiency, applicants who are fully admitted may enroll in graduate course work and be eligible for University of Akron-funded assistantships, fellowships, or scholarships. Prospective teaching assistants must also achieve a minimum score of 50 on the Test of Spoken English (TSE) or a passing score on the University of Akron Developed English Proficiency Test (the U-ADEPT). See http://www.ets.org/toeic/ for information about the TSE. Visit http://www3.uakron.edu/eli/uadept/index.html for details about U-ADEPT.

Applicants to graduate programs can demonstrate their English proficiency in one of these ways:

- A minimum score of 550 on the paper-based Test of English as a Foreign Language (TOEFL) or of 213 on the computer-based TOEFL. (The following departments require a higher standard of proficiency: the Ph.D. program in Urban Studies and Public Affairs requires a TOEFL of 570/230; English and History require a TOEFL of 580/237; and Biomedical Engineering requires a TOEFL of 590/243.) Scores more than two years old will not be accepted. See http://www.toefl.org for information about the TOEFL.

or

- A minimum score of 6.5 on the International English Language Testing System (IELTS), which is managed by University of Cambridge ESOL Examinations, British Council, and IDP Education Australia. Scores more than two years old will not be accepted. See http://www.ielts.org for information about the IELTS.

or

- A minimum score of 77 on the Michigan English Language Assessment Battery (MELAB). Note: Some academic departments require a higher standard of proficiency. See http://www.ilsa.umn.edu/EL/melab.htm for further information regarding the MELAB.

- Successful completion of a full course of study in the Advanced Level of the English Language Institute (ELI) at The University of Akron. The ELI is an intensive (20 hour a week) program in English for academic purposes. The Advanced Level course of study is offered every Fall, Spring, and Summer according to the University's academic calendar. For details about successful completion and about applying to the English Language Institute, see http://www.uakron.edu/eli.

or

- Successful completion of 24 credit hours of upper-level undergraduate or 18 credit hours of graduate course work at a U.S. university or college in which English is the primary language of instruction. Successful completion is defined as maintaining a 3.0 GPA in full-time, continuous studies. Applicants must submit original transcripts of their course work.

Costs, Financial Aid, and Medical Insurance

Information on estimated expenses for international graduate students on F-1/J-1 visas can be found on the form “Declaration and Certification of Finances” (DCF). This form also indicates additional costs for an F-1/J-1 student’s dependents; should they accompany or join the student here. Annual tuition and living expenses for the 2005-2006 academic year will be approximately $20,000. Tuition is subject to change.

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 major medical insurance that meets minimum established requirements. Such coverage must be effective throughout the students’ studies at The University of Akron. International students will not be permitted to register without proof of such coverage.

International Student Orientation

The required International Student Orientation takes place around one to two weeks before classes begin and costs $60. The orientation dates will be mailed to students with their orientation letter and immigration documents.

International Transfer Credits

Transfer credit from foreign institutions is awarded at the discretion of the academic department with the final approval from the Graduate School. Transfer course work is only accepted from institutions that are recognized by the institution’s governing academic body (i.e. Ministry of Education). The student must have earned a minimum of a “B” (or its equivalent) to be eligible for transfer credit.

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) or a minimum score of “Pass” on the U-ADEPT. 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.

Grades

A student admitted to graduate study under any status at the 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-” 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:

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<thead>
<tr>
<th>Grade</th>
<th>Quality Points</th>
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<tbody>
<tr>
<td>A</td>
<td>4.0</td>
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<tr>
<td>A-</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
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<tr>
<td>B</td>
<td>3.0</td>
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<td>B-</td>
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<td>C+</td>
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<td>C</td>
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<td>C-</td>
<td>1.7</td>
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<td>D+</td>
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<td>D</td>
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<td>D-</td>
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<td>F</td>
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<td>CR</td>
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<td>NC</td>
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<tr>
<td>AUD</td>
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</tbody>
</table>

Key:
- Failure
- Credit
- No credit
- Audit
The following grades may also appear on the term grade reports or on the official academic record. There are no grade points associated with these grades.

I—Incomplete: Indicates that the student has done passing work in the course but that some part of the work is, for good and acceptable reason, not complete at the end of the term. Failure to make up the omitted work satisfactorily by the end of the following term, not including summer sessions, converts the “I” to an “F.” When the work is satisfactorily completed within the 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.

PI—Permanent Incomplete: Indicates that the student’s instructor and the instructor’s dean have for special reason authorized the change of an incomplete (”I”) or an in progress (”IP”) to a permanent incomplete (”PI”).

W—Withdrawn: 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, prior to the end of the term they must notify the Office of the Registrar in writing of the extension and indicate the date of its termination. It is the responsibility of the student to make arrangements to make up the incomplete work. The faculty member should submit the new grade to the Office of the Registrar in writing.

Academic Reassessment
A student who meets all the criteria described below may petition the Vice President for Research and Dean of the Graduate School to remove from his/her graduate cumulative grade point average all those grades earned under the student’s prior enrollment at The University of Akron.

• Degree seeking graduate student
• Previous graduate enrollment at The University of Akron
• Not enrolled at The University of Akron for at least five years prior to current enrollment
• Maintain a current graduate grade point average of at least 3.00 or better for the first 15 hours of re-enrollment credit

If the student’s petition is granted, the following will apply to the reassessment policy:
• This policy only applies to the student’s graduate grade point average.
• All University of Akron grades will remain on the student’s official, permanent academic record (transcript); this process will affect the cumulative grade point average of the student’s overall academic history at the university.
• No grades/credits from the student’s prior graduate enrollment at the university may be counted toward the subsequent degree program requirements. Degree requirements may only be met by courses included in the calculation of the student’s cumulative graduate grade point average at The University of Akron. Thus, the student who successfully petitions for cumulative graduate grade point average recalculation under this policy automatically forfeits the right to use any of the excluded course work toward the current degree requirements.

A student may exercise this graduate reassessment option only once, regardless of the number of times the student enters/attends a graduate degree program at The University of Akron.

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. Any faculty 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 guests, faculty or graduate students as speakers. The intent of the course is to introduce a broad range of topics using resource personnel. Normally, assignments are limited to class participation.

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

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

Probation and Dismissal
Any student whose cumulative graduate grade-point average falls below 3.00 will be placed on probation and is no longer in good standing. In consultation with the college or department, as appropriate, the dean of the Graduate School will dismiss full-time students who do not return to good academic standing within five consecutive semesters including summers and part-time students who do not return to good academic standing within the attempting of 15 additional credits.

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

The dean of the Graduate School, with the approval of the relevant department 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 to be acceptable.

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

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

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

• August 3 for Fall 2005 Commencement
• January 3 for Spring 2006 Commencement
• May 3 for Summer 2006 Commencement

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 at www.uakron.edu/student/aff/osd, in Carroll Hall 305, or by calling Student Judicial Affairs at 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, including work found on the World Wide Web.
• Unauthorized copying of an assignment in computer programming, or the unauthorized examination or view of the computer, specifically during examinations.
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 319 of the Revised Code, and under the authority conferred upon the Ohio Board of Regents by Section 3333.3 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 migration 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 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.

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-supporting 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 while 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 these 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 may 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) who is enrolled in an institution of higher education when his or her parents 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 parents 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 student 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 recertification as a resident of Ohio for these purposes if such person in fact wants to be reclassified as a resident. 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 person 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.
Tuition Fees

All fees reflect changes in 2005-2006 and are subject to change without notice.

Application Fee (this fee is not refundable under any circumstances)
- Domestic: $30.00
- International: $40.00
- Domestic Student Reappraisal Fee: $25.00
- International Student Reappraisal Fee: $25.00

Retroactive Continuous Enrollment Requirement Fee
- $400.00/hr per semester (assessed to doctoral students who are not in compliance with the University's continuous enrollment policy requiring a minimum enrollment of at least one credit hour for each fall and spring semester)
- $40.00 (International)

Course materials fees – assessed for selected courses to cover the cost of
- Workshop participants: $4.00 per day
- Summer Session (one permit good for all sessions): $75.00
- Per semester, Fall and Spring (enrolled for any number of credits): $110.00

Parking Permit Fee
- $12.33 per credit
- Maximum: $147.96 per semester
- Administrative Fee*: Maximum of $133.80 per semester
- General Fee
  - Per credit hour: $11.15
  - Maximum of: $133.80 per semester
- Technology Fee
  - Per credit hour: $16.25
  - Library Fee
  - Per credit hour: $3.00
- Engineering Infrastructure Fee
  - Per credit hour (all Engineering courses): $15.00
- International Executive MBA Program
  - All inclusive tuition, fees, travel, and program costs:
    - Tuition Deposit (Due July 19): $5,000.00
    - First Semester: $10,000.00
    - Second Semester: $10,000.00
    - Third Semester: $12,000.00
    - Application Fee: $100.00 per exam

Master of Public Health Program
- Tuition: $147,96 per semester
- Parking: $110.00 per semester
* Plus Administrative, Library, Technology, and Facilities Fees

Graduate Application Fee is deferred for federally funded TRIO program alumni.

Dissertation fee:
- Non-resident surcharge: $276.00 per credit hour
- Same fees apply when auditing classes

Financial Aid

Financial aid programs were 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 Instructional Grant and Federal Supplemental Educational Opportunity 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 Assistance (FAFSA) or the Renewal Application to the Federal Processor. Applications are available in January for the following school year. Applications can be completed on the World Wide Web at http://www.fafsa.ed.gov. For technical assistance, call 1-800-800-0576. Inquiries may be directed to the Office of Student Financial Aid, Spicer 119, 330-972-7032 or 1-800-621-3842.

Installment Payment Plan

The Installment Payment Plan is an option offered by The University of Akron to help students spread their tuition, University housing and meal plan charges into payments over the course of the academic term.

To begin the plan, students must send in the minimum required down payment and the $30 application fee, along with a signed Installment Payment Plan application. This information must be received by the Office of Accounts Receivable on or before the due date. The Installment Payment Plan only covers one term, thus students must send in all required materials before the due date for each term that they wish to use the Installment Payment Plan. The Installment Payment Plan requires a minimum down payment based upon the number of credit hours for which a student is enrolled. A $500 down payment is required for full time students (12 credit hours or more). A $200 down payment is required for all students registered for less than 12 credit hours. Financial aid can be used to pay for a portion or all of the required down payment. Every student that applies for the Installment Payment Plan is required to pay the $26 application fee.

More information on the Installment Payment Plan is available online at http://www.uakron.edu/administration/StudentAffairs/financialAid/pp.php

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 student interested in a graduate assistantship should contact the appropriate academic department.

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

**Fees Subject to Refund**

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.  
- Facilities 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, the following refund percentages apply:
    - During the second week of the semester: 70%  
    - During the third week of the semester: 50%  
    - During the fourth week of the semester: 30%  
    - During the third week of the semester: 20%  
    - Thereafter: 0%

- 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 (class, institute, or workshop) which have passed compared to the number of days said section has been scheduled to meet. If a drop occurs on class day, it is counted as a day attended for the purpose of refund.

- 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 the 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.

**Payment of Tuition and Fees/Withdrawal**

Tuition and fees for the semester are to be paid or arranged for payment on or before published due dates. Students who receive financial assistance should be aware that they may be responsible for fees. Students will be responsible for ensuring that their personal accounts are up-to-date. Payment plans are available for those students who wish to spread payments over an extended period. Students with accounts that are not fully paid or properly arranged for payment by the end of the semester may be prevented from registering for subsequent coursework. If a student enrolls in classes and then decides not to attend, it is still the student’s responsibility to drop his or her classes and to notify the University in order to prevent unnecessary charges.

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**SECTION 3. 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 postbaccalaureate level. This may be recommended prior to beginning graduate work, or in some cases, can be done simultaneously.

**Residence Requirements**

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

**Continuous Enrollment Requirements**

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

**Time Limit**

All requirements must be completed within six years after beginning graduate-level coursework at The University of Akron or elsewhere. An extension of up to one year may be granted in unusual circumstances by 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 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 one-third of the total credits required for a master’s degree may be transferred from an accredited college or university, including The University of Akron. Departments and colleges may set more restrictive limits. All transfer credit must be at the “A” or “B” level (4.00 to 3.00) in graduate courses. The credits must be relevant to the student’s program as determined by the student’s academic department. A University of Akron student who seeks to enroll in courses elsewhere for transfer credit here 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 credit from other institutions shall not be computed as part of a student’s University of Akron grade point average.

Individual course transfer of credit must fall within the six-year time limit to complete degree requirements. A block transfer of credit may be requested if a student has a prior graduate degree from an accredited college or university, including The University of Akron. A block transfer of credit does not apply toward the student’s six-year time limit to complete the degree.
Academic Requirements

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 can be obtained online at http://www.uakron.edu/gradsch/forms.php, from the academic department, or from the Graduate School.

Students must submit an Advancement to Candidacy form to the departmental office by the following dates:
- September 15 for Spring Commencement
- February 15 for Summer Commencement
- May 15 for Fall Commencement

Graduation

To be cleared for graduation, a candidate must have completed coursework with a minimum cumulative graduate grade-point 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 (see posted deadlines). 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 can be obtained online at http://www.uakron.edu/gradsch/gdlnThesDiss.php and all copies of the thesis must conform to these instructions.

DOCTORAL DEGREE REQUIREMENTS*

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

Admission

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

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

Residence Requirements

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

The minimum residence requirement for a doctoral candidate in all programs is at least two consecutive semesters of full-time study and involvement in departmental activities. Full-time study is defined as 9-15 semester credits, except for graduate teaching and research assistants for whom full-time study is specified by the assistantship agreements. The summer sessions may count as one semester, provided that the candidate is enrolled for a minimum total of six semester credit hours per combined summer term. 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 provisions must be detailed and will require the approval of the student’s committee, the department faculty member approved to direct doctoral dissertations, the collegiate dean and the dean of the Graduate School.

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 Graduate School under unusual circumstances upon written request by the student and recommendation by the advisor and department chair.

Credits

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

No graduate credit may be received for courses taken by examination or for 400-numbered courses previously taken at the 400-number course level as an undergraduate. A student having advanced standing from the dean of the Graduate School “Repeat for change of grade” is not available at the graduate level.

Transfer Credits

Up to one-half of the total credits above the baccalaureate required in a doctoral program may be transferred from an accredited college or university, including The University of Akron. Departments and colleges may set more restrictive limits. All transfer credit must be at the “A” or “B” level (4.00 to 3.00) in graduate courses. The credits must be relevant to the student’s academic program as determined by the student’s academic department. A University of Akron student who seeks to enroll in courses elsewhere for transfer credit here 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 2.00 or better. Transfer credits from other institutions shall not be computed as part of a student’s University of Akron grade point average.

Individual course transfer or credit must fall within the ten-year time limit to complete degree requirements. A block transfer of credit may be requested if a student holds a prior graduate degree from an accredited college or university, including The University of Akron. No more than 30 semester credits may be transferred from a single master’s degree. A block transfer of credit does not apply toward the student’s ten-year time limit to complete the degree.

Language Requirements*

There is no University-wide foreign language requirement for the doctoral degree. 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 computer) may be substituted for one of the two foreign languages. Under the last option, each department should define competence and publicize.

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

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

*The Doctor of Audiology (Au.D.) does not have a foreign language requirement.
Optional Department Requirements
Each department may determine requirements for a doctoral student with regard to entrance examinations, qualifying examinations, preliminary or comprehensive examinations and course sequences.

Advancement to Candidacy
A student should apply for advancement to candidacy after completion of one-half of the credits required for the degree in his or her program. A student must be fully admitted and in good standing to be advanced to candidacy. Advancement to Candidacy forms can be obtained online at http://www.uakron.edu/gradsch/forms.php, from the academic department, or from the Graduate School.

Students must submit an Advancement to Candidacy form to the departmental office by the following dates:
- September 15 for Spring Commencement
- February 15 for Summer Commencement
- May 15 for Fall Commencement

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/department, or the Graduate School to determine these deadlines.

A draft copy of the dissertation is due in the Graduate School prior to the preliminary examination. Two copies of the dissertation are due in the Graduate School prior to the final examination. 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 can be obtained online at http://www.uakron.edu/gradsch/gdnThesDiss.php and all copies of the dissertation must conform to these instructions.

*The Doctor of Audiology (Au.D.) does not require a dissertation.

Graduation
To be cleared for graduation, a candidate must have completed the academic program with a minimum cumulative graduate grade-point average of 3.00; been advanced to candidacy; met the preliminary and final dissertation deadlines; 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

Ronald F. Levant, Ph.D., Dean
William A. Francis, Ph.D., Associate Dean
Devinder M. Malhotra, Ph.D., Associate Dean
Charles B. Monroe, Ph.D., Associate Dean

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 limitations 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 understand 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 substantive 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, computer science, geology, theoretical and applied mathematics, 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 a course of study designed in consultation with an advisor or advisory committee. This consists of the completion of at least 90 credits beyond the baccalaureate degree, including 24 credits of appropriate coursework.
• Complete monthly cumulative exam requirement.
• Complete oral exam requirement.
• Complete seminar requirement.
• Defend dissertation in an oral examination.
• Complete all general requirements for the doctor of philosophy degree.

**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 either 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 (200-level and above) and endorsement 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 all general requirements for the Doctor of Philosophy degree.
- 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 one foreign language course for another.
- Three letters of recommendation from former professors.
- Scores on the Graduate Record Examination, General Aptitude Test.
- Demonstration of competency in four fields of study selected from the following: history, mathematics, physics, and chemistry.
- A statistics sequence that may be substituted for the doctoral language requirement.
- Thesis credits (minimum) 1
- Dissertation credits (minimum) 12
- A thesis or thesis waiver completed as specified in the Graduate Student Manual of the Department of Psychology.
- 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 postmaster’s 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 Graduate School.
- The Graduate Committee of the History Department will consider an applicant for admission if a person has a Master’s degree or the equivalent and a grade-point average of 3.5 or better at the M.A. level from an accredited institution. Those holding a Master’s degree from The University of Akron or other accredited institution should not assume that they will automatically be admitted to doctoral studies. In addition to the application made to the Graduate School of The University of Akron, the student must submit to the History Department the following materials:
  - A personal statement of reasons for wishing to undertake doctoral study and the fields of study the student wishes to pursue;
  - Three letters of recommendation from former professors;
  - A writing sample, preferably a seminar paper or other comparable scholarly work;
  - Scores on the Graduate Record Examination, General Aptitude Test;
  - Evidence of a reading knowledge of one foreign language or knowledge of an acceptable cognate field. Those whose native language is not English must demonstrate proficiency in English.
- Complete studies selected by the student in consultation with an advisory committee, including:
  - Completion of 80 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 in which the student will be expected to pass written and oral comprehensive exams: ancient, medieval, early modern Europe to 1789, modern Europe to 1789, America to 1877, United States since 1877, Latin America, Far East, Africa, Middle East, South Asia, and History of Science. These four fields must include at least one each in American, European, and non-western history. The student’s dissertation will fall within one of the four chosen fields;
  - 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 required languages when it seems appropriate for the student’s general program.
- Complete all general requirements for the Doctor of Philosophy degree.

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

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>– Psychology core courses (610, 620, 630, 640, 650)</td>
<td>10</td>
</tr>
<tr>
<td>– Counseling psychology core courses (701, 709, 710, 711, 712, 713, 714, 715, 717)</td>
<td>33</td>
</tr>
<tr>
<td>– Practicum sequence (672 [2+2+2+2], 673 [2+2+2+2], 795 [4+4], 796 [4+4])</td>
<td>32</td>
</tr>
<tr>
<td>– History, measurement, and developmental coursework (718, 727, 750)</td>
<td>8</td>
</tr>
<tr>
<td>– Electives (minimum)</td>
<td>6</td>
</tr>
<tr>
<td>– Statistics (601, 602)</td>
<td>8</td>
</tr>
<tr>
<td>– A statistics sequence that may be substituted for the doctoral language requirement</td>
<td>8</td>
</tr>
<tr>
<td>– Thesis credits (minimum)</td>
<td>12</td>
</tr>
<tr>
<td>– Dissertation credits (minimum)</td>
<td>12</td>
</tr>
</tbody>
</table>
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.

The doctoral program in Applied Cognitive Aging is not currently accepting applications for new graduate students.

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;
  - attainment of a graduate grade-point average (GPA) of 3.25;
  - completion of Graduate Record Examination Aptitude and Advanced Psychology Test;
  - securing of three letters of recommendation;
- Major field:
  - a minimum of 90 graduate credits including a 30-credit master’s program. A student may be required to complete additional credits beyond the 90 minimum credit requirement;
  - completion of Ph.D. core courses in the student’s specialty area: industrial/organizational 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 faculty 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 for other requirements or guidelines;
  - complete and fulfill general doctoral degree requirements of the Graduate School.

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

Doctor of Philosophy in Sociology

Akron-Kent Joint Ph.D. Program

The University of Akron and Kent State University departments of sociology offer a joint program leading to the Ph.D. degree. Faculty and 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 master of arts 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:

- Take the following course:
  3650:700  College Teaching of Sociology
- Take one doctoral-level course in theory. This course to be selected from the predetermined group of courses (see Department of Sociology graduate student handbook).
- Complete a doctoral-level course in statistics from the predetermined group of courses (see the department’s graduate student handbook).
- Complete a specialty of 9 to 12 credits, depending on the specialty chosen.
- Complete a minimum total of 30 credits in coursework.
- Comprehensive Examination in theory, methods and statistics, and a specialty area (medical sociology, sociology of family, social psychology, or social inequalities).
- Full residency requirement 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 doctoral degree in Urban Studies and Public Affairs jointly by The University of Akron and the Levin College of Urban Affairs at Cleveland State University. Students are encouraged to schedule course work at both institutions and are required to select members from both faculties on all dissertation committees to take advantage of the diversity of faculty and their academic specializations.

The program offers specialties in policy analysis and evaluation, public administration, urban and regional planning, and urban policy. The program is designed to prepare students for academic appointments, as well as for a variety of positions within the public and non-profit sector. The program consists of advanced study in a multidisciplinary core, as well as a focus in a major field of specialization.

Admission

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

- Completion of a master’s degree.
- Preference for a grade point average (GPA) from master’s degree above 3.5. However, having a GPA above 3.5 is not in itself sufficient for admission.
- Submission of official test results on the verbal and quantitative portion of the Graduate Record Examination General Test. Official results from other, equivalent standardized tests used for graduate admissions may be substituted at the discretion of the Ph.D. Coordinator.
- Three letters of recommendation from persons familiar with the applicant’s recent performance and abilities.
- A sample of the student’s written academic work. This should be a thesis or final project paper from the master’s degree program. Students who do not have such a requirement in their master’s program should submit several writing samples such as research papers, professional reports, or published articles.
- A personal statement from the applicant detailing the intended area of specialization and career aspirations (form in application packet). An applicant will be admitted only if faculty resources are available in the area of specialization detailed by the applicant.
- Those applicants for whom English is not their native tongue must demonstrate proficiency in the English language by scoring a minimum of 570 on the Test of English as a Foreign Language (TOEFL), submitting an acceptable score on the Test of Written English (TWRE) and by scoring a minimum of 220 on the Test of Spoken English (TSE).

An applicant may be required to appear before the Doctoral Committee before a decision is made on admission to the program. The Doctoral Committee also may require an applicant to take an admissions examination, either written or oral, or both.

To be properly prepared to begin doctoral classes applicants will be expected to have mastered core concepts central to the degree. Therefore, admission to the doctoral program may be conditioned upon successful completion of the “bridge-up” coursework designed to address deficiencies in previous coursework. Bridge-up coursework will not count toward doctoral degree course requirements.
Applicants will be informed of the bridge-up courses they will be required to take during their first year in the program in their admission letter. Any or all of the following master’s-level courses, or their equivalent from another program or university, may be required as part of admission:

- **3980:600** Basic Quantitative Research 3
- **3980:601** Advanced Research and Statistical Methods 3
- **3980:611** Introduction to the Profession of Public Administration 3
- **3350:630** Planning Theory 3
- **3980:640** Fiscal Analysis 3
- **3980:673** Computer Applications 3

### Degree Requirements

A minimum of 63 credits beyond the master’s degree is required, 51 hours of coursework and 12 hours of dissertation. Coursework consists of a minimum of 20 credit hours of required core, 18 credit hours in a specialization, and a 3 credit hour Pro-Seminar. The Pro-Seminar cannot be taken until all coursework and examination requirements have been met and the student has achieved “Advancement to Candidacy” status.

**• Core Courses:**
- **3980:700** Advanced Research Methods I 3
- **3980:701** Advanced Research Methods II 3
- **3980:702** Urban Theory I 3
- **3980:703** Urban Theory II 3
- **3980:705** Economics of Urban Policy 3
- **3980:706** Urban Policy: The Historical Perspective 3
- **3980:710** Qualitative Research Methods 3
- **3980:711** Seminar in Public Administration 3
- **3980:714** Seminar in Policy Analysis and Evaluation 3
- **3980:715** Seminar in Urban and Regional Planning 3
- **3980:780** Ph.D. Colloquium 3

**• Specializations:**

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

Students are required to develop a field of specialization consisting of a minimum of 18 credit hours after consultation with their Program of Study Committee and the Ph.D. Coordinator. The courses recommended for inclusion in the above-designated specializations are available through the department office and the Ph.D. Coordinator.

Upon written approval of a doctoral student’s Program of Study Committee, courses other than those listed in specializations may be used to create a specialization that is better suited to the research and academic interests of that student.

**• Examinations:**

To be eligible for Advancement to Candidacy and the preparation of a dissertation, a student must pass qualifying and specialization written, comprehensive examinations and successfully defend a dissertation prospectus. To aid in the development of that prospectus a student must register for 3980:795, Pro-Seminar, in the first semester after having achieved Advancement to Candidacy status.

**• Other Requirements:**

Complete all general doctoral degree requirements of the Graduate School.

All students must register for, and are expected to attend, 3980:790, the Ph.D. Colloquium, in their first year in the program. This course is graded as a credit/non-credit course. Students register for this course in fall semester each year. The course convenes every other week for both the fall and spring semesters.

Where required courses, or their equivalent, have been taken in a previous doctoral degree program, appropriate substitutions can be made with the approval of the student’s Program of Study Committee and the Ph.D. Program Coordinator. Students must also successfully defend their dissertations.

Please refer to the Departmental Graduate Student Handbook and the Ph.D. Coordinator for other requirements and guidelines.

### Master of Science

**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 for graduate assistantship.
- Submit scores for Graduate Record Examination (25 percentile or higher required on Advanced Biology Test).
- Submit a letter of proposed area of specialization within biology.
- Non-active speakers of English must submit a TSE minimum score of 50 or a passing score on The University of Akron approved test of spoken English.

**Thesis Option I**

This 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.

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

**Thesis Option II**

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

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

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

### 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 departmental seminars.
- Demonstration of reading proficiency in a foreign language appropriate to the field of study prior to the last semester of enrollment.

### Computer Science

**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 Aptitude Test of the Graduate Record Examination is required, and the GRE Advanced Computer Science Test 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. With prior consent, up to 3 credits of approved graduate-level coursework outside the department may be substituted for elective courses in both the thesis and non-thesis options.

• Core Courses (required of all students):
  3460:535 Analysis of Algorithms
  or
  3460:635 Advanced Algorithms and Complexity Theory

In addition, each student must complete at least one course from each of the following three areas:


Thesis Option (30 credits of graduate work)
24 credits in approved coursework, at least 15 of which must be taken at the 600 level. In addition, 3 credits in 3460:698 and 3 credits in 3460:699 Master’s Thesis. The thesis must be of publishable quality and must be successfully presented at a public defense moderated by three full time Graduate Faculty (two of which must be from Computer Science).

Non-thesis Option (33 credits of graduate work)
30 credits in approved coursework, at least 18 credits of which must be taken at the 600 level. In addition, 3 credits in 3460:698. The student shall complete an independent project supervised by a faculty advisor and approved by a committee consisting of the advisor and a faculty reader. The student must also pass a written comprehensive examination, taking the format suggested by the department.

Cooperative Education Program in Computer Science
Admission
Arrangements for student entry into the program are on an individual basis, and must be initiated by the student. The Cooperative Education Program is an optional program available only to full-time Computer Science students at The University of Akron who have satisfactorily met the following requirements:

• completion of at least 18 credits in computer science applicable to the master’s degree with a grade point average of at least 3.0 out of 4.0;
• acceptance by a cooperative education coordinator or director following interviews;
• a transfer student must have completed at least 9 credits in computer science at The University of Akron with a grade point average of at least 3.0 out of 4.0.

A student who desires to participate in the program will fill out an application and submit it to the cooperative education office. The student will then meet with a member of the cooperative education staff to discuss the availability of prospective employers. During this interview, the student will be asked to sign a Student Agreement which will become effective upon employment. Employment must be coordinated or have approval of the department and the cooperative education director. The University does not guarantee employment for the student. The student will be expected to remain with the employer during the time period specified by the Student Agreement.

Registration
While no academic credits are assigned, each student must register for 3000:501 Cooperative Education in the same manner that a student registers for any other University course. See department advisor before enrolling for this course.

A cooperative program fee for each work period is charged. Upon completion of a work period, a statement will appear on each student’s official transcript listing the course number, title and name of the employer. In the place of a letter grade, “credit” or “no credit” will be given, depending on the student’s satisfactory or unsatisfactory completion of the following:

• work performance as evaluated by the employer;
• progress report written by the student during the work period;
• written work report as approved by the department chair and cooperative education staff.

Usually, work progresses satisfactorily on the job and a grade of “credit” is assigned at the end of the semester. If all the above conditions are not met, a grade of “no credit” will be submitted.

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.

Required Courses for both options:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3250:602</td>
<td>Macroeconomic Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>3250:611</td>
<td>Microeconomic Theory I</td>
<td>3</td>
</tr>
<tr>
<td>3250:620</td>
<td>Applications of Mathematical Models to Economics*</td>
<td>3</td>
</tr>
<tr>
<td>3250:626</td>
<td>Statistics for Econometrics*</td>
<td>3</td>
</tr>
</tbody>
</table>

*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.

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.

Required Courses for Both Options

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3300:506</td>
<td>Chaucer†</td>
<td></td>
</tr>
<tr>
<td>3300:570</td>
<td>History of the English Language†</td>
<td></td>
</tr>
<tr>
<td>3300:670</td>
<td>Modern Linguistics†</td>
<td></td>
</tr>
<tr>
<td>3300:675</td>
<td>Shakespearean Drama†</td>
<td></td>
</tr>
<tr>
<td>3300:665</td>
<td>Literary Criticism</td>
<td></td>
</tr>
</tbody>
</table>

At least one course in four of the following five categories is required:

<table>
<thead>
<tr>
<th>Group</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>British</td>
<td>1600-1865</td>
<td>Up to 1865</td>
<td></td>
</tr>
<tr>
<td>American</td>
<td>1600-1900</td>
<td>Up to 1900</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1900-present</td>
<td>Up to 1900</td>
<td></td>
</tr>
</tbody>
</table>

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 Curricular 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). 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). Of the 36 credits of coursework, 21 must be at the 600 level.

Required courses for both options:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3300:673</td>
<td>Theories of Composition</td>
<td></td>
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<tr>
<td>3300:674</td>
<td>Research Methodologies in Composition</td>
<td></td>
</tr>
<tr>
<td>3300:689</td>
<td>New Rhetorics</td>
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</tr>
</tbody>
</table>
Students must also choose one of the following two courses:
3300:589 Grammatical Structures of Modern English
3300:670 Modern Linguistics

And one of the following three courses:
3300:625 Autobiographical Writing
3300:589 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

†Unless the student has passed a comparable course at the undergraduate level with a grade of “B” or better.

Master of Fine Arts in Creative Writing
The University of Akron, Cleveland State University, Kent State University, and Youngstown State University offer jointly the MFA in Creative Writing. This degree provides students with opportunities to develop their skills in writing fiction, poetry, drama, and creative non-fiction. It is the terminal degree. Through extensive practice in workshops and craft and theory courses, students will develop their creative writing abilities while also studying literature and completing a relevant internship.

Admission Requirements
Students must be accepted by the Graduate School at The University of Akron or one of the other three participating universities. They must also submit three letters of recommendation, transcripts, and a writing portfolio. The portfolio will be reviewed by an admissions committee of members from all four universities.

Degree Requirements
Students must complete the following courses among the participating universities:
- Writing Workshops - 15 credits
- Craft and Theory Courses - 6 credits
- Literature Courses - 9 credits
- Internship - 3 credits
- Thesis - 6 credits
- Electives - 9 credits
A total of 48 credit hours is required for the MFA in Creative Writing.

Geography and Planning

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
  3350:596 Field Research Methods
  3350:607 History of Geographic Thought
  3350:600, 601, 602 Seminar (6 credits)
- Thesis
  At least 9 credits and no more than 15 credits of 3350:699.
- 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, to include no more than 3 credits of independent study (3350:698).
- Core Requirements – (21 credits)
  3350:505 Geographic Information Systems
  3350:581 Research Methods in Geography and Planning
  3350:583 Spatial Analysis
  3350:596 Field Research Methods
  3350:607 History of Geographic Thought
  3350:600, 601, 602 Seminar (6 credits)
- Techniques Requirements (9 credits)
  3350:505 Geographic Information Systems
  3350:540 Principles of Cartography
  3350:547 Remote Sensing
- Techniques Electives (at least 9 credits)
  3350:507 Advanced Geographic Information Systems
  3350:542 Thematic Cartography
  3350:544 Applications in Cartography and GIS
  3350:680 Advanced Spatial Analysis

Electives – (21 credit hours)

Seven courses with at least 4 from either the Environmental concentration or the Urban/Economic concentration.

GIS/Remote Sensing
- Advanced Geographic Information Systems
- Principles of Cartography
- Thematic Cartography
- Applications in Cartography and GIS
- Remote Sensing
- Advanced Cartography
- Advanced Remote Sensing
- Advanced Spatial Analysis

Environmental
- Environmental Planning
- Land Use Planning Law
- Practical Approaches to Planning
- Medical Geography and Health Planning
- Soil and Water Field Studies

Urban/Economic
- Urban Geography
- Transportation Systems Planning
- Industrial and Commercial Site Location
- Urban Land Use Analysis
- History of Urban Design and Planning
- Development Planning
- Comparative Planning

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/Geographic Information Sciences

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
  3350:596 Field Research Methods
  3350:607 History of Geographic Thought
  3350:600, 601, 602 Seminar (6 credits)
- Techniques Requirements (8 credits)
  3350:600, 601, 602 Seminar (6 credits)
- Techniques Electives at least 6 credits
  3350:608 Introduction to GIS/Remote Sensing
  3350:609 Advanced GIS/Remote Sensing
  3350:610 Advanced Cartography
  3350:680 Advanced Spatial Analysis
- Thesis
At least 9 credits and no more than 15 credits of 3350:699.

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
  3350:596 Field Research Methods
  3350:607 History of Geographic Thought
  3350:600, 601, 602 Seminar (6 credits)
- Techniques Requirements (9 credits)
  3350:505 Geographic Information Systems
  3350:540 Principles of Cartography
  3350:547 Remote Sensing
- Techniques Electives (at least 9 credits)
  3350:507 Advanced Geographic Information Systems
  3350:542 Thematic Cartography
  3350:544 Applications in Cartography and GIS
  3350:680 Advanced Spatial Analysis
• Environmental/Urban/Economic Electives (at least 9 credits)

3350:515 Environmental Planning
3350:520 Urban Geography
3350:522 Transportation Systems Planning
3350:532 Land Use Planning Law
3350:533 Practical Approaches to Planning
3350:536 Urban Land Use Analysis
3350:539 History of Urban Design and Planning
3350:550 Development Planning
3350:571 Medical Geography and Health Planning
3350:595 Soil and Water Field Studies
3350:633 Comparative Planning

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

Master of Arts (Geography/Urban Planning)

Thesis Option
• A minimum of 45 graduate credits plus internship (3350:685), to include no more than 3 credits of independent study (3350:688).

• Core Requirements (30 credits)

3350:505 Geographic Information Systems
3350:532 Land Use Planning Law
3350:537 Planning Analysis and Projection Methods
3350:538 Land Use Planning Methods
3350:539 History of Urban Design and Planning
3350:581 Research Methods in Geography and Planning
3350:583 Spatial Analysis
3350:630 Planning Theory
3350:631 Facilities Planning
3980:600, 601, 602 Seminar (3 credits)

• Thesis
At least 9 credits and no more than 15 credits of 3350:699.

• 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 plus internship (3350:685).

• Core Requirements (30 credits)

3350:505 Geographic Information Systems
3350:532 Land Use Planning Law
3350:537 Planning Analysis and Projection Methods
3350:538 Land Use Planning Methods
3350:539 History of Urban Design and Planning
3350:581 Research Methods in Geography and Planning
3350:583 Spatial Analysis
3350:630 Planning Theory
3350:631 Facilities Planning
3980:600, 601, 602 Seminar (3 credits)

• Electives – (15 credits)
Five courses, with at least three in one area.

GIS/Remote Sensing
3350:507 Advanced Geographic Information Systems
3350:540 Principles of Cartography
3350:542 Thematic Cartography
3350:544 Applications in Cartography and GIS
3350:547 Remote Sensing
3350:548 Advanced Cartography
3350:549 Advanced Remote Sensing
3350:680 Advanced Spatial Analysis

Environmental
3350:515 Environmental Planning
3350:533 Practical Approaches to Planning
3350:571 Medical Geography and Health Planning
3350:595 Soil and Water Field Studies

Urban/Economic
3350:520 Urban Geography
3350:522 Transportation Systems Planning
3350:536 Urban Land Use Analysis
3350:550 Development Planning
3350:633 Comparative Planning

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

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.

• A proficiency exam is taken during the student’s first semester in the M.S. program. Students who demonstrate a lack of knowledge in areas related to their thesis topics may be required to take additional or remedial courses as suggested by the examining committee. Students may not begin formal thesis work until the proficiency exam has been completed. (Formal thesis work includes the thesis proposal and/or thesis research credits) Field camp can be taken for graduate credit; however, it will not count toward the 30 credits for the M.S. in the geology and geophysics specializations.

• Core Requirements:
  3370:680 Seminar in Geology 2
  3370:699 Master’s Thesis 6

• 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 camp 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 program will be selected to provide the student with a well-rounded background in lithosphere, hydrosphere and atmosphere. Those who will be teachers must take 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 expertise in the other field. The entering student who has some deficiencies in either engineering or geology may have to satisfy one or more of the following requirements while proceeding with graduate studies. A committee of engineering geology faculty will determine appropriate coursework on an individual basis.

3370:101 Introductory Physical Geology 4
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
4300:314 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 Engineering 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;
  – an application form;
Graduate research participation is strongly encouraged. Up to five credits may be permitted in 3650:699 Master's Thesis for the completion of a master's thesis in Physics. One additional credit may, upon approval by the department, be earned in 3650:697 Graduate Research, upon the completion of a graduate research project. One additional credit may, upon approval by the department, be permitted in 3650:699 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 Chemistry and Physics 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 26 of this Graduate Bulletin. The Chemical Physics option is described in detail on page 27.

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 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 encourage 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 political 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. Three 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. 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 39 credits of graduate work, including the following:
  - Core courses - 27 credits:
    - 3700:570 Campaign Management I
    - 3700:571 Campaign Management II
    - 3700:572 Campaign Finance
    - 3700:540 Survey Research Methods
    - 3700:600 Scope and Theory of Political Science
    - 3700:601 Research Methods in Political Science
    - 3700:695 Internship in Government and Politics*
    - 3700:672 Seminar: Political Influence and Organizations
    - 7600:691 Advanced Communication Studies: Communication in Political Campaigns

- Elective courses - 12 credits (6 credits must be at the 600-level) selected from the following courses:
  - 3700:502 Politics and the Media
  - 3700:578 Political Behavior and Electoral Politics
  - 3700:573 Voter Contact and Elections
  - 3700:576 American Interest Groups
  - 3700:576 American Political Parties
  - 3700:623 Seminar in Comparative Politics
  - 3700:630 Seminar in National Politics
  - 3700:668 Seminar: Policy Agendas and Decisions
  - 3700:690 Special Topics in Political Science (applied focus)
  - 3700:697 Independent Research and Readings (applied focus)
  - 3980:614 Ethics and Public Service
  - 3700:668 Theories of Argument and Persuasion

- 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.

**J.D./Master of Applied Politics**

This joint J.D./Master of Applied Politics degree combines the two degrees while allowing students to complete requirements with fewer credits than taking the degrees separately. 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 Political Science.

**Degree Requirements**

Students must complete the following:

- J.D. required courses - 44 credits
- MAP required courses - 27 credits
- Joint Law School/Political Science Course - 3 credits
- J.D. Elective Courses - 32 credits

At least three credits from the following courses:

- 9200:623 Administrative Law
- 9200:642 Alternative Dispute Resolution
- 9200:644 First Amendment Law
- 9200:645 Non-Profit Tax Entities
- 9200:659 Negotiation
- 9200:662 Media Law
- 9200:664 Local Government Law
- 9200:684 Selected Legal Problems
- 9200:688 Individual Studies and Research

- MAP Elective - 3 credits

Choose one from the following courses:

- 3700:502 Politics and the Media
- 3700:630 Seminar in National Politics
- 3700:620 Seminar in Comparative Politics
- 3700:668 Seminar in Public Policy Agendas and Decisions
- 3700:695 Internship in Government and Politics
- 3700:696 Special Topics in Political Science (Applied Politics focus)

* Three credits required: additional credits will be counted toward elective credit.

- 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 number of credits of graduate work, including thesis, as follows: Industrial/Organizational program, 39 credits.

**Nonthesis Option**

Completion of coursework, practicum and examinations (no thesis required), with a minimum number of credits of graduate work for each program as follows: Applied Cognitive Aging program, 37 credits; Counseling program, 44 credits; and Industrial/Organizational program, 41 credits.

**Public Administration and Urban Studies**

**Master of Arts in Urban Studies**

**Admission**

Admission is open to students who have completed an undergraduate (bachelor’s) degree and whose application is approved by the MA Coordinator. No specific field of undergraduate major is required for admission. The GPA requirements for consideration of full admission is an overall, four year GPA of 2.8 or greater, or 3.05 for the last 60 credit hours (two years of course work). Provisional admission may be granted for those with an overall GPA between 2.5 and 2.79, or between 2.75 and 3.05 for the final 60 credit hours (two years) of course work. Additionally, applicants must submit the following:

- For students who have an overall, four-year, GPA below 3.0 a standardized test score from the 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 their professional experience).
- A personal essay stating why they are seeking admission in the MA program. Admission will be based on the GPA and competitive evaluation of the standardized test results, essay, and resume. If an applicant is deficient in one or two of the areas, he/she may be admitted on a provisional basis depending on GPA. Those admitted provisionally must take 15 credit hours of course work as specified in the department’s Master’s Handbook and based upon the recommendation of that student’s advisor. Full admission to the program will be based upon performance in those courses.

In order to ensure competitive admissions, applicants are encouraged to adhere to the following deadlines for receipt in the department of applications. Consideration for admission will be made following those dates depending upon available space in the program.

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

**Basic Program**

The degree consists of 33 credit hours of course work divided between an 18 credit hour core and 15 credit hours in an approved specialization. The core is as follows:

- 3980:600 Basic Quantitative Research
- 3980:601 Advanced Research and Statistical Methods
- 3980:602 History of Urban Development
- 3980:612 National Urban Policy

Choose two from the following:

- 3980:618 Citizen Participation
- 3980:621 Urban Society and Service Systems
- 3980:641 Urban Economic Growth and Development
- 3980:650 Comparative Urban Systems
Specializations: Specializations represent career and/or academic fields of interest. Those may be shaped to fit the needs and interests of the student. The specializations listed represent those which involve courses from our curriculum and/or fields and disciplines that students have pursued in the past. Several of the specialization are noted because they represent existing certificate programs on campus. Students who have other interests should work with their advisor to craft a specialization from across the campus that suits their needs. Students should contact the department office to get a list of the courses recommended for inclusion in a specialization.

Public Sector Management
Social and Human Services
Urban Planning
Non-Profit Administration
Applied Politics
Lifespan and Gerontology
Education Technology

Thesis: Students are encouraged to consider the option of a thesis. A maximum of six credit hours of thesis course work can be applied to a specialization.

Other: Credit/Non-Credit courses do not count toward the minimum number of credit hours required for graduation.

Master of Public Administration (MPA)
The program in Public Administration is specifically designed to prepare students for a public service career in public management and administration, as well as the management and administration of non-profit organizations.

The Master of Public Administration (MPA) program has been accredited by the National Association of Schools of Public Affairs and Administration (NASPAA) through the 2009-2010 academic year.

Admission
Admission is open to students who have completed an undergraduate (bachelor’s) degree and whose application is approved by the MPA Coordinator. No specific field or undergraduate major is required for admission. The GPA requirements for consideration of full admission are an overall, four-year GPA of 2.8 or greater or 3.05 for the last 60 credit hours (two years of course work). Provisional admission may be granted for those with an overall GPA between 2.5 and 2.79, or between 2.75 and 3.05 for the final 60 credit hours (two years of course work). Additionally, applicants must submit the following:

- For students who have an overall, four-year, GPA below 3.0 a standardized test score from the GRE, GMAT, LSAT, or MAT, as appropriate for the area of under-graduate degree.
- A copy of their current resume (especially important for in-service students to ascertain their professional experience).
- A personal essay stating why they are seeking admission in the MPA program.

Admission will be based on the GPA and competitive evaluation of the standardized test results, essay and resume. If an applicant is deficient in one or two of the areas, he/she may be admitted on a provisional basis depending on GPA. Those admitted provisionally must take 15 credit hours of course work as specified in the department’s Master’s Handbook and based upon the recommendation of that student’s advisor. Full admission to the program will be based upon performance in those courses.

In order to ensure competitive admissions, applicants are encouraged to adhere to the following deadlines for receipt in the department of applications. Consideration for admission will be made following those dates depending upon available space in the program.

- Fall admissions: April 15
- Spring admissions: October 15
- Summer admissions: February 15

Degree Requirements
The number of credit hours required to complete the MPA are 45 or 48, depending upon the background and work experience of the student. Students with little or no work experience in their chosen field of specialization are required to complete an internship. Those students who are exempted from the internship will be required to complete 45 credit hours for the degree. Those who are required to take the internship will be required to complete 48 credit hours.

Core requirements (30 credit hours):

<table>
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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3850:600</td>
<td>Basic Quantitative Research</td>
<td>3</td>
</tr>
<tr>
<td>3850:601</td>
<td>Advanced Research and Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>3850:610</td>
<td>Legal Foundations of Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>3850:611</td>
<td>Introduction to Public Health Care</td>
<td>3</td>
</tr>
<tr>
<td>3850:614</td>
<td>Ethics and Public Service (capstone class)</td>
<td>3</td>
</tr>
<tr>
<td>3850:615</td>
<td>Public Organization Theory</td>
<td>3</td>
</tr>
<tr>
<td>3850:616</td>
<td>Personnel Management in the Public Sector</td>
<td>3</td>
</tr>
<tr>
<td>3850:640</td>
<td>Fiscal Analysis</td>
<td>3</td>
</tr>
<tr>
<td>3850:642</td>
<td>Public Budgeting</td>
<td>3</td>
</tr>
<tr>
<td>3850:643</td>
<td>Introduction to Public Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

Specializations: Specializations represent career and/or academic fields of interest. Those may be shaped to fit the needs and interests of the student. The specializations listed represent those which involve courses from our curriculum and/or fields and disciplines that students have pursued in the past. Several of the specializations are noted because they represent existing certificate programs on campus. Students who have other interests should work with their advisor to craft a specialization from across the campus that suits their needs. Students should contact the department office to get a list of the courses recommended for inclusion in a specialization.

Policy Analysis and Evaluation
Public Sector Management
Community Development
Public Health Administration
Lifespan and Gerontology
Urban Planning

Thesis: Students are encouraged to consider the option of a thesis. A maximum of six credit hours of thesis course work can be applied to a specialization.

Other: Any required course except 3880:699, Master’s Thesis, may be waived on the basis of proficiency in the area covered by the course. The criteria for waiver are as follows:

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

J.D./Master of Public Administration
The University offers a joint J.D. and Public Administration program. The title is J.D./M.P.A. 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 43 credits of required law courses, 32 credits of law electives, and 30 credits of required public administration courses plus an internship of three credits. (Internship is required of any student without professional administrative experience.)

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

Sociology

Master of Arts

Thesis Option
Satisfactory completion of 31 semester credits of which at least 21 must be at the 600 level or higher in sociology (excluding 3850:697; 3850:698 and 3850:699). In meeting these requirements the student must:

- Complete four required core courses with at least a 3.00 grade-point average:
  - 3850:601 Proseminar in Sociology 1
  - 3850:604 Research Design and Methods 3
  - 3850:706 Multivariate Techniques in Sociology 3
  - 3850:722 Early Sociological Thought 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 31 credits of graduate work with no more than six credits taken at the 500 level. In meeting these requirements the student must:

- Complete three required core courses with at least a 3.00 grade-point average:
  - 3850:601 Proseminar in Sociology 1
  - 3850:604 Research Design and Methods 3
  - 3850:722 Early Sociological Thought 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 31 semester credits of which at least 21 must be at the 600 level or higher in sociology (excluding 3850:696, 3850:697, 3850:698 and 3850:699). In meeting these requirements the student must:

- Complete four required core courses with at least a 3.00 grade-point average:
  - 3850:601 Proseminar in Sociology 1
  - 3850:604 Research Design and Methods 3
In addition to the core curriculum, 2-4 credits in 3470:692 Statistics Masters Paper. Core requirements: electives. For graduation, core requirements already satisfied will be replaced by approved substitutions.

Master of Arts
• Thirty-two semester credits of graduate coursework in Spanish.
• Proficiency level in listening comprehension, speaking, reading, and writing Spanish, and cultural and literary proficiency.
• Final research paper: the candidate will be required to submit a long essay in Spanish reflecting the results of a research project, and to make an oral defense of the essay.

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.
  - 3470:461/661 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
  - 3470:666 Regression 3
  - Total 16

Statistics 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 Database Management 3
  - 3470:580 Statistical Data Management 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.

Nonthesis requirements (33 credits of graduate work)
In addition to the core curriculum, 2-4 credits in 3470:692 Statistics Masters Paper 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.

Master of Science – Applied Mathematics
Goals: This program is designed to train students in the formulation, analysis, and solution of mathematical models in a variety of application areas. Administration: Upon admission to the program, each student will undergo a review process to determine competency in undergraduate core mathematical areas and background in at least one junior-level or higher course in engineering or physics. If necessary, the appropriate course(s) will be added to the required course list for the student.

• Core Requirements:
  - 3450:621 Real Analysis 3
  - 3450:627 Advanced Numerical Analysis I 3
  - 3450:633 Methods of Applied Mathematics I 3
  - 3450:692 Seminar in Mathematics 1-3
  - Group 1 - At least one course from this list must be taken:
    - 3450:625 Analytic Function Theory 3
    - 3450:628 Advanced Numerical Analysis II 3
    - 3450:632 Advanced Partial Differential Equations 3
  - Group 2 - At least two courses from this list must be taken:
    - 3450:654 Methods of Applied Mathematics II 3
    - 3450:636 Optimization 3
    - 3450:730 Advanced Numerical Solution of Partial Differential Equations 3
  - Electives: 6 - 13 credits

Thesis Option (minimum of 30 credits)
In addition to the placement review and core requirements, at least six credits of electives approved by the graduate advisor and 2-4 credits in 3450:699 Master’s Thesis must be completed.

Nonthesis Option (minimum of 33 credits)
In addition to the placement review and core requirements, at least 13 credits of electives approved by the graduate advisor must be completed. Additionally, the student must successfully complete a Comprehensive Examination in the courses 3450:621, 627, 633, one course from Group 1 and one course from Group 2.

Theoretical and Applied Mathematics
Master of Science – Mathematics
Goals: The program is designed to give students a solid foundation in graduate-level mathematics, provide hands-on experience in problem-solving and the uses of technology, and to allow returning mathematics teachers to upgrade their qualifications. Administration: Upon admission to the program, each student will undergo a review. Deficiencies in any mathematical area will add to the number of credits required for graduation. Core requirements already satisfied will be replaced by approved electives.

• Core requirements:
  - 3450:510 Advanced Linear Algebra 3
  - 3450:513 Theory of Numbers 3
  - 3450:512 Abstract Algebra II 3
  - 3450:522 Advanced Calculus II 3
  - 3450:621 Real Analysis 3
BS/MS Program in Mathematics

This is an accelerated five-year BS/MS program. After successfully completing this program, a student will receive a bachelor’s degree in either mathematics or applied mathematics at the same time as a master’s degree in mathematics. Under the supervision of a faculty advisor, a student in the program will finish the core course requirement and some electives for the bachelor’s degree in the first three years, and then complete the remaining electives of the bachelor’s degree and 30 credits of graduate work for the master’s degree in the last two years. Graduate work will include the following courses:

- 3450:510 Advanced Linear Algebra 3
- or 3450:513 Theory of Numbers 3
- 3450:512 Abstract Algebra II 3
- 3450:522 Advanced Calculus II 3
- 3450:621 Real Analysis 3
- or 3450:626 Analytic Function Theory 3
- 3450:626 Advanced Combinatorics and Graph Theory 3
- 3450:692 Seminar in Mathematics 2
- 3470:550 Probability 3
- or 3470:551 Theoretical Statistics 3
- or 3470:561 Applied Statistics I 4
- or 3470:651 Probability and Statistics 4
- 3450:699 Master’s Thesis (for thesis option) 2-4
- A minimum of 33 graduate credits plus a project paper for non-thesis option

Electives: 8-13 credits

A student must maintain a 3.0 or better grade point average to stay in the program. If a student is not able to do this, then he or she will have the option to complete the regular bachelor’s degree program instead of the five-year accelerated plan.

BS/MS Program in Applied Mathematics

This is an accelerated five-year BS/MS program. After successfully completing this program, a student will receive a bachelor’s degree in either mathematics or applied mathematics at the same time as a master’s degree in applied mathematics. Under the supervision of a faculty advisor, a student in the program will finish the core course requirement and some electives for the bachelor’s degree in the first three years, and then complete the remaining electives of the bachelor’s degree and 30 credits of graduate work for the master’s degree in the last two years. Graduate work will include the following courses:

- 3450:621 Real Analysis 3
- 3450:627 Advanced Numerical Analysis I 3
- 3450:632 Advanced Partial Differential Equations 3
- 3450:699 Master’s Thesis 4

*At least one course from the following:
- 3450:625 Analytic Function Theory 3
- 3450:628 Advanced Numerical Analysis II 3
- 3450:632 Advanced Partial Differential Equations 3

*At least one course from the following:
- 3450:634 Methods of Applied Mathematics II 3
- 3450:635 Optimization 3
- 3450:730 Advanced Numerical Solution of Partial Differential Equations 3

*Graduate electives 6

A student must maintain a 3.0 or better grade point average to stay in the program. If a student is not able to do this, then he or she will have the option to complete the regular bachelor’s degree program instead of the five-year accelerated plan.
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’s 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 admitting 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 admissibility to the doctoral program and any technical weaknesses.
- 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 (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 (as of 1999, a Biomedical Engineering undergraduate program was approved by the Ohio Board of Regents), 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 modeling.

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.

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

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 Theoretical and Applied Mathematics

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 applied mathematics division of the Department of Theoretical and Applied Mathematics. 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, presenting an acceptable Dissertation Proposal, writing a dissertation, and publicly and successfully (no “fail” votes) defending the dissertation before the Interdisciplinary Doctoral Committee.

Students in the Engineering Applied Mathematics Program must pass a departmental Qualifying Examination composed and administered by the participating faculty from the applied mathematics division of the Department of Theoretical and Applied Mathematics 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 have an equal number of faculty with primary appointments in the College of Engineering and participating program faculty from the applied mathematics division.
sion of the Department of Theoretical and Applied Mathematics. The participating faculty from the Department of Theoretical and Applied Mathematics 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 Theoretical and Applied Mathematics.

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 NEOUCOM 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 is tailored to suit the background and research interests of the student. Additional information may be obtained from The University of Akron Department of Biomedical Engineering or NEOUCOM.

Admission Requirements

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

<table>
<thead>
<tr>
<th>Degree</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.D.</td>
<td>Principles of Chemistry I and II</td>
</tr>
<tr>
<td>M.D.</td>
<td>Organic Chemistry I and II</td>
</tr>
</tbody>
</table>

Degree Requirements

To obtain an M.D. degree from NEOUCOM and a Doctor of Philosophy Degree in Engineering, the student must satisfy NEOUCOM’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 and 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 (paper-based) or 213 on the computer-based TOEFL, and also must submit their score on the Test of Written English (TWE).

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

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.

1. Identify a three-member Advisory Committee including a major advisor before completion of 9 credit hours of coursework.

2. Complete a formal Plan of Study that is acceptable to the Advisory Committee with a minimum of 24 credit hours of coursework of which no more than 6 credits are special topics courses. The formal Plan of Study may be revised upon approval of the Advisory Committee.

3. Successfully (no “fail” votes) defend the thesis before the Advisory Committee, or have the Engineering Report approved by the Advisory Committee, or successfully complete the appropriate department’s nonthesis option requirements.

Master of Science in Chemical Engineering

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4200:200</td>
<td>4</td>
</tr>
<tr>
<td>4200:210</td>
<td>4</td>
</tr>
<tr>
<td>4200:220</td>
<td>3</td>
</tr>
<tr>
<td>4200:230</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
</tr>
</tbody>
</table>

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>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4200:600</td>
<td>3</td>
</tr>
<tr>
<td>4200:605</td>
<td>3</td>
</tr>
<tr>
<td>4200:610</td>
<td>3</td>
</tr>
<tr>
<td>Chemical Eng Electives*</td>
<td>6</td>
</tr>
<tr>
<td>Approved Math</td>
<td>3</td>
</tr>
<tr>
<td>Master's Thesis</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
</tr>
</tbody>
</table>
**Nonthesis Option**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4200:600</td>
<td>Transport Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>4200:606</td>
<td>Chemical Reaction Engineering</td>
<td>3</td>
</tr>
<tr>
<td>4200:610</td>
<td>Classical Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>4200:691</td>
<td>Chemical Engineering Report</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Chemical Engineering Electives*</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Approved Electives**</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Approved Mathematics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>36</td>
</tr>
</tbody>
</table>

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

**Nonthesis Option**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4200:535</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4200:541</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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 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 select and complete undergraduate coursework from one of the 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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<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>4300:323</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>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>25</td>
</tr>
</tbody>
</table>

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

**Thesis Option**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Civil Engineering Courses</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Approved Mathematics or Science</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Approved Electives</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Master's Thesis</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>30</td>
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</tbody>
</table>

**Nonthesis Option**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Civil Engineering Courses</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Approved Mathematics or Science</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Approved Electives</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Engineering Report</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>32</td>
</tr>
</tbody>
</table>

**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 the 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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4400:360</td>
<td>Physical Electronics</td>
<td>3</td>
</tr>
<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>4400:384</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>4400:446</td>
<td>Analog Communications</td>
<td>3</td>
</tr>
<tr>
<td>4400:453</td>
<td>Antenna Theory</td>
<td>3</td>
</tr>
<tr>
<td>4400:472</td>
<td>Control Systems II</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>26</td>
</tr>
</tbody>
</table>

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

**Thesis Option**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Electrical Engineering Courses**</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Approved Mathematics</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Approved Electives</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Master's Thesis</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>30</td>
</tr>
</tbody>
</table>

**Nonthesis Option**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Electrical Engineering Courses**</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Approved Mathematics</td>
<td>6</td>
</tr>
</tbody>
</table>

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

*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, have one year of classical physics, and must select and complete undergraduate coursework from one of the 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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4600:300</td>
<td>Thermodynamics I</td>
<td>4</td>
</tr>
<tr>
<td>4600:301</td>
<td>Thermodynamics II</td>
<td>3</td>
</tr>
<tr>
<td>4600:310</td>
<td>Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>4600:315</td>
<td>Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>4600:336</td>
<td>Analysis of Mechanical Components</td>
<td>3</td>
</tr>
<tr>
<td>4600:340</td>
<td>Systems Dynamics and Response</td>
<td>3</td>
</tr>
<tr>
<td>4600:380</td>
<td>Mechanical Metallurgy</td>
<td>2</td>
</tr>
<tr>
<td>4600:444</td>
<td>Fundamentals of Mechanical Vibrations</td>
<td>3</td>
</tr>
<tr>
<td>4600:441</td>
<td>Control System Design</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>27</td>
</tr>
</tbody>
</table>

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

**Thesis Option**

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

**Nonthesis Option**

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

**Master of Science in Engineering**

This program is intended for the student whose educational objectives cannot be met by the four departmental master of science programs or those who wish to specialize in biomedical engineering, polymer engineering, or engineering management.

**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**

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

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

**Nonthesis Option**

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

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

**Biomedical Engineering Specialization**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4800:601</td>
<td>Biomedical Instrumentation</td>
<td>4</td>
</tr>
<tr>
<td>4800:611</td>
<td>Biomechanics</td>
<td>5</td>
</tr>
<tr>
<td>3100:695</td>
<td>Physiology for Engineers and Lab</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>33</td>
</tr>
</tbody>
</table>
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.

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

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

**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.

<table>
<thead>
<tr>
<th>Required Courses (3 credit hours each)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Courses 1</td>
</tr>
<tr>
<td>Management Courses</td>
</tr>
<tr>
<td>Engineering Management Report</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

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

1. Engineering courses can be taken from any engineering department with approval of engineering advisor.
2. The Engineering Management Report must be approved by the advisor and Advisory Committee. One member of the committee shall be from the College of Business Administration.
3. 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 Programs, College of Business Administration.
4. 6200:601 is a prerequisite for 6400:602.

Pamela A. Nelson, Ed.D., Dean
Robert K. Eley, Ed.D., Assistant Dean for Student Affairs
Sajit Zachariah, Ed.D., Interim Assistant Dean for Administration and Strategic Initiatives

**Mission Statement**

The University of Akron’s College of Education is a community of professionals whose purpose and mission is to provide leadership for community well-being through standard-setting programs that enhance teaching, learning, and human development; research and inquiry; and outreach. We develop ourselves and others through continuous improvement and through a commitment to these core components of professional practice and scholarship: knowledge, technology, diversity, and ethics.

The aim of the College of Education is to meet the comprehensive charge of our mission through initial and advanced teacher education programs as well as programs in administration, counseling, technical education, higher education, sport and exercise science, athletic training for sports medicine, community health, and several teacher education programs housed outside the College. Programs include a balanced offering of a foundation in general education, intensive study in the content area, and those professional courses and other learning experiences which attempt to combine theory and practice.

The education program and courses presented in the bulletin reflect the most current courses and program offerings. For further information about specific programs and requirements, contact the College of Education Office of Student Affairs and Admissions, (330) 972-6970.

**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.

**Doctoral Residency Requirements**

The minimum residency 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 is specified by assistantship agreements. The summer session may count as one semester, provided that the candidate is enrolled for a maximum of 10 consecutive weeks of full-time study and for a minimum of six semester hours per five-week session.

**Selecting a Dissertation Chair**

The candidate’s dissertation chair must be from the Department of Curricular and Instructional Studies and have Category II graduate faculty status. If the candidate desires a co-chair for the dissertation, the co-chair may be from a University of Akron department or college other than Curricular and Instructional Studies and must also...
have Category II graduate faculty status.

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.

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 his/her 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
2. Written and Oral Comprehensive

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 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 file 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.

Curricular and Instructional Studies Ph.D. Course Requirements

Social-Philosophical Foundations (15)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:600</td>
<td>Philosophies of Education (or 602 or 604)</td>
<td>3</td>
</tr>
<tr>
<td>5100:620</td>
<td>Psychology of Instruction for Teaching and Learning (or 624 or 5400:500)</td>
<td>3</td>
</tr>
<tr>
<td>5100:701</td>
<td>History of Education in American Society (or 703)</td>
<td>3</td>
</tr>
<tr>
<td>5100:705</td>
<td>Seminar in Social/Philosophical Foundations of Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:723</td>
<td>Teaching Behavior and Instruction (or 721 or 715)</td>
<td>3</td>
</tr>
</tbody>
</table>

Research Foundations (18)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:640</td>
<td>Techniques of Research</td>
<td>3</td>
</tr>
<tr>
<td>5100:740</td>
<td>Research Design</td>
<td>3</td>
</tr>
<tr>
<td>5100:741</td>
<td>Data Collection Methods</td>
<td>3</td>
</tr>
<tr>
<td>5100:742</td>
<td>Statistics in Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:744</td>
<td>Qualitative Methods I</td>
<td>3</td>
</tr>
<tr>
<td>5100:745</td>
<td>Qualitative Methods II</td>
<td>3</td>
</tr>
<tr>
<td>5100:801</td>
<td>Seminar I: Explanatory/Qualitative</td>
<td>3</td>
</tr>
<tr>
<td>5100:801</td>
<td>Seminar: Empirical or Seminar II: Ethnographic/Historical or Case Study Research or Legal Research and Writing or another advisor-approved course</td>
<td>3</td>
</tr>
</tbody>
</table>

Curricular and Instructional Studies Core (15)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5500:600</td>
<td>Professional Doctoral Seminar in Curricular and Instructional Studies</td>
<td>3</td>
</tr>
<tr>
<td>5500:880</td>
<td>Seminar in Curricular and Instructional Studies</td>
<td>3</td>
</tr>
<tr>
<td>5500:600</td>
<td>Concepts of Curriculum &amp; Instruction (or 5400:xxx)</td>
<td>3</td>
</tr>
<tr>
<td>5500:600</td>
<td>Seminar in Trends and Issues in Curriculum &amp; Instruction (or 5400:xxx)</td>
<td>3</td>
</tr>
</tbody>
</table>

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

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 student a choice of entry points. Students with a master’s degree in counseling, guidance and counseling psychology, school psychology, or a related field may enter through the Counseling Psychology Department of the College of Education. Students with a baccalaureate degree may enter through the Psychology Department of the Buchtel College of Arts and Sciences. Students receive exposure to both colleges through shared coursework and faculty involvement with dissertations. Students of both departments are expected to attain a level of broad scientific competence in the core areas of psychology; the biological, social, cognitive-affective, and individual bases of human behavior. Practicum and internship experiences are required of all students and range from skill building in basic psychological assessment and counseling to a year-long, full-time internship in an applied setting. The Collaborative Program in Counseling Psychology is accredited by the American Psychological Association.

Admission to the Collaborative Program in Counseling Psychology is handled through the department associated with the student’s chosen entry point. Students must fulfill both departmental and Graduate School admission requirements.

Admission Requirements—College of Education Ph.D.

- A Graduate School application and an official transcript of all undergraduate and graduate coursework from each college or university attended must be completed and returned to the Graduate School
- A minimum combined score on the Graduate Record Examination (GRE) General Test (verbal and quantitative sections) of 1100 is recommended. All students must also complete the GRE Psychology Subject Test and have these results reported to the Department of Psychology, Buchtel College of Arts and Sciences.
- A grade point average of 2.75 or above earned on all completed undergraduate work or a 3.0 or above on the most recent 64 semester hours of undergraduate work is required. A grade point average of 3.25 or above on all graduate work is required.
- Applicants are required to submit a vita outlining educational and professional experiences.
- Applicants are required to submit a declaration of intent outlining their occupational goals and their interest in and commitment to the counseling psychology program.
- Applicants must submit a minimum of three letters of reference attesting to success in the field and probable academic success.
- Finalists are required to interview with program faculty, either in person or via telephone.

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 only if they have earned a master’s degree in counseling, guidance and counseling psychology, school psychology, or a related field.

Required Courses

5100:648 Individual and Family Life-Span Development 3
5100:742 Statistics in Education 3
5100:341 Advanced Educational Statistics 3
5600:651 Techniques of Counseling 3
5600:675/676 Practicum in Counseling (1) 8
3750:610 Core I: Social Psychology 2
3750:620 Core II: Cognitive Psychology 2
3750:630 Core III: Individual Differences 2
3750:640 Core IV: Biopsychology 2
3750:650 Core V: Social-Cognitive Psychology 2
3750:750 Advanced Psychological Test and Measures 2

5600:702 Advanced Counseling Practicum I 4
5600:702 Advanced Counseling Practicum II 4
5600:707 Supervision in Counseling Psychology 4
5600:709 Introduction to Counseling Psychology 2
5600:710 Theories of Counseling and Psychotherapy 4
5600:711 Vocational Behavior 4
5600:712 Principles and Practice of Intelligence Testing 4
5600:713 Professional, Ethical and Legal Issues in Counseling Psychology 4
5600:714 Objective Personality Evaluation 4
5600:715 Research Design in Counseling 3
5600:717 Issues of Diversity in Counseling Psychology 4
5600:718 History and Systems in Psychology 2
5600:796 Counseling Psychology Practicum I 4
5600:796 Counseling Psychology Practicum II 4
3750/5600--- Electives 8
5600:899 Doctoral Dissertation (minimum) 15

Language Requirement
Minimum Total Credit Hours Required 114

Students register for dual listed courses (3750/5600) under their home department code.

The comprehensive written examination is prepared, administered, and graded by program faculty. At least one core Counseling Psychology faculty member from each department is required to participate in the oral portion of the comprehensive examination.

At least one core Counseling Psychology faculty member from each department is required to participate on the student’s dissertation committee.

Internship sites must be approved by the Collaborative Program Internship Committee. Internships must include 2,000 post-master’s hours and be completed in less than two years.

Ph.D. in Counselor Education and Supervision

The doctoral program in Counselor Education and Supervision is designed for students who hold a master’s degree in counseling or a related field. The program has two tracks: (a) Counselor Education and Supervision, and (b) Marriage and Family Therapy. Students in each track are expected to attain advanced level competencies in the core areas of their track, research, and supervision. Practical and internship experiences are required. In addition, the cognate/elective option allows students some flexibility in designing a program that is consistent with career goals. Each track requires completion of a residency year (the last year of course work); passing of the doctoral written and oral comprehensive examinations; and completion of a dissertation. With the proper selection of courses, graduates of the program can meet the requirements for licensure in Ohio as a Professional Clinical Counselor, Clinical member of AAMFT, or supervisor in training for AAMFT.

The Graduate Record Examination (General Test) is used as the qualifying examination.

The Ph.D. Program in Counselor Education and Supervision is accredited by the Council for Accreditation of Counseling and Related Education Programs (CACREP), a specialized accrediting body recognized by the Council on Postsecondary Education (CPSE). In addition, Marriage and Family Counseling/Therapy is accredited by the Commission of Marriage and Family Therapy Education (COAMFTE) of the American Association of Marriage and Family Therapy (AAMFT).

Ph.D. in Counselor Education and Supervision Requirements:

Course Requirements

5100:705 Social-Philosophical Foundations 3
5100:635 Emerging Technologies for Instruction 3
5100:341 Advanced Educational Statistics 3
5600:715 Research Design in Counseling I 3
5600:716 Research Design in Counseling II 3

(The following may not be taken until all entry-level requirements are completed)

5600:702 Advanced Counseling Practicum 12
(3 semesters; 4 credits each semester)
5600:707 Supervision in Counseling Psychology I 4
5600:708 Supervision in Counseling Psychology II 4
5600:710 Theories of Counseling and Psychotherapy or
5600:669 System Theory in Family Therapy 3
5600:725 Professional and Legal Issues in Counselor Education 3
5600:720 Topical Seminar: Use of Assessment Data 4
XXXX Cognates 6-10

(3 semesters; 4 credits each semester)
5600:785 Internship Counselor Education (minimum of 2 semesters/600 clock hours) or
5600:785 Internship Marriage and Family (must graduate with 1000 program clinical hours, see program guidelines for details)
5600:899 Doctoral Dissertation (minimum) 15

Minimum Total Credit Hours Required 114

Graduate Studies
In addition students enrolled in the Marriage and Family Doctoral Track must complete the following requirements:

- **5600:720** Technical Seminar: Topics of Marriage and Family Therapy 3
- **5600:661** Medical Therapy 3
- **Minimum Total Credit Hours Required** 120

**Master’s Degree Coursework:** Students must have completed entry-level course work in all the following areas before beginning doctoral program coursework:

- **Counseling Theory (Individual or Marriage and Family)**
- **Assessment**
- **Career Counseling**
- **Techniques of Counseling**
- **Group Counseling**
- **Techniques of Research**
- **Multicultural Counseling**
- **Individual and Family Development**
- **DSM-IV**

Foundation Course in Community, School, or Marriage and Family Counseling Counseling Practicum (Community, School, or Marriage and Family Counseling) Counseling Internship (at the minimum total 600 hours/240 client contact hours) Counselor Education Program only - Counseling Children Marriage and Family Program only - Students must have completed standard curriculum approved by AAMFT A minimum of 60 semester hours of the total 120 hours must be taken after the student is admitted to the doctoral program in Counselor Education and Supervision. For further program details and specific admission requirements, contact the Department of Counseling.

**DOCTORATE IN EDUCATIONAL ADMINISTRATION**

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. The department’s 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 sequenced, cohort model. The program is designed around four categories of standards found in the National Council for the Accreditation of Teacher Education (NCATE) Curriculum 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 Education and the American Board of Supervision. For further program details and specific admission requirements, contact the Department of Counseling.

**COUNSELING**

- **Outreach Master’s in Education Programs**
  - The University of Akron’s College of Education believes that improvement in teacher education and continuing professional development is the direct result of collaboration at many different levels and sites with local school personnel. This collaboration involves through a wide variety of cooperative activities, including master’s in education cohort programs currently offered at Akron Public Schools, Medina County Schools, Summit County Educational Service Center, and other district locations.
  - 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, and instructional technology. For more information, please send email to <outreach@uakron.edu>.

**Programs**

**Counseling**

- **Selected program offerings in the Department of Counseling are available to a person with or without a teaching certificate. Interdisciplinary programs offered lead to licensure by the Ohio State Department of Education and/or a master’s degree. 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 licensure.**

- **The Graduate Record Examination (General Test) will be used as the qualifying examination in all Counseling 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, Marriage, and Family, and School Counseling programs. In addition, the Marriage and Family Counseling/Therapy program is accredited by the Commission on Accreditation for Marriage and Family Therapy Education of the American Association of Marriage and Family Therapy.**
**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 numerous areas of concentration are available to students. This is not a licensure 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
  - Humanistic Foundations
    - 5100:600 Philosophies of Education 3
  - Research
    - 5100:640 Techniques of Research 3

  **Minimum Foundation Hours Required** 9

- **Required Departmental Courses**
  - 5600:631 Elementary/Secondary School Counseling 3
  - 5600:620 Tests and Appraisal in Counseling 4
  - 5600:610 Counseling Skills for Teachers 3
  - 5600:663 Developmental Guidance and Emotional Education 3
  - 5600:695 Field Experience (MUST be taken before or concurrently with 663) 3
  - 5610:540 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 Well-Being
  - Special Education
  - Computers in Education
  - Family Ecology
  - Communicative Disorders
  - Outdoor Education

  **Total Area of Concentration Hours Required** 6

  **Minimum Semester Hours Required for Graduation** 36

**Community Counseling**

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

  **Minimum Foundation Hours Required** 9

- **Required Counseling Department Courses**
  - Professional Orientation
    - 5600:630 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
  - 5600:651 Techniques of Counseling* 3
  - 5600:653 Group Counseling (prerequisites 5600:651 and 5600:643) 4
  - 5600:675 Practicum in Counseling**‡ (prerequisite 5600:653) 5

  **Subtotal** 12

- Internship
  - 5600:688 Internship in Counseling† (prerequisite 5600:675) 6

  **Subtotal** 6

  **Minimum Department Hours Required** 35

- **Specialized Studies**
  - 5600:620 Issues in Sexuality for Counselors 3

- **Clinical Counseling Component**
  - 5600:662 Personality and Abnormal Behavior 3
  - 5600:714 Objective Personality Evaluation 4
  - 5600:684 DSM-IV 3
  - 5600:666 Treatment in Clinical Counseling 3
  - Also, choose one of the following three courses:
    - 5600:655 Marriage and Family Therapy: Theory and Techniques 3
    - 5600:732 Addiction Counseling I: Theory and Assessment 3
    - 5600:734 Addiction Counseling II: Treatment Planning and Intervention Strategies 3

  **Minimum Semester Hours Required for Program** 60

* Counseling Theory and Philosophy and Techniques of Counseling may be taken concurrently.
**Must sign up with secretary one year in advance.
‡Must sign up with Internship Coordinator no later than second week of term preceding internship.
†Practicum and Internship require closed class permission. You must request one from the Department prior to registering.

**School Counseling**

This course of study leads to eventual licensure as a school counselor in the State of Ohio. Any changes in the agreed upon program must be approved by the student’s advisor.

**Admission Requirements:**

For those with a teaching license and two years teaching experience:

- GRE
- 2.75 undergraduate grade point average
- Statement of good moral character
- Three letters of reference
- Departmental supplemental application

For those without a teaching license:

- GRE
- 2.75 undergraduate grade point average
- BCI check
- Speech and hearing test
- Computer literacy test
- Three letters of reference
- Departmental supplemental application

There are ten credit hours of co-requisite coursework for students without a teaching license and two years teaching experience:

- 5600:683 Seminar in School Counseling 3
- 5600:695 Field Experience: Master’s 1
- 5600:643 Counseling Theory & Philosophy* 3
- 5600:647 Career Development and Counseling Across the Lifespan 3
- 5600:653 Group Counseling (prerequisites 5600:651 and 5600:643) 4
- 5600:675 Practicum in Counseling**‡ (prerequisite 5600:653) 5

**Minimum Foundation Hours Required** 9

- Counseling Theory
  - 5600:643 Counseling Theory & Philosophy* 3

- Career Development and Counseling Across the Lifespan 3

**Subtotal** 6


### Marriage and Family Counseling/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.

1. **Foundations** (select one course from each area)
   - **Behavioral Foundations**
     - 560:648 Individual and Family Development
     - Minimum Department Hours Required: 3
   - **Humanistic Foundations**
     - 560:646 Multicultural Counseling
     - Minimum Department Hours Required: 3
   - **Research**
     - 5100:640 Techniques of Research
     - Minimum Department Hours Required: 3
   - **Statistics in Education**
     - 5100:741 Statistics in Education
     - Minimum Department Hours Required: 3

2. **Required Counseling Department Courses (all required)**
   - **Professional Orientation**
     - 560:600 Seminar in Counseling***
     - Subtotal: 1
   - **Marriage and Family Therapy: Theories and Techniques**
     - 560:665 Marriage and Family Therapy: Theories and Techniques
     - Subtotal: 3
   - **Counseling Theory**
     - 560:667 Marital Theory (prerequisite 560:655)
     - Subtotal: 3
     - 560:669 Systems Theory in Family Therapy (prerequisite 560:655)
     - Subtotal: 3
     - 560:643 Counseling Theory and Philosophy
     - Subtotal: 3
     - 560:647 Career Development and Counseling Across the Life Span
     - Subtotal: 3
   - **Appraisal**
     - 560:645 Tests and Appraisal in Counseling
     - Subtotal: 4
   - **Counseling Process**
     - 560:651 Techniques of Counseling
     - Subtotal: 3
     - 560:653 Group Counseling (prerequisites 560:651 and 560:643)
     - Subtotal: 4
     - 560:675 Practicum in Counseling (prerequisite 560:653)*
     - Subtotal: 5
   - **Internship**
     - 560:685 Internship in Counseling (2 terms, prerequisite 560:675)**
     - Subtotal: 6
   - **Specialized Studies**
     - **Family Studies**
       - 560:720 Topical Seminar: Guidance & Counseling/DSM IV
       - 560:720 Topical Seminar: Guidance & Counseling/Personality & Abnormal Behavior
       - 560:755 Assessment and Treatment Issues in Marital and Family Therapy
       - 420:602 Family in Life-Span Perspective
       - 470:605 Developmental Parent-Child Interactions
     - **Human Development and Individual Differences (choose one)**
       - 3750:520 Abnormal Psychology
       - 3750:530 Psychological Disorders of Children
     - **Human Sexuality**
       - 420:542 Human Sexuality
     - **Specialized Studies Required**
       - Minimum Hours for Marriage and Family Therapy
       - Minimum Hours for Marriage and Family Therapy
       - 62-63

3. **Specialized Studies (both required)**
   - 560:685 Internship in Counseling (2 terms, prerequisite 560:675)
   - Subtotal: 6
Curricular and Instructional Studies

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.

- **Foundation studies – 9 credits**
  - 5100:600 Philosophies of Education 3
  - 5100:602 Comparative and International Education 3
  - 5100:604 Seminar in Cultural Foundations of Education 3
  - 5100:620 Psychology of Instruction for Teaching and Learning 3
  - 5100:624 Seminar in Educational Psychology 3
  - 5100:640 Techniques of Research 3

- **Curricular and Instructional – 6 credits**
  - 5500:600 Concepts of Curriculum and Instruction 3
  - Seminar in Trends and Issues in Curriculum and Instruction 3
  - Basic curriculum and instruction course in one’s concentration area in curriculum and instruction 3
  - Seminar in Trends and Issues in Curriculum and Instruction 3
  - Seminar in Educational Psychology 3
  - Techniques of Research 3

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

- **A comprehensive exam is required**
- **Minimum credit hours required: 36**

*Special cohort master’s programs may be created to reflect the immediate needs of a cohort group. Such programs will encompass a 30-36 hour requirement.

Elementary Education with Literacy Option (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 – 9 credits**
  - 5100:600 Philosophies of Education 3
  - Comparative and International Education 3
  - Topical Seminar in the Cultural Foundations of Education 3
  - Psychology of Instruction for Teaching and Learning 3
  - Seminar in Educational Psychology 3
  - Techniques of Research 3

- **Curricular and Instructional Studies – 6 credits**
  - 5500:600 Concepts of Curriculum and Instruction 3
  - Basic curriculum and instruction course in one’s concentration area in curriculum and instruction 3
  - Seminar in Trends and Issues in Curriculum and Instruction 3
  - Seminar in Educational Psychology 3
  - Techniques of Research 3

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

- **A comprehensive exam is required**
- **Minimum credit hours required: 36**

*Special cohort master’s programs may be created to reflect the immediate needs of a cohort group. Such programs will encompass a 30-36 hour requirement.

Elementary Education with Licensure (M.S.)

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
  - 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 (Section 001) 1

- **Curricular and Instructional Studies – 11 credits:**
  - 5500:617 Elementary and Secondary Licensure Seminar 3
  - 5500:630 Field Experience (Section 011) 1
  - 5500:575 Instructional Technology Applications 3
  - 5500:618 Advanced Instructional Techniques 3
  - 5500:695 Field Experience (Section 021) 1

- **Field Experience (Student Teaching) – 11 credits:**
  - 5500:695 Field Experience: Master’s (Section 005) 5
  - 5500:695 Field Experience: Master’s (Section 006) 5
  - 5500:695 Field Experience: Master’s (Section 031) 1

Total Program: 32 credits

- A minimum of 29 additional undergraduate credits will be required for licensure. A comprehensive exam is required. See Department of Curricular and Instructional Studies for complete list of requirements.

Secondary Education (M.A.)

This program leading to a Master 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.

- **Foundation Studies – 9 credits:**
  - 5100:600 Philosophies of Education 3
  - Comparative and International Education 3
  - Topical Seminar in the Cultural Foundations of Education 3
  - Psychology of Instruction for Teaching and Learning 3
  - Seminar in Educational Psychology 3
  - Techniques of Research 3

- **Curricular and Instructional Studies – 6 credits**
  - 5500:600 Concepts of Curriculum and Instruction 3
  - Basic curriculum and instruction course in one’s concentration area in curriculum and instruction 3
  - Seminar in Trends and Issues in Curriculum and Instruction 3
  - Seminar in Educational Psychology 3
  - Techniques of Research 3

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

- **A comprehensive exam is required**
- **Minimum credit hours required: 36**

*Special cohort master’s programs may be created to reflect the immediate needs of a cohort group. Such programs will encompass a 30-36 hour requirement.

Secondary Education with Licensure (M.S.)

This program, which leads to the Master’s of Science degree as well as licensure in a chosen teaching field, is open to highly qualified students who hold the B.A. or the B.S. degree. It is designed to prepare highly qualified high school teachers (grades 7-12) and multi-age teachers (pre-K through grade 12). The University of Akron offers adolescence/young adult licensure (grades 7-12) in the following teaching fields: Integrated Social Studies, Integrated Language Arts, Life Science and Chemistry, Chemistry and Physics, Earth Science and Chemistry, and Integrated Mathematics. Specializations for P-12 licensure include Foreign Languages, Visual Arts, Family and Consumer Science/Home Economics, Drama/Theatre, and Music, and Intervention Specialist (Early Childhood, Mild/Moderate and Moderate Intensive). All requirements for licensure must be met including the 600 hours of field and clinical/diagnostic experience.

*Reading Endorsement requires 18 credit hours in reading and passage of Praxis II: Introduction to the Teaching of Reading (11020).
For more complete information about the teacher education program, please consult the Undergraduate Bulletin or the Office of Student Affairs at (330) 972-6970.

Admission Requirements

Students must have a 2.75 grade-point average overall to be fully admitted. Prospective admission may be granted to those students who have a 2.5-2.74 grade-point average. All students must meet the following College of Education requirements:

- Completed application
- GPA of 2.5 or better in prerequisite courses in chosen teaching field
- Evidence of competency in reading comprehension, writing, and mathematics
- Speech and hearing test
- Evidence of basic computer literacy
- Two personal recommendations
- BCI (Bureau of Criminal Investigation) clearance

See the Office of Student Affairs, Zook Hall 228, call (330) 972-6970, or visit http://www.uakron.edu/colleges/educ/COE/admission.php for more information.

Teacher Education Program

The central theme of The University of Akron's Teacher Education Program is "Educator as Decision Maker." This was chosen because the complexity of teaching is increasing and the professional knowledge base is growing. Consequently, the most important skill a future teacher can have is good decision making; knowing "when to do what." Decision-making is stressed in the standards-based programs that prepare teachers and other school personnel for professional practice. At the initial preparation level, programs are aligned with the Praxis Pathwise domains, Specialized Program Associations (SPA Standards), and principles developed by the Interstate New Teacher Assessment and Support Consortium (INTASC).

Program

- **Foundation Courses (10 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 2
  - 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 (a) 3
  - 5500:615 Advanced Instructional Techniques 3
  - 5500:619 Instructional and Management Practices (b) 3
  - 5500:629 Reading Programs in Secondary Schools 3
  - 5500:780 Seminar/Instr 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:xxxi Elective in curriculum or teaching practices approved by advisor 2

- **Area of Concentration (9):**
  - Select 9 credits at 500-level or above:
    - **Field Experience (Student Teaching) (7 credits):**
      - 5500:694 Field Experience: Classroom Instruction (c) 6
      - 5500:692 Field Experience: Colloquium 1
    - **A comprehensive examination is required.**

Total Program: 45

- (a) Prerequisite: Admission to the Master’s with Licensure program and teacher education program
- (b) Prerequisite: Admission to the Master’s with Licensure program and teacher education program and 5500:617
- (c) Prerequisite: Approval of Student Teaching Committee, considered based upon approved application to student teaching, passing PRAXIS II subject test, and approved portfolio

Teaching Field Requirements

Candidates in the Master's with Licensure program must also meet teaching field requirements as established by departmental faculty and approved by the appropriate learned societies. For additional information about specific program requirements, please consult the Office of Student Affairs at (330) 972-6970.

Student Portfolio

Students admitted to their College of Education program and beginning their professional education coursework Fall 2002 and thereafter will complete a student portfolio. Specific portfolio requirements are often completed as part of a course, clinical experience, or field experience, and must be judged acceptable by the instructor before credit is awarded for the experience connected to that particular portfolio entry. The portfolio must also be submitted for acceptance before student teaching and again prior to program completion.

Clinical and Field-Based Experiences

All teacher education students, including those in the master's with licensure programs, are required to participate satisfactorily in clinical and field-based experiences for a minimum of 600 hours prior to recommendation for licensure for teaching in Ohio. These clinical and field-based experiences are designed to provide teacher education students with opportunities to apply theory and skills related to their areas of licensure in at least one-half of the clinical and field-based clock hours. Field-based experiences are planned in culturally, racially, and socio-economically diverse settings. Clinical experiences are those planned activities in which teacher education students apply the principles of the field of teaching to individual cases or problems.

Student teaching is an all-day, full-time experience in an approved public or private school for either 11 (adolescent to young adults) or 16 (multi-age license) weeks. Placements are made in appropriate sites at the discretion of the Extended Educational Experiences Office in consultation with program faculty. All students must have approval of the Student Teaching Committee to be placed for student teaching. Committee approval requires that the student submit an approved application for student teaching and also evidence of a passing score or scores on the appropriate Praxis II subject area test or tests, and evidence approval of his/her portfolio.

Licensure

After graduation, students may apply for licensure through the Office of Student Affairs. The State of Ohio requires all applicants for licensure to submit a current BCI (Bureau of Criminal Investigation) clearance and to pass appropriate examination(s) for intended area(s) of licensure. Information about specific licenses can be obtained from the Office of Student Affairs, College of Education, Zook Hall 228, (330) 972-6970.

Special Education

The 30-33 hour graduate program in special education is designed for those individuals who currently hold an undergraduate degree in special education. Students seeking to earn initial licensure at the master’s level should pursue the Secondary Education with Licensure (M.S.) - Intervention Specialist. It is designed to provide an in-depth knowledge base and advanced skills needed to work effectively in inclusive schools and/or other educational settings.

- **Admission Requirements:**
  - Completed application and 20 prerequisite hours include the following courses:
    - 5610:540 Individuals With Exceptionalities: Educational and Societal Issues 3
    - 5610:547 Individuals With Mild/Moderate Educational Needs: Characteristics and Implications 3
    - 5610:640 Developmental Characteristics of Individuals with Moderate/Intensive Educational Needs 3
    - 5610:550 Special Education Programming: Early Childhood 3
    - 5610:552 Special Education Programming: Secondary/Vocational 3
    - 5610:563 Assessment in Special Education 3

Students lacking the above prerequisite coursework should apply for Special Non-Degree admission (SN-D). Upon successful completion of the prescribed prerequisite coursework, students may apply 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 moderate/intense educational needs. Upon request from the student, his/her advisor can assist in program planning for licensure.

- **Foundation 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 (21 credits):**
  - 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
  - 5610:606 Research Applications in Special Education 3
  - 5610:611 Seminar: Legal Issues in Special Education 3
Graduate Studies 49

5610:612 Seminar: Social/Ethical Issues in Special Education 3
Total Program 30-33

• Option: Student Master's Paper (select one)
5610:694 Research Project in Special Area 3
5610:696 Master's Problem 3
5610:699 Master's Thesis 4-6

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 help 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)
(Admissions to General Administration currently suspended)

• Foundation – 12 credits:
  5100:600 Philosophies of Education 3
  5100:604 Topical Seminar in the Cultural Foundations of Education 3
  5100:620 School Culture and Governance 3
  5100:624 Seminar: Educational Psychology 3
  5100:636 Topical Seminar in Educational Technology 3
  5100:640 Techniques of Research 3

• Educational Administration – 15:
  5170:601 Organizational Leadership 3
  5170:604 School-Community Relations 3
  5170:606 Evaluation in Educational Organizations 3
  5170:607 School Law 3
  5170:613 Student Services and Interagency Collaboration 3

• Curriculum and Supervision – 6:
  5170:609 Principles of Curriculum Development 3
  5170:610 Supervision of Instruction 3
Total: 33 credits

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

The Principalship

The Department of Educational Foundations and Leadership offers a 30 hour Master's Degree Program in the Principalship. With the help of an advisor and approval of the Graduate School, courses may be substituted and/or waived to create specialized options. Requirements of the Principalship Master's Degree Program in Educational Administration are listed below.

Master's Degree in Educational Administration

5100:600 Philosophies of Education 3
5100:604 Topical Seminar in the Cultural Foundations of Education 3
5100:620 School Culture and Governance 3
5100:624 Seminar: Educational Psychology 3
5100:640 Techniques of Research 3
5170:601 Organizational Leadership 3
5170:604 School-Community Relations 3
5170:606 Evaluation in Educational Organizations 3
5170:607 School Law 3
5170:613 Student Services and Interagency Collaboration 3
5170:616 Disability Law 3

Total: 30 credits

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

The Principalship Licensure Program is an option in educational administration designed to prepare a candidate for an Ohio license to practice as a school principal and is built on two components: the Principalship master's degree and those post-master's courses listed below.

Post-Master's Licensure Courses – 12 credits:
5170:602 Management of Physical Resources 3
5170:603 Management of Human Resources 3
5170:695/696 Principal Internship 3 credits each

To obtain a license to practice the work of a school principal through the College of Education, the candidate will have a total of 42 post-baccalaureate hours, a master's degree, completion of a supervised two semester internship in the area in which the candidate seeks the license, successful passage of the state licensing examination, and completion of a statement of good moral character.

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: Educational Research
(Admissions to Educational Research currently suspended)

• Foundation Studies – 18 credits:
  5100:600 Philosophies of Education 3
  5100:604 Topical Seminar in the Cultural Foundations of Education 3
  5100:620 School Culture and Governance 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 Organizational Leadership 3
  5170:604 School-Community Relations 3
  5170:606 Evaluation in Educational Organizations 3
  5170:607 School Law 3
  5170:608 School Finance and Economics 3
• Post-Master's Requirements – 16 credits:
  5170:704 Advanced Organizational Leadership 3
  5170:707 The Superintendent 3
  5170:708 Advanced Educational Statistics 3
  5170:795/796 Internship* 4
  5170:801 Research Seminar 3

*Students admitted to Educational Administration Internship Coursework following Spring of 2004 will be required to pass the state licensure exam prior to enrollment in 5170:795/796.

Administrative Specialist: Educational Staff Personnel Administration
(Admissions to Educational Staff Personnel Administration currently suspended)

• Foundation Studies – 12 credits:
  5100:600 Philosophies of Education 3
  5100:604 Topical Seminar in the Cultural Foundations of Education 3
  5100:620 School Culture and Governance 3
• Educational Administration – 21 credits:
  5170:601 Organizational Leadership 3
  5170:603 Management of Human Resources 3
  5170:604 School-Community Relations 3
  5170:606 Evaluation in Educational Organizations 3
  5170:607 School Law 3
  5170:608 School Finance and Economics 3
• Post-Master's Requirements – 14 credits:
  5170:704 Advanced Organizational Leadership 3
  5170:705 Decision Making in Educational Administration 3
  5170:707 The Superintendent 3
  5170:795/796 Internship* 4
  6500:654 Industrial Relations 3

*Students admitted to Educational Administration Internship Coursework following Spring of 2004 will be required to pass the state licensure exam prior to enrollment in 5170:795/796.

Administrative Specialist: Instructional Services
(Curriculum, Instruction, and Professional Development)
(Admissions to Instructional Services currently suspended)

• Foundation Studies – 12 credits.
  5100:600 Philosophies of Education 3
Post-Master's Requirements – 16 credits:

Foundation Studies – 12 credits:

- Educational Administration – 21 credits:

- Post-Master’s Requirements – 13 credits:

*Students admitted to Educational Administration Internship coursework following Spring of 2004 will be required to pass the state licensure exam prior to enrollment in 5170:795/796.

Administrative Specialist: Pupil Personnel Administration

(Admissions to Pupil Personnel Administration currently suspended)

- Required courses (27 credits):
  - 5100:604 Seminar in the Cultural Foundations of Education 3
  - 5100:620 School Culture and Governance 3
  - 5100:624 Seminar: Educational Psychology 3
  - 5100:636 Topic Seminar in Educational Technology 3
  - 5100:640 Techniques of Research 3

- Educational Administration – 21 credits:

- Post-Master’s Requirements – 16 credits:

*Students admitted to Educational Administration Internship coursework following Spring of 2004 will be required to pass the state licensure exam prior to enrollment in 5170:795/796.

Administrative Specialist: School and Community Relations

(Admissions to School and Community Relations currently suspended)

- Required courses (27 credits):
  - 5100:604 Seminar in the Cultural Foundations of Education 3
  - 5100:620 School Culture and Governance 3
  - 5100:624 Seminar: Educational Psychology 3
  - 5100:636 Topic Seminar in Educational Technology 3
  - 5100:640 Techniques of Research 3

- Educational Administration – 21 credits:

- Post-Master’s Requirements – 16 credits:

*Students admitted to Educational Administration Internship coursework following Spring of 2004 will be required to pass the state licensure exam prior to enrollment in 5170:795/796.

Superintendent Program

The Department of Educational Foundations and Leadership offers a Superintendent Licensure-only program. The license builds from the Principalship Master’s Degree and the Principalship Licensure programs. Requirements for the Superintendent License are listed below.

- Educational Administration – 21 credits:

- Post-Master’s Requirements – 13 credits:

*Students admitted to Educational Administration Internship coursework following Spring of 2004 will be required to pass the state licensure exam prior to enrollment in 5170:795/796.

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. 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.
- Required courses (27 credits):

*Students admitted to Educational Administration Internship coursework following Spring of 2004 will be required to pass the state licensure exam prior to enrollment in 5170:795/796.

Educational Foundations (M.A.)

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 instructional 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 15 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. Students choosing to do a master’s thesis or master’s problem require 30 semester credits to graduate. Students choosing to do only coursework require 36 semester credits to graduate.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>5100:600</td>
<td>Philosophies of Education</td>
<td>3</td>
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<tr>
<td>5100:604</td>
<td>Topical Seminar in the Cultural Foundations of Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:637</td>
<td>Philosophies of Educational Technology</td>
<td>3</td>
</tr>
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<td>5100:620</td>
<td>Psychology of Instruction for Teaching and Learning</td>
<td>3</td>
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<tr>
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</tr>
<tr>
<td>5100:640</td>
<td>Techniques of Research</td>
<td>3</td>
</tr>
<tr>
<td>5100:614</td>
<td>Planning for Technology</td>
<td>3</td>
</tr>
<tr>
<td>5100:630</td>
<td>Topical Seminar: Advanced Multimedia</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or required for up to 9 credits</td>
<td></td>
</tr>
<tr>
<td>5100:631</td>
<td>Instructional Design</td>
<td>3</td>
</tr>
<tr>
<td>5100:695</td>
<td>Field Experience: Master's</td>
<td>3</td>
</tr>
</tbody>
</table>

**Educational Psychology Option (30-36 hours)**

The cognitive theory and research underlie much of the reform movement in education and this allied professions. The graduate program in Educational Foundations emphasizing Educational Psychology emphasizes a strong understanding of cognition, motivation, teaching, learning, and individual differences and is designed to assist students to become more competent practitioners in a wide range of contexts in education and allied professions.

**Foundation Studies (9 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>5100:600</td>
<td>Philosophies of 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>5100:620</td>
<td>Psychology of Instruction for Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>5100:624</td>
<td>Seminar: Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>5100:640</td>
<td>Techniques of Research</td>
<td>3</td>
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</table>

**Electives (9-15 hours from the following)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>5100:512</td>
<td>Design and Production of Instructional Materials</td>
<td>3</td>
</tr>
<tr>
<td>5100:520</td>
<td>Introduction to Instructional Computing</td>
<td>3</td>
</tr>
<tr>
<td>5100:583</td>
<td>Workshop: Instructional Technology (may be repeated for up to 6 credits)</td>
<td></td>
</tr>
<tr>
<td>5100:632</td>
<td>Web-Based Learning Systems</td>
<td>3</td>
</tr>
<tr>
<td>5100:633</td>
<td>Hypermedia</td>
<td>3</td>
</tr>
<tr>
<td>5100:634</td>
<td>Visual Literacy</td>
<td>3</td>
</tr>
<tr>
<td>5100:635</td>
<td>Emerging Technologies</td>
<td>3</td>
</tr>
<tr>
<td>5100:638</td>
<td>Integrating and Implementing Technology</td>
<td>3</td>
</tr>
<tr>
<td>5100:639</td>
<td>Strategies for Online Teaching</td>
<td>3</td>
</tr>
<tr>
<td>5100:696</td>
<td>Master's Technology Project</td>
<td>3</td>
</tr>
<tr>
<td>5100:697</td>
<td>Independent Study: Master's</td>
<td>3</td>
</tr>
<tr>
<td>5100:688</td>
<td>Master's Problem</td>
<td>3</td>
</tr>
<tr>
<td>5100:699</td>
<td>Master's Thesis</td>
<td>4-6</td>
</tr>
<tr>
<td>5100:742</td>
<td>Statistics in Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:709</td>
<td>Principles of Curriculum Development</td>
<td>3</td>
</tr>
</tbody>
</table>

**Instructional Technology Option (30-36 hours)**

The graduate program in Educational 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 in K-16 educational institutions, training specialists and instructional designers in business, education, and government, as well as multimedia developers and specialists.

**Foundations Studies (9 hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
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<td>Philosophies of Education</td>
<td>3</td>
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<td>5100:604</td>
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<td>3</td>
</tr>
<tr>
<td>5100:637</td>
<td>Philosophies of Educational Technology</td>
<td>3</td>
</tr>
<tr>
<td>5100:620</td>
<td>Psychology of Instruction for Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>5100:624</td>
<td>Seminar: Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>5100:640</td>
<td>Techniques of Research</td>
<td>3</td>
</tr>
</tbody>
</table>

**Required Courses (12 hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>5100:614</td>
<td>Planning for Technology</td>
<td>3</td>
</tr>
<tr>
<td>5100:630</td>
<td>Topical Seminar: Advanced Multimedia</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or required for up to 9 credits</td>
<td></td>
</tr>
<tr>
<td>5100:631</td>
<td>Instructional Design</td>
<td>3</td>
</tr>
<tr>
<td>5100:695</td>
<td>Field Experience: Master's</td>
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**Electives (15-21 hours)**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>5100:637</td>
<td>Philosophies of Educational Technology</td>
<td>3</td>
</tr>
<tr>
<td>5100:701</td>
<td>History of Education in American Society</td>
<td>3</td>
</tr>
<tr>
<td>5100:703</td>
<td>Seminar: History and Philosophy of Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:705</td>
<td>Social-Philosophical Foundations of Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:697</td>
<td>Independent Study: Master's</td>
<td>3</td>
</tr>
<tr>
<td>5100:698</td>
<td>Master's Problem</td>
<td>3</td>
</tr>
<tr>
<td>5100:699</td>
<td>Master's Thesis</td>
<td>46</td>
</tr>
</tbody>
</table>

**Research Methodology and Evaluation Option (30 hours)**

The graduate program in Educational Foundations emphasizing Research Methodology and Evaluation prepares students for careers in research methodology and evaluation. Employment is typically available in government, military, industry, and education. These career positions may involve teaching, conducting evaluative research and consulting in a variety of fields.

**Foundation Studies (9 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>5100:600</td>
<td>Philosophies of 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>5100:620</td>
<td>Psychology of Instruction for Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>5100:624</td>
<td>Seminar: Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>5100:640</td>
<td>Techniques of Research</td>
<td>3</td>
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</table>

**Electives (15 hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>5100:642</td>
<td>Topical Seminar in Measurement and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>5100:699</td>
<td>Master's Thesis</td>
<td>46</td>
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<tr>
<td>5100:740</td>
<td>Research Design</td>
<td>3</td>
</tr>
<tr>
<td>5100:741</td>
<td>Data Collection Methods</td>
<td>3</td>
</tr>
<tr>
<td>5100:742</td>
<td>Statistics in Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:743</td>
<td>Advanced Educational Statistics</td>
<td>3</td>
</tr>
<tr>
<td>5100:798</td>
<td>Research Projects in Special Areas: Advanced Psychometric Techniques and Measurement</td>
<td>3</td>
</tr>
<tr>
<td>5100:801*</td>
<td>Research Seminar: Multiple Regression, Model Building Data Analysis Procedures</td>
<td>3</td>
</tr>
<tr>
<td>5100:801*</td>
<td>Research Seminar: Path Analysis, Multivariate Statistical Techniques</td>
<td>3</td>
</tr>
<tr>
<td>5100:801*</td>
<td>Research Seminar: Qualitative</td>
<td>3</td>
</tr>
<tr>
<td>5100:801*</td>
<td>Research Seminar: SAS or SPSS</td>
<td>3</td>
</tr>
<tr>
<td>5100:697</td>
<td>Independent Study: Case Studies</td>
<td>3</td>
</tr>
<tr>
<td>5100:699</td>
<td>Independent Study: Master's</td>
<td>3</td>
</tr>
</tbody>
</table>

* Note: Doctoral Research Seminar may be repeated for up to 9 semester hours.

**Outside Department Requirements (6 hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5500:696</td>
<td>Master's Project</td>
<td>6</td>
</tr>
<tr>
<td>5500:699</td>
<td>Master's Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

**36 total hours are required.**

**A comprehensive exam is required.**

**Postsecondary Technical Education**

The major objective of the postsecondary 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.

**Admission Requirements**

- Full Admission: 2.75 grade point average on a completed Bachelor's degree (or 3.0 for last 60 credit hours)
- 2.75 grade point average on a completed Bachelor's degree (or 3.0 for last 60 credit hours)
- 3.0 for last 60 credit hours
• Provisional Admission:
  2.5 (or higher) grade point average on a completed Bachelor’s degree

*Those receiving provisional admission must meet with the Technical Education advisor to plan the necessary 8 credits of course work that need to be completed at the graduate level with a grade of “B” or better before the student can be upgraded to full admission.

Program

• Foundation Studies – 12 credits:

  5100:604  Topical Seminar in Cultural Foundations  3

  or

  5100:703  Seminar: History and Philosophy of Higher Education  3

  5400:500  Postsecondary Learner  3

  5100:640  Techniques of Research  3

  5100:520  Introduction to Instructional Computing  3

• Professional Technical Education Courses – 22 credits:

  5400:501  Learning with Technology  1

  5400:530  Systematic Curriculum Design for Postsecondary Instruction  3

  5400:536  Systematic Instructional Design in Postsecondary Education  3

  5400:605  Advanced System Design: Needs Assessment and Evaluation  3

  5400:620  Postsecondary Teacher Leadership  3

  5400:660  Postsecondary Distance Learning  3

  5400:675  Advanced Instructional Applications Seminar  3

  5400:690  Internship in Postsecondary 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 (3 credits)

  5400:600  The Two-Year College  3

Training Option (3 credits)

  5400:515  Training in Business and Industry  3

Instructional Technology Option (3 credits)

  or

  5100:5xx/6xx  Instructional Technology course approved by advisor  3

Graduate K-12 Technology Endorsement

This endorsement is only available to teachers or teacher candidates who have obtained or who are simultaneously getting an initial Ohio license/certificate (e.g. in early childhood, middle level, adolescent/young adult, special education, etc.) Individual school districts, not the State of Ohio or the University of Akron, determine the extent to which the endorsement is applicable to their needs and requirements. For further information on this endorsement contact the Department of Educational Foundations and Leadership.

Sport Science and Wellness Education

The student who expects to earn a master’s degree in the Department of Sport Science and Wellness Education is expected to meet the criteria for admission of the Graduate School.

Outdoor Education

(Admissions to Outdoor Education currently suspended)

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.

• Required Foundation Courses:

  5100:640  Techniques of Research  3

Remaining six (6) credits to be chosen, with approval of advisor, from 5560:5xx or 5560:6xx course offerings or 5550:606  Statistics: Qualitative and Quantitative Methods.

• Required courses:

  5560:550  Application of Outdoor Education to the School Curriculum  4

  5560:552  Resources and Resource Management for the Teaching of Outdoor Education  4

  5560:556  Outdoor Pursuits  4

  or

  5560:605  Outdoor Education: Special Topics  3

  5560:600  Outdoor Education: Rural Influences  3

  5560:695  Field Experience  2-4

  or

  (at least 2 credits if only option selected)

  5560:599  Master’s Problem  2-4

  or

  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. Training received 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?” Students will be assigned an advisor with whom they should consult on a regular basis. In fact, advisor approval is required on certain course work.

• Required Foundation Courses:

  5100:600  Philosophies of Education  3

  or

  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

  Subtotal 6

• Required Department Courses:

  5550:536  Foundations and Elements of Adapted Physical Education  3

  5550:601  Sports Administration and Supervision  3

  5550:602  Motor Behavior Applied to Sports  3

  or

  5550:604  Current Issues in Physical Education  3

  5550:603  Tactics and Strategies in the Science of Teaching and Coaching  3

  5550:605  Physiology of Muscular Activity and Exercise  3

  5550:606  Statistics: Qualitative and Quantitative Methods  3

  5550:609  Motivational Aspects of Physical Activity  3

  5757:521  Comprehensive School Health  4

  5550:695  Field Experience: Master’s  2 (minimum)

  5550:698  Master’s Problem  2 (minimum)

  5550:699  Master’s Thesis  2 (minimum)

  Total Program 33

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 students for advanced study in exercise physiology and future employment in adult fitness, corporate fitness and cardiac rehabilitation programs. Special attention is also given to knowledge and practical skills necessary for students preparing for American College of Sports Medicine certifications.

• Required Foundation Courses:

  5100:620  Psychology of Instruction for Teaching and Learning  3

  or

  5100:624  Seminar: Educational Psychology  3

  5100:640  Techniques of Research  3

  Subtotal 6

• Required Department Courses:

  5550:500  Musculoskeletal Anatomy I  3

  or

  5550:600  Biomechanics Applied to Sports and Physical Activity  4

  3100:569  Respiratory Physiology  3

  or

  5550:501  Musculoskeletal Anatomy II  3

  3100:566  Advanced Cardiovascular Physiology  3

  5550:605  Physiology of Muscular Activity and Exercise  3

  5550:606  Statistics: Qualitative and Quantitative Methods  3

  5550:690  Special Topics in Health and Physical Education: Laboratory Instrumentation  3

  7400:587  Sports Nutrition  3

• At least two (2) credits from among the following:

  5560:695  Field Experience: Master’s  3

  or

  5550:698  Master’s Problem  2 (minimum)

  or

  5550:699  Master’s Thesis  2 (minimum)

• Electives: Select at least one (1) course from among the following and have advisor approval.

  5100:520  Introduction to Instructional Computing  3

  5100:741  Statistics in Education  3

  5100:743  Advanced Education Statistics  3

  5550:601  Sports Administration and Supervision  3

  5550:609  Motivational Aspects of Physical Activity  3
**Option: Sport Science/Coaching**

This sport science/coaching graduate program option has been designed to meet the needs of teachers and practicing/prospective coaches. Because this program meets published NASPE National Standards, licensed educators may be able to use this sport science program to meet the master/30 hour requirement for the second renewal of their professional license; however, these individuals must seek renewal from their local professional development committee.

- **Required Foundation Courses:**
  - 5100:620 Psychology of Instruction for Teaching and Learning 3
  - 5550:604 Current Issues in Physical Education 3
  - 5100:640 Techniques of Research 3

  **Subtotal 6**

- **Required Courses:**
  - 5550:540 Injury Management for Teachers and Coaches 2
  - 5550:562 Legal/Ethical Issues in Physical and Leisure Activity 2
  - 5550:601 Sports Administration and Supervision 3
  - 5550:602 Motor Behavior Applied to Sports 3
  - 5550:603 Tactics and Strategies in the Science of Teaching and Coaching 3
  - 5550:605 Physiology of Muscular Activity and Exercise 3
  - 5550:609 Motivational Aspects of Physical Activity 3
  - 5600:587 Sports Nutrition 3

  **Subtotal 24-27**

- **At least two (2) credits from among the following:**
  - 5550:695 Field Experience: Master’s 2
  - 5550:698 Master’s Problem 2
  - 5550:699 Master’s Thesis 2 (minimum)

- **Electives:** The following courses are relevant to this degree. The student may select additional courses and/or workshops related to the graduate program:
  - 5550:590 Workshop (e.g., Issues of Student Athletes) 1-6
  - 5550:606 Statistics: Qualitative and Quantitative Methods 3
  - 5550:680 Special Topics (e.g., Coaching Youth Sports) 1-6
  - 5570:521 Comprehensive School Health 4

  **Total Program 35**

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**School Nurse License Program**

*(Admission to School Nurse License Program currently suspended)*

**Admission Requirements—Sequence 2**

- R.N. License
- B.S.N. Degree
- Admittance to Graduate School
- Admittance to College of Education (Graduate Studies)
- Admittance to College of Nursing (Special/Non-Degree status)
- Selected coursework in College of Education and College of Nursing
- Supervised School Nurse experience
- Course work distributed over the following areas:
  - Community health; family counseling; mental and emotional health; current topics in health education; methods of teaching/instructional design; learner and learning process; evaluation and measurement of learning; principles, comprehensive school health; advanced pediatric/adolescent assessment; advanced nursing research.

To satisfy the above requirements, an applicant must complete at least the following 12 graduate credits or their equivalents of College of Education core courses listed below:

- 5570:520 Community Health 2
- 5570:521 Comprehensive School Health 4
- 5570:523 Methods and Materials of Teaching Health Education 3
- 5100:742 Statistics in Education 3

  **Subtotal 12**

Applicant must also complete 11-16 graduate credits of College of Nursing courses listed below:

- 8200:650 Advanced Pediatric/Adolescent Assessment 3
- 8200:613 Nursing Inquiry I 3
- 8200:553 School Nurse Practicum I 5
- 8200:554 School Nurse Practicum II (required of all school nursing students) 5

  **Subtotal 11-16**

Optional if continuing on to a master’s degree in the College of Nursing:

---

**Admission Requirements—Sequence 3**

- Admittance to the College of Nursing MSN Program—Child and Adolescent Track
- Admittance to College of Education (Special/Non-Degree status)
- Completion of the MSN Program in the Child and Adolescent Track
- Plus 12 graduate credits of College of Education core courses:
  - 5570:520 Community Health 2
  - 5570:521 Comprehensive School Health 4
  - 5570:523 Methods and Materials of Teaching Health Education 3
  - Elective within College of Education (upon approval of College of Education school nurse licensing advisor)

  **Total 12**

Master’s degree plus licensure.

* The school nurse practicum is contained in the MSN program in 8200:651 and 655 which fulfill the requirements of 8200:553 and 554.
College of Business Administration

James W. Barnett, B.B.A., Dean
James R. Emore, D.B.A., Associate Dean
James J. Divoky, D.B.A., Assistant Dean and Director of Graduate Programs

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 legal, political, regulatory, economic and technological environment; and,
- 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 team work 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 intertwined 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 1919, initially through the Department of Commerce and since 1953 through the College of Business Administration. In 1968, graduate studies in business were begun. Both the undergraduate and master’s programs are accredited by the Association to Advance 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 (GPANAV=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 credits) GPA (A=4.0) times 200 plus the GMAT score.
- Hold a degree from outside the United States and have an academic standing of first or high second class, satisfactory evidence of competence in English (i.e., TOEFL score of 550 or above) and a score of at least 450 on the GMAT.

Even though an applicant is eligible for consideration, an offer of admission is not guaranteed. Since staff, facilities and resources are limited, a determination must be made as to the number of applicants who can be adequately served among those eligible. As a result, offers of admission may be limited to only the most qualified of the eligible applicants as determined by the CBA Graduate Admissions Committee. The committee will consider the following in making decisions: the difficulty of the applicant’s undergraduate program; the length of time and activities since graduation; and the percentile ranking on the GMAT. For example, students admitted into the graduate business programs since January 1, 2004, had an average GMAT of 570 and an average point index of 1200.

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. Students admitted as special non-degree are restricted to enrolling in foundation courses only.

Procedure
GMAT scores should be sent to the Director of Graduate Programs in Business, College of Business Administration, The University of Akron, Akron OH 44325-4805 (institution code 1829). 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 966-R, Princeton, NJ 08540. Those who have taken the GMAT more than five years ago are normally required to retake it.

All applications and accompanying documentation are evaluated simultaneously by the Graduate Admissions Committee (GAC). The GAC meets 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/grad.

Transfer Policy
The College of Business Administration will permit nine credits of comparable graduate credits 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 degree sought is not in the same functional discipline; (3) the desired program (degree curriculum) is specifically approved in advance by the director of graduate programs in business; and (4) not fewer than 21 new credits are earned for the second degree.

**Master of Business Administration**

The Master of Business Administration program is designed to give the student a general knowledge of the functional areas of business and permit the concentration of study in one of the following areas: accounting, electronic business, entrepreneurship, finance, global sales management, health care management, international business, international finance, management, management of technology and innovation, strategic marketing, 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, some 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 are 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 3
  6200:601 Financial Accounting 3
  6400:602 Managerial Finance 3
  6400:655 Government and Business 3
  6500:620 Management and Organizational Behavior 3
  6500:601 Quantitative Decision Making 3
  6500:602 Computer Techniques for Management 3
  6800:600 Marketing Concepts 3

- **Functional Core (16 credits):**
  6200:610 Process Analysis and Cost Management 3
  6400:674 Strategic Financial Decision Making 3
  6500:670 Management of Operations 3
  6800:620 Strategic Marketing Management 3
  6700:696 Special Topics in Professional Development: Leadership 3
  6800:605 International Business Environments 3

- **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 and innovation, strategic marketing, 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. Accounting students may take only 3 credits of 500-level coursework. Approval of Director is required.

- **Integrative (3 credits):**
  6500:696 Business Strategy and Policy: Domestic and International 3

**Program Summary**

| Foundation Core | 24 |
| Functional Core | 16 |
| Concentration | 12 |
| Free Electives | 3 |
| Integrative | 3 |
| Total Program | 60 |

If the Foundation Core Courses are all waived, the program is 34 credits in length.

**Concentration in Accounting**

The MBA (Accounting Concentration) consists of 12 graduate credit hours of accounting coursework. The School of Accountancy recommends that students select courses that allow them to focus on their concentration in one of the three broad areas of accounting-financial reporting, taxation, or accounting information systems.

**Concentration in Electronic Business (E-Business)**

- **Required:**
  6500:620 E-Business Foundations 3
  6500:622 E-Business Technologies 3

- **Choose 6 credits from the following:**
  6200:658 Enterprise Risk Assessment and Assurances 3
  6400:685 E-Business Legal Issues 3
  6400:686 E-Business Financial Strategy and Planning 3
  6600:635 E-Business Marketing Strategies and Tactics 3

- **Recommended free elective (3 credits):** select additional course from the list above

**Concentration in Entrepreneurship**

Students work with entrepreneurs and venture capitalists in the formulation of business plans based on new products that will be presented at international business plan competitions. Students learn entrepreneurial skills related to starting or buying a small business, working for a fast growth business or corporation, family business, and franchising.

- **Required:**
  6300:640 Financing the Entrepreneurial Venture 3
  6300:670 Managing Entrepreneurial Growth 3
  6500:608 Entrepreneurship 3
  6500:663 Data Analysis for Managers 3

**Concentration in Finance**

The MBA Finance Concentration provides the student with the decision tools and analytical skills needed for the successful financial management of the firm.

- **Required (9 credits)**
  6400:631 Financial Markets and Institutions 3
  6400:645 Investment Analysis 3
  6400:678 Capital Budgeting 3

- **Electives (choose 6 credits from the following):**
  3250:671 International Trade 3
  6500:656 Management of International Operations 3
  6800:685 Multinational Corporations 3
  7600:645 Intercultural Communication Theory 3

**Concentration in Global Sales Management**

- **Required:**
  6500:683 Health Services Systems Management 3
  6500:686 Data Analysis for Managers 3

- **Choose 6 credits from the following:**
  6500:582 Health Services Operations Management 3
  6500:585 Special Topics in Health Services Administration 1-3
  6500:670 Health Services Research Project 3
  6500:688 Independent Study in Health Services Administration 1-3
  3300:680 Internship Seminar in Life/Span Development and Gerontology 3
  3250:540 Special Topics: Economics (Medical) 3
  3850:615 Epidemiologic Methods in Health Research 3
  3850:666 Sociocultural Applications of Health Care 3
  3980:622 Urban Planning and Health Care 3
  4800:630 Biomedical Computing 3
  8200:632 Fiscal Management in Nursing Administration 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
  6400:650 Techniques of Financial Modeling 3
  6500:662 Applied Operations Research 3
  6500:663 Data Analysis for Managers 3
  6600:640 Business Research Methods 3

- **Plus any 9 credits in International Business:**
  6800:630 International Marketing Policies 3
  6800:685 Multinational Corporations 3
  6800:690 Seminar in International Business 3
  6800:697 Independent Study in International Business 1-3
  6200:680 International Accounting 3
  6400:538 International Banking 3
  6400:681 Multinational Corporate Finance 3
  6400:691 International Markets and Investments 3
  6400:697 Independent Study in Finance 3
  6400:698 International Study: Business Law 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.
Concentration in International Business for International Executives

- Required (choose one of the following courses):
  - 6200:664 Research and Quantitative Methods in Accounting
  - 6400:650 Techniques of Financial Modeling
  - 6500:662 Applied Operations Research
  - 6500:663 Data Analysis for Managers
  - 6600:640 Business Research Methods

- Plus any 9 credits in International Business:
  - 6800:630 International Marketing Policies
  - 6800:685 Multinational Corporations
  - 6800:690 Seminar in International Business
  - 6800:697 Independent Study in International Business
  - 6200:688 International Accounting
  - 6400:538 International Banking
  - 6400:681 Multinational Corporate Finance
  - 6400:691 International Markets and Investments
  - 6500:656 Management of International Operations
  - 6500:659 International Human Resource Management
  - 6500:661 Comparative Systems of Employee and Labor Relations

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:
   - 3250:550 Comparative Economic Systems
   - 3250:560 Economics of Developing Countries
   - 3250:670 International Monetary Economics
   - 3250:671 International Trade
   - 3350:550 Development Planning
   - 3350:633 Comparative Planning
   - 3400:516 Modern India
   - 3400:573 Latin America: The Twentieth Century
   - 3400:575 Mexico
   - 3700:505 Politics in the Middle East
   - 3700:512 Global Environmental Politics

*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)
  - 6400:681 International Finance
  - 6400:691 International Markets and Investments
  - 6400:538 International Banking

- Choose three credits from the following:
  - 6400:631 Financial Markets and Institutions
  - 6400:645 Investment Analysis
  - 6400:650 Techniques of Financial Modeling
  - 6400:678 Capital Budgeting
  - 6400:690 Selected Topics in Finance
  - 6400:697 Independent Study in Finance
  - 6400:698 Independent Study: Business Law

Concentration in Management

- Required:
  - 6500:662 Applied Operations Research
  - 6500:663 Data Analysis for Managers

- Choose 9 graduate credits from 6500. No more than 6 credits at the 500 level.

Concentration in Management of Technology and Innovation

This program focuses on enterprise-wide management of technology and innovation in organizations. Value is added by a holistic integration of intellectual capital, manufacturing agility, new product development, knowledge management, and other competencies.

- Required:
  - 6500:656 Management of International Operations
  - 6500:662 Applied Operations Research
  - 6500:663 Data Analysis for Managers
  - 6500:665 Management of Technology
  - 6500:669 Polymer Management Decisions
  - 6500:540 Product and Brand Management

- Recommended free elective (3 credits):
  - Select one course from the following courses.
    - 6500:608 Entrepreneurship
    - 6600:575 Business Negotiations
    - 6600:640 Management Information Systems
    - 6600:650 Human Resource Systems for Managers
    - 6600:678 Project Management

Concentration in Strategic Marketing

- Required (9 credits)
  - 6600:640 Business Research Methods
  - 6600:645 Innovative Marketing Strategies
  - 6600:670 Competitive Business Strategies

- Choose three credits from the following:
  - 6600:540 Product and Brand Management
  - 6600:630 Marketing of Services
  - 6600:635 E-Business: Electronic Marketing
  - 6600:655 Marketing Communications

Concentration in Supply Chain Management

- Required:
  - 6500:675 Supply Chain Management
  - 6500:682 Applied Operations Research

- Choose 6 credits from the following:
  - 6600:676 Management of Production and Operations
  - 6600:678 Project Management
  - 6600:673 Quality and Productivity Techniques
  - 6600:651 Management of Organization Change
  - 6600:642 Systems Simulation
  - 6600:641 Business Database Systems

*Cross-cultural courses may be used for free elective credits.

Master of Science in Accountancy

The Master of Science in Accountancy (MSA) program allows students to concentrate their study in one of two areas: Professional Accounting or Accounting Information Systems. The Professional Accounting option is designed to provide students with the background that will enable them to sit for the Uniform CPA Examination under the Ohio 150-hour Legislation. The Professional Accounting option allows students without an undergraduate degree in accounting to combine their undergraduate interests with professional accounting credentials. The Accounting Information Systems option is designed to provide students, who have an undergraduate background in accounting or equivalent, with substantive knowledge and skills in the area of information systems risk assessment, control, and assurance services. Given the rapid diffusion and ease of use of computer technologies, knowledgeable and well-educated accountants and information systems auditors are needed to ensure that effective controls are in place to maintain integrity and minimize risks in information systems.

- Foundation Courses:
  - 6600:600 Marketing Concepts
  - 6600:602 Managerial Finance
  - 6600:650 Management and Organizational Behavior
  - 6200:601 Financial Accounting
  - 6200:603 Business Systems with Processing Applications
  - 6600:602 Computer Technologies for Management
  - 6500:601 Quantitative Decision Making
  - 6400:623 Legal Aspects of Business Transactions
  - 3250:600 Foundations of Economic Analysis

*Foundation courses will be waived for students with recent study in the subject areas.

- Required of all MSA Students:
  - 6200:655 Advanced Information Systems
  - 3300:675 Writing for MBAs

- MSA Students will select either the Professional Accounting option or the Accounting Information Systems option.
Professional Accounting (PA) Option

- Required of MSA (PA) students without undergraduate degrees in Accounting:
  - 6200:621 Corporate Accounting and Financial Reporting I 3
  - 6200:622 Corporate Accounting and Financial Reporting II 3
  - 6200:610 Process Analysis and Cost Management 3
  - 6200:627 Survey of Federal Taxation 3
  - 6200:520 Advanced Accounting 3
  - 6200:531 Taxation II 3
  - 6200:540 Auditing 3

Electives: two 600-level non-accounting courses 6

The advanced program for students with non-accounting undergraduate degrees consists of 33 hours, of which 27 are required and 6 are elective. For a student entering with no business background the total program, including foundation course work, is 57 hours.

- Required of MSA (PA) students with undergraduate degrees in Accounting:
  - 6200:637 Advanced Accounting Theory 3
  - 6200:531 Taxation II a 3
  - 6200:520 Advanced Accounting b 3
  - 6200:640 Advanced Auditing 3

Electives: one 600-level accounting courses 3
Electives: three, not more than one of which may be at the 500 level 9

AIS Restricted Electives (6 credits)
AIS Required Concentration Courses (12 credits)
Choose a concentration from the following:

Accounting Information Systems (AIS) Option

An undergraduate degree in accounting or equivalent from an accredited college or university is required to pursue this option. Students who are admitted into this option will have completed prior course work in the following areas in their undergraduate accounting or equivalent programs:
- Accounting Information Systems (at least 3 credits)
- Intermediate Accounting
- Auditing (at least 3 credits)
- Cost and Management Accounting (at least 3 credits beyond principles)

- Required of MSA (AIS) students:
  - 6200:606 Applications Development for Financial Systems 3
  - 6200:607 Financial Data Communications and Enterprise Integration 3
  - 6200:615 Enterprise Resource Planning and Financial Systems 3
  - 6200:658 Enterprise Risk Assessment and Assurances 3
  - 6200:659 Assurance Services with Data Warehousing and Data Mining 3
  - 6500:643 Analysis and Design of Business Systems 3
  - 6500:648 Management of Telecommunications 3
  - 6500:605 Business Applications Development 3

Including the 6 credits of required courses for all MSA students, students with an undergraduate degree in accounting or equivalent will complete the AIS option in 30 credits.

Master of Taxation

The Master of Taxation Program is a professional degree designed to provide intensive training for individuals planning to enter the field and for experienced accountants and attorneys. The program provides a framework of conceptual, technical, and professional knowledge that will assist students in developing expertise needed to examine and understand many aspects of the tax structure. Through an integrated curriculum with emphasis on tax concepts, substantive knowledge of federal and state taxation, tax research, communication skills, and tax planning, students develop an ability to identify and solve tax problems.

The Master of Taxation curriculum consists of a set of foundation courses and a set of required taxation courses. A minimum of 30 semester credits is required for the degree. Foundation courses may be waived for those who have had recent study in the subject areas.

- Foundation Courses:
  - 6200:601 Financial Accounting 3
  - 6200:621 Corporate Accounting and Financial Reporting I 3
  - 6200:622 Corporate Accounting and Financial Reporting II 3
  - 6200:623 Legal Aspects of BusinessTransactions 3
  - 6200:530 Taxation I 3
  - 6200:531 Taxation II 3

- Required Master of Taxation Courses:
  - 6200:628 Basic Tax Research 3
  - 6200:631 Corporate Taxation I 3
  - 6200:632 Taxation of Transactions in Property 3
  - 6200:633 Estate and Gift Taxation 3

- Electives: 18 credits of graduate taxation courses, selected from the list below:
  - 6200:641 Taxation of Partnerships 3
  - 6200:642 Corporate Taxation II 3
  - 6200:643 Tax Accounting 2
  - 6200:644 Income Taxation of Decedents, Trusts, and Estates 3
  - 6200:645 Advanced Individual Taxation 3
  - 6200:646 Consolidated Tax Returns 2
  - 6200:647 Qualified Pension andProfit-Sharing Plans 3
  - 6200:648 Tax Practice and Procedure 2
  - 6200:649 State and Local Taxation 3
  - 6200:650 Estate Planning 2
  - 6200:651 United States Taxation and Transnational Operations 2
  - 6200:652 Tax Exempt Organizations 2
  - 6200:653 Business Planning 2
  - 6200:654 Independent Study in Taxation 3
  - 6200:656 Nonqualified Executive Compensation 2
  - 6200:661 Advanced Tax Research and Policy 3
  - 6200:690 Seminar in Taxation 3
  - 6200:693 Selected Topics in Taxation:
    - Limited Liability Companies 2
    - S Corporations 3
    - Mergers and Acquisitions 2
    - Advanced Partnership Tax Planning 2

Total Required Taxation Courses 30-48

In exceptional situations, subject to the approval of the Chair of the G.W. Dave- rio School of Accountancy, up to six credits of approved graduate College of Busi- ness Administration courses may be allowed as electives.

Master of Science in Management

The Master of Science in Management program allows students to concentrate their advanced study in one of the 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 24 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 3
    - 6200:601 Financial Accounting 3
    - 6400:602 Managerial Finance 3
    - 6400:655 Government and Business 3
    - 6500:600 Management and Organizational Behavior 3
    - 6500:601 Quantitative Decision Making 3
    - 6500:602 Computer Techniques for Management 3
    - 6600:600 Marketing Concepts 3

- Management Core Courses (12 credits):
  - 6500:640 Management Information Systems 3
  - 6500:663 Data Analysis for Managers 3
  - 6500:652 Organizational Behavior 3
  - 6500:653 Organizational Theory 3
  - 6500:662 Applied Operations Research 3
  - 6500:670 Operations Management 3

- 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 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 3
  - 6500:643 Analysis and Design of Business Systems 3
  - 6600:648 Management of Telecommunications 3
  - 6600:645 Advanced Management Information Systems 3

- ISM Restricted Electives (6 credits)
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.), a joint program in legal and taxation studies (J.D./M.Tax.), and a joint program in legal and human resource studies (J.D./M.S.M.). These combinations are open to the student preparing for a career in such areas as corporate law, tax accounting, human resource management 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 one of these cooperative programs, 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 knowledge is not required, because of prior undergraduate credits earned), and 25 credits for M.B.A. (24 for the M.S.M.-HR) of advanced courses in the CBA plus 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 prior to completion. To earn both degrees, a total of 97 J.D./M.Tax., 102 J.D./M.B.A., or 101 J.D./M.S.M.-HR credits is required, depending on the master’s program pursued. More credits may be required for the master’s degree if Foundation courses are required.

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

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 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.

J.D./M.S.M.-HR students may transfer nine credits of School of Law courses into the M.S.M. program. Six credits must be in area of concentration and must be selected from the courses listed below. 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 Corporate Taxation
9200:665 Taxation of Partnerships
9200:680 Qualified Pensions and Profit Sharing
9200:685/686 Wills, Trusts and Estates I, II

Finance (choose 6 credits)
9200:629 Commercial Law II
9200:635 Bankruptcy Law
9200:639 Estate and Gift Taxation
9200:652 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
9200:691 International Investments

International Business (choose 6 credits)
9200:649 International Law
9200:676 International Trade
9200:691 International Investments and Commercial Transactions

Management (choose 6 credits)
9200:626 Basic Business Associations
9200:633 Corporations
9200:637 Employment Discrimination
9200:642 Alternative Dispute Resolution
9200:650 Labor Law and Collective Bargaining
9200:651 Employment Law
9200:659 Negotiation

Marketing (choose 6 credits)
9200:627 Commercial Law I
9200:659 Lawyer as Negotiator
9200:662 Media Law
9200:667 Patent Law
9200:672 Seminar in Business Planning
9200:683 Seminar in Product Liability
9200:684 Sports and Entertainment Law

Law Courses to be used as MSM-HR Concentration Courses

9200:637 Employment Discrimination
9200:642 Alternative Dispute Resolution
9200:651 Employment Law
9200:659 Negotiation
9200:684 Mediation
Pass academic and clinical competency-based examinations
Meet the requirements for provisional Ohio licensure in Audiology
Accrue 2000 clock hours of clinical experience
Complete a minimum of 122 semester credits

Degree Requirements - Doctor of Audiology

The Au.D. program, which is known as the Northeast Ohio Au.D. Consortium (NOAC), is a joint degree program administered by The University of Akron and Kent State University. NOAC is a single unified program of faculty, students, facilities, and resources. Students take classes and participate in clinic at both The University of Akron and Kent State University with half of the classes offered at each university. Students must choose to be admitted to NOAC either through The University of Akron or Kent State University and they will register for courses on the campus where they are admitted. All classes are cross-listed.

Admission Requirements:
- Bachelor’s degree from an accredited college or university
- Grade point average of 3.0 or higher
- Three letters of recommendation
- Graduate Record Examination scores
- Personal statement of purpose as to why the applicant wishes to become an audiologist

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.

Doctor of Audiology Program (Au.D.)
The Au.D. is a four-year post baccalaureate professional doctoral degree program. Doctors of Audiology are independent professionals who specialize in the diagnosis, management, and treatment of hearing and balance disorders.

The Au.D. program offers students the foundations of audiology education in a single integrated program of study. 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.

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.

Graduate Studies

Family and Consumer Sciences
A program of study is offered leading to the Master of Arts in Family and Consumer Sciences degree offers options in child and family development; child life; clothing, textiles and interiors; 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 Graduate Record Examination within the five years preceding application, with the following score:
  - 800 combined on verbal and quantitative with at least a 4.5 on analytical writing;
  - OR
  - 900 combined on verbal and quantitative with at least a 4.0 on analytical writing
- Submission of a letter of personal career goals, sent to the director of graduate studies in the School of Family and Consumer Sciences.

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 four 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 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 consistent 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 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:
  - 7300:701 Orientation to Graduate Studies in Family and Consumer Sciences 1
  - 7300:701 Historical and Conceptual Bases of Family and Consumer Sciences 3
  - 7300:701 Research Methods in Family and Consumer Sciences 3
Child and Family Development Option

- **Core Courses:**
  - 340:602 Family in Lifespan Perspective 3
  - 340:605 Developmental Parent-Child Interactions (online) 3
  - 340:610 Child Development Theories 3
  - 340:665 Development in Infancy and Early Childhood 3

- **Option Electives**
  Select 9 credits from the following courses with approval of advisor (if a course has been taken at the undergraduate level, other courses must be selected):
  - 340:501 American Families in Poverty 3
  - 340:504 Middle Childhood and Adolescence 3
  - 340:506 Family Financial Management 3
  - 340:540 Family Crisis 3
  - 340:542 Human Sexuality 3
  - 340:546 Culture, Ethnicity, and the Family 3
  - 340:548 Before and After School Child Care 2
  - 340:550 Organization and Supervision of Child-Care Centers 3
  - 340:596 Parent Education 3
  - 340:603 Family Relationships in the Middle and Later Years 3
  - 340:688 Practicum in Family and Consumer Sciences 3

- **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):**
  - 7400:575 Analysis of Food 3
  - 7400:576 Developments in Food Science 3
  - 7400:520 Experimental Foods (if taken at the undergraduate level, choose 3 additional credits from option electives) 3

- **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):
  - 3100:500 Food Plants 2
  - 3250:540 Special Topics: Economics/World Food Problems 4
  - 7400:574 Cultural Dimensions of Food 3
  - 7400:585 Seminar in Family and Consumer Sciences (Food Science topic) 2-3
  - 7400:570 The Food Industry: Analysis and Field Study 3
  - 7400:503 Advanced Food Preparation 3
  - 7400:524 Nutrition in the Life Cycle 3
  - 7400:624 Advanced Human Nutrition I 3
  - 7400:625 Advanced Human Nutrition II 3
  - 7400:688 Practicum in Family and Consumer Sciences 3

- **Cognate Electives:**
  Select 5-8 credits with approval of advisor from 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 5
  - 7400:699 Master's Thesis 5
  - Total 40

Child Life Option

- **Core Courses:**
  - 340:546 Culture, Ethnicity, and Family 3
  - 340:500 Nutrition Communication and Education 4
  - or
  - 5600:651 Techniques of Counseling 4
  - 340:551 Child in the Hospital 4
  - 340:595 Practicum Experience in a Child Life Program 3
  - 340:584 Hospital Settings, Children, and Families 3
  - 340:585 Children, Illness, and Loss 3
  - 340:595 Child Life Internship 5

- **Cognate:**
  - 5600:622 Introduction to Play Therapy 3
  - Select three credits with approval of advisor within the School of Family and Consumer Sciences OR from a cognate area outside of the School.

- **Thesis or Project (select one):**
  - 7400:694 Master’s Project 5
  - 7400:699 Master’s Thesis 5
  - Total 40

Food and Consumer Science Option (admissions temporarily suspended)

- **Core Courses:**
  - 7400:575 Analysis of Food 3
  - 7400:576 Developments in Food Science 3
  - 7400:520 Experimental Foods (if taken at the undergraduate level, choose 3 additional credits from option electives) 3

- **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):
  - 3100:500 Food Plants 2
  - 3250:540 Special Topics: Economics/World Food Problems 4
  - 7400:574 Cultural Dimensions of Food 3
  - 7400:585 Seminar in Family and Consumer Sciences (Food Science topic) 2-3
  - 7400:570 The Food Industry: Analysis and Field Study 3
  - 7400:503 Advanced Food Preparation 3
  - 7400:524 Nutrition in the Life Cycle 3
  - 7400:624 Advanced Human Nutrition I 3
  - 7400:625 Advanced Human Nutrition II 3
  - 7400:688 Practicum in Family and Consumer Sciences 3

- **Cognate Electives:**
  Select 5-8 credits with approval of advisor from 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 5
  - 7400:699 Master’s Thesis 5
  - Total 40

Note: Students in all of the options who are working on a master’s thesis may elect to take the course 7400:690 Thesis Research/Reading. This course will not, however, count as part of the required 40-42 credits in the program.

Clothing, Textiles and Interiors Option

- **Core Courses:**
  - 340:634 Material Culture Studies 3
  - 340:639 Theories of Fashion 3

- **Options Electives (select 13 credits with approval of advisor):**
  - 340:516 History of Interior Design I 4
  - 340:519 History of Interior Design II 4
  - 340:523 Professional Image Analysis 3
  - 340:525 Advanced Textiles 3
  - 340:527 Global Issues in Textiles and Apparel 3
  - 340:536 Textile Conservation 3
  - 340:537 Historic Costume 3
  - 340:538 History of Fashion 3
  - 340:631 Problems in Design 1-6
  - 340:688 Practicum in Family and Consumer Sciences 3
  - 7400:696 Individual Investigation in Family and Consumer Sciences 1-6

- **Cognate Electives:**
  Select 6 credits with approval of advisor from courses within the School of Family and Consumer Sciences OR from a cognate area outside the School OR from a combination of the two.

  - Total 40

Nutrition and Dietetics

A program of study is offered leading to the Master of Science in Nutrition and Dietetics. Students must meet the following admission requirements for acceptance in the program:

- Meet the minimum GPA of 2.75 for four years of undergraduate study or 3.00 for the last two years of undergraduate study.
- Completion of general Graduate Record Examination within the five years preceding application, with the following score:
  - 800 combined on verbal and quantitative with at least a 4.5 on analytical writing; OR
  - 900 combined on verbal and quantitative with at least a 4.0 on analytical writing
- Submit a letter of personal career goals.
- 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.

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 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:
  3100:604 Orientation to Graduate Studies in Family and Consumer Sciences 1
  3100:680 Historical and Conceptual Bases of Family and Consumer Sciences 3
  3100:688 Research Methods in Family and Consumer Sciences 3

• Core Courses:
  3100:624 Advanced Human Nutrition I 3
  3100:625 Advanced Human Nutrition II 3

Electives (9 to 12 credits required)

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

  3100:566 Cardiovascular Physiology 3
  3100:584 Pharmacology 3
  3100:670 Medical Pathology, Pathophysiology, and Pharmacology 3
  3100:696 Research in the Biology of Aging 3
  3150:301 Biochemistry Lecture I 3
  3150:502 Biochemistry Lecture II 3
  3100:500 Nutrition Communication and Education Skills 4
  3100:520 Experimental Foods 3
  3100:524 Nutrition in the Life Cycle 3
  3100:534 Cultural Dimensions of Foods 3
  3100:574 Developments in Food Science 3
  3100:580 Community Nutrition I – Lecture 3
  3100:582 Community Nutrition II – Lecture 3
  3100:587 Sports Nutrition 3
  3100:588 Practicum in Dietsetics 12
  3100:589 Professional Preparation for Dietetics 1
  3100:640 Nutrition in Diminished Health 3
  8200:654 Advanced Physiological Concepts in Health Care I 3
  8200:656 Advanced Physiological Concepts in Health Care II 3

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.

  3470:664 Statistics for the Health Sciences 4
  3850:678 Social Gerontology 3
  8600:651 Techniques of Counseling 3
  8600:652 Management and Organizational Behavior 3
  6500:602 Computer Techniques for Management 3

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

Music

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

• The standard requirements for an undergraduate major in the area of proposed graduate specialty or performance which the school director approves as equivalent to an undergraduate major.

• The Graduate School’s requirements for admission.

• The performance and accompanying options require an audition on the student’s major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.

• For the composition option, compositions representing the applicant’s techniques are required.

• Additional music/education courses – select 23 credits with approval of the student and advisor. Areas include graduate-level courses in other disciplines, such as theatre arts, in which the student obtains permission of instructor, or 7520:642 Applied Composition.

Degree total: 34-36 credits.

Composition Option

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

• Major required courses – 21-23 credits:
  7500:601 Choral Literature 2
  7500:618 Musical Styles and Analysis IV (20th Century) 2
  7500:624 Music History Survey: Music Since 1800 2
  7500:647 Master’s Chamber Recital 1
  7500:699 Master’s Thesis/Project 4-6
  7510:646 Ensemble (participation in two ensembles required) 2
  7520:642 Applied Composition 8

• Additional music courses – zero to two credits.

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

Electives – three credits.

To be selected by student and advisor. Areas include graduate-level courses in other disciplines, such as theatre arts, in which the student obtains permission of instructor, or 7520:642 Applied Composition.

Music Education Option

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 23 credits with approval of music education and graduate advisors. Choices may include the following:
  7500:675 Seminar in Music Education 9
  7500:697 Advanced Problems in Music Education 4
  7500:590 Music Workshops 6
  7520:6— Applied Music 8
  7510:6— Ensemble 2
  7500:5— Other music courses 8
  5100:5— Educational Foundations and Leadership 4
  5170:5— General Administration 4
  55—5—6— Curricular and Instructional Studies 4
  5500:780 Seminar in Curricular and Instructional Studies 1-3

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 25 credits with approval of music education and graduate advisors. Choices may include the following:
  7500:675 Seminar in Music Education 9
  7500:697 Advanced Problems in Music Education 4
  7500:590 Music Workshops 6
  7520:5—6— Applied Music 8
  7510:6— Ensemble 2
  7500:5—6— Other music courses 8
  5100:5— Educational Foundations and Leadership 4
  5170:5— General Administration 4
  55—5—6— Curricular and Instructional Studies 4
  5500:780 Seminar in Curricular and Instructional Studies 1-3

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 23 credits with approval of music education and graduate advisors. Choices may include the following:
  7500:675 Seminar in Music Education* 9
  7500:697 Advanced Problems in Music Education* 4
  7500:590 Music Workshops* 6
  7520:5—6— Applied Music 8
  7510:6— Ensemble 2
  7500:5—6— Other music courses 8
  5100:5— Educational Foundations and Leadership 4
  5170:5— General Administration 4
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 23 credits with approval of music education and graduate advisors. Choices may include the following:
  - 7500:675 Seminar in Music Education* 9
  - 7500:697 Advanced Problems in Music Education* 4
  - 7500:590 Music Workshops* 6
  - 7520:5—6— Applied Music 8
  - 7510:6— Ensemble 2
  - 7500:5—6— Other music courses 8
  - 5100:5—6— Educational Foundations and Leadership 4
  - 5170:5—6— General Administration 4
  - 55—5—6— Curricular and Instructional Studies 4
  - 5500:780 Seminar in Curricular and Instructional Studies 1-3

* Topics related to general music.

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 25 credits with approval of music education and graduate advisors. Choices may include the following:
  - 7500:675 Seminar in Music Education* 9
  - 7500:697 Advanced Problems in Music Education* 4
  - 7500:590 Music Workshops* 6
  - 7520:5—6— Applied Music 8
  - 7510:6— Ensemble 2
  - 7500:5—6— Other music courses 8
  - 5100:5—6— Educational Foundations and Leadership 4
  - 5170:5—6— General Administration 4
  - 55—5—6— Curricular and Instructional Studies 4
  - 5500:780 Seminar in Curricular and Instructional Studies 1-3

* 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 23 credits with approval of music education and graduate advisors. Choices may include the following:
  - 7500:675 Seminar in Music Education* 9
  - 7500:697 Advanced Problems in Music Education* 4
  - 7500:590 Music Workshops* 6
  - 7520:5—6— Applied Music 8
  - 7510:6— Ensemble 2
  - 7500:5—6— Other music courses 8
  - 5100:5—6— Educational Foundations and Leadership 4
  - 5170:5—6— General Administration 4
  - 55—5—6— Curricular and Instructional Studies 4
  - 5500:780 Seminar in Curricular and Instructional Studies 1-3

* Topics related to general music.

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 25 credits with approval of music education and graduate advisors. Choices may include the following:
  - 7500:675 Seminar in Music Education* 9
  - 7500:697 Advanced Problems in Music Education* 4
  - 7500:590 Music Workshops* 6
  - 7520:5—6— Applied Music 8
  - 7510:6— Ensemble 2
  - 7500:5—6— Other music courses 8
  - 5100:5—6— Educational Foundations and Leadership 4
  - 5170:5—6— General Administration 4
  - 55—5—6— Curricular and Instructional Studies 4
  - 5500:780 Seminar in Curricular and Instructional Studies 1-3

* Topics related to choral music.

Music Education Option: Choral Conducting

Thesis Option - 32 credits

- Required Music Education Core Courses (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)
  - 7500:590 Music Workshops* 6
  - 7520:5—6— Applied Music 8
  - 7510:6— Ensemble 2
  - 7500:5—6— Other music courses 8
  - 5100:5—6— Educational Foundations and Leadership 4
  - 5170:5—6— General Administration 4
  - 55—5—6— Curricular and Instructional Studies 4
  - 5500:780 Seminar in Curricular and Instructional Studies 1-3

* 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.

Electives (6 credits)

- 7500:570 Studies in Choral Literature I (Med/Ren) 2
- 7500:571 Studies in Choral Literature II (Baroque) 2
- 7500:572 Studies in Choral Literature III (Cass/Fam) 2
- 7500:615 Music Styles and Analysis I 2
- 7500:616 Music Styles and Analysis II 2
- 7500:617 Music Styles and Analysis III 2
- 7500:697 Advanced Problems 1-2

Total credits 36

* Topics related to choral music.

Music History and Literature Option

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

- Major required courses – 20-22 credits:
  - 7500:551 Introduction to Musicology 2
  - 7500:621 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
  - 7500:625 Graduate Bibliography and Research in Music 2
  - 7500:697 Advanced Problems in Music 4
  - 7500:699 Master’s Thesis/Project 4-6

- Additional music courses – two to four credits.

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

- A minimum reading proficiency in German is required. If a student lacks background in this language, completion of undergraduate courses may be necessary.

- Electives – two to four credits. To be selected by the student and advisor. Areas include graduate-level courses in other disciplines in which student obtains permission of instructor.

Degree Total: 34-36 credits.
Music Technology Option

The Master of Music, 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 of fields related to music technology. Students will leave the program with a portfolio of 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
  - 7500:615 Musical Styles and Analysis I (Chant through Palestrina) 2
  - 7500:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
  - 7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Strauss) 2
  - 7500:621 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 credits:**
  - 7500:553 Music Software Survey and Use 2
  - 7500:613 Instructional Programming in Music for the Microcomputer 3
  - 7500:618 Musical Styles and Analysis IV (20th century) 2
  - 7500:627 Computer Studio Design 2
  - 7500:653 Electronic Music 3
  - 7500:699 Master’s Thesis/Project 4
  - 7510:6— Ensemble (participation in two ensembles required) 2
  - 7530:524 Composition (electronic music) 4
  - 7600:697 Graduate Research in Communication 3

- **Electives – 2 credits. To be selected by the student and advisor.**

Degree Total: 33 credits.

Performance Option in Accompanying

- **Music core courses – Eight credits (to be selected):**
  - 7500:555 Advanced Conducting: Instrumental 2
  - 7500:556 Advanced Conducting: Choral 2
  - 7500:615 Musical Styles and Analysis I (Chant through Palestrina) 2
  - 7500:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
  - 7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Strauss) 2
  - 7500:618 Musical Styles and Analysis IV (20th Century) 2
  - 7500:622 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:**
  - 500:562 Repertoire and Pedagogy: Organ 3
  - 7500:633 Teaching and Literature: Piano and Harpsichord 2
  - 7500:640 Advanced Accompanying I 1
  - 7500:641 Advanced Accompanying II 1
  - 7500:642 Advanced Accompanying III 1
  - 7500:643 Advanced Accompanying IV 1
  - 7500:666 Advanced Song Literature 3
  - 7500:698 Graduate Recital I to be completed in a minimum of two performance medall 2
  - 7510:614 Keyboard Ensemble (participation in two ensembles required) 2-4
  - 7510:618 Small Ensemble - Mixed 2
  - 7520:6— Applied Music (piano, organ and/or harpsichord) 8

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

- **Elective – two credits.**

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

Degree total: 33-36 credits.

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

Degree total: 34-36 credits.

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

Performance Option in Voice

- **Music core courses: eight credits (to be selected):**
  - 7500:555 Advanced Conducting: Instrumental 2
  - 7500:556 Advanced Conducting: Choral 2
  - 7500:615 Musical Styles and Analysis I (Chant through Palestrina) 2
  - 7500:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
  - 7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Strauss) 2
  - 7500:621 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 – 20-22 credits:**
  - 7500:618 Musical Styles and Analysis IV (20th Century) 2
  - 7500:665 Vocal Pedagogy 3
  - 7500:666 Advanced Song Literature 3
  - 7500:698 Graduate Recital 2
  - 7520:6— Ensemble (participation in two ensembles required) 2-4
  - 7520:624 Applied Voice 8

- **Additional music courses – two credits (suggested minimum).**

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

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

Performance Option in Keyboard

- **Music core courses: eight credits (to be selected):**
  - 7500:555 Advanced Conducting: Instrumental 2
  - 7500:556 Advanced Conducting: Choral 2
  - 7500:615 Musical Styles and Analysis I (Chant through Palestrina) 2
  - 7500:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
  - 7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Strauss) 2
  - 7500:621 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 – 18-21 credits:**
  - 7500:618 Musical Styles and Analysis IV (20th Century) (Select either 7500:562 or 7500:633) 2
  - 7500:562 Repertoire and Pedagogy: Organ 3
  - 7500:633 Teaching and Literature: Piano and Harpsichord 2
  - 7500:697 Advanced Problems in Music 2
  - 7500:698 Graduate Recital 2
  - 7510:614 Keyboard Ensemble (participation in two ensembles required) 2-4

Performance Option in Winds, String Percussion

- **Music core courses: eight credits to be selected:**
  - 7500:555 Advanced Conducting: Instrumental 2

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

No more than a total of 16 credits of 7520 courses may be applied to the degree.
Additional music courses – three to four credits.
Graduate-level (music) courses, advanced problems, workshops and/or applied lessons, to be selected by the student and advisor.

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

Degree total: 34-36 credits.

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

*It is recommended that each student’s graduate committee recommend the appropriate elective credits.

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

Performance Option: Choral Conducting

Music Core Courses (8 credits)
7500:615 Musical Styles and Analysis I 2
7500:616 Musical Styles and Analysis II 2
7500:617 Musical Styles and Analysis III 2
7500:621 Music History Survey: Middle Ages and Renaissance 2
7500:622 Music History Survey: Baroque 2
7500:624 Music History Survey: Music Since 1900 2

Major Required Courses (24 credits)
7500:556 Advance Choral Conducting 2
7500:570 Studies in Choral Literature I (Medieval/Renaissance) 2
7500:571 Studies in Choral Literature II (Baroque) 2
7500:572 Studies in Choral Literature III (Classical/Romantic) 2
7500:573 Studies in Choral Literature IV (Since 1900) 2
7500:575 Integrative Conducting Workshop 2
7500:697 Advanced Problems in Music (Choral Conducting) 4
7500:698 Graduate Recital 2
7510:620-21 Ensemble* 2
7520:624 Applied Music 4

Electives (3 credits)
Areas may include graduate-level courses in other disciplines, with permission of the instructor, or additional music courses other than ensembles. Total credits 36

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

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.

Note: Even though an applicant is eligible for consideration, an offer of admission is not guaranteed.

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
  • or
    7600:625 Theories of Mass Communication 3
    7600:670 Communication Criticism 3
  • School coursework – 12 credits.
  • Graduate electives – 6 credits.
  • Thesis (699) 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 in the field of theatre or arts administration.

• 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.

Arts Administration Option

• Complete a minimum of 45 credits.
• Required theatre arts courses (30-33 credits):
  7800:600 Research and Writing Techniques 3
  7800:605 Colloquium in the Arts 3
  7800:665 Audience Development 3
  7800:666 Principles of Arts Management 3
  7800:662 Fund Raising and Grantmanship in the Arts 3
  7800:691 Arts Administration Practices and Policies 3
  7800:692 Legal Aspects of Arts Administration 3
  7800:698 Internship 3
  7800:699 Master’s Thesis 6
• Required business courses (9 credits):
  6200:590 Special Topics in Accounting 3
  6500:600 Management and Organizational Behavior 3
  6600:600 Marketing Concepts 3 or
  6600:630 Marketing of Services 3
• Electives in related fields (3-6 credits):
  Options here include course work in business, computer science, urban studies, art, music, law, theatre and dance.
• Complete an oral defense of the thesis.
• General electives 0-3

Theatre Option

Complete a minimum of 36 credits distributed as follows:
• School core courses – 24 credits:
  7800:600 Research and Writing Techniques 3
Students must be registered for clinical practicum, externship, or student teaching. The degree program is accredited by the State of Ohio Board of Speech-Language Pathology and Audiology.

Master of Arts degree in Speech-Language Pathology Program

Admission Requirements - Speech-Language Pathology

- Hold an undergraduate major in speech-language pathology or complete undergraduate work.
- Complete requirements for admission and send to Graduate School:
  - Application with intent to major in speech-language pathology
  - Official transcript with Fall term grades included
  - Three letters of recommendation
  - Graduate Record Examination scores
  - Resume
  - Statement of Purpose
  - Application for Graduate Assistantship (if applying)

Applications for admission in Fall or Spring are accepted and considered only once per year. Applications for admission for the following academic year should be received by February 15.

Degree Requirements

- The master’s thesis is optional for students in speech-language pathology. All students will successfully complete a course of study with a minimum of 56 credits, two of which may be thesis credits for students electing the thesis option. Academic requirements within the school for speech-language pathology majors:
  - 7700:611 Research Methods in Communicative Disorders I 3
  - 7700:612 Research Methods in Communicative Disorders II 3
  - 7700:620 Graduate Acting: Techniques 3
  - 7700:621 Organization and Administration: Public School Speech-Language and Hearing Programs 2
  - 7700:622 Support Systems for Indiv and Families with Communicative Disorders 2
  - 7700:623 Neurogenic Speech and Language Disorders 3
  - 7700:624 Voice and Cleft Plate 3
  - 7700:625 Support Systems for Indiv and Families with Communicative Disorders 2
  - 7700:626 Seminar in Dramatic Literature 3
  - 7700:627 Stuttering: Theories and Therapies 2
  - 7700:628 Topics in Differential Diagnosis of Speech and Language Disorders 2
  - 7700:630 Clinical Issues in Child Language 4
  - 7700:631 Acquired Brain Injury 3
  - 7700:632 Dysphagia 3
  - 7700:633 Professional Issues 2
  - 7700:634 Advanced Clinical Testing 4
  - 7700:635 Advanced Clinical Practicum: Speech-Language Pathology (three each registration) 3
  - 7700:636 Advanced Clinical Practicum: Speech-Language Pathology (two registrations) 6
  - 7700:637 Externship: Speech Pathology and Audiology (two registrations) 6
  - 7700:638 Externship Seminar 1
  - Completion of 5610:693 Student Teaching in Speech Pathology and 5610:691 Student Teaching Seminar may be substituted for one 7700:696 registration and one of 7700:696 SLP Seminar registration.

- 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.

Speech-Language Pathology and Audiology

The School of Speech-Language Pathology and Audiology offers a Master of Arts degree in Speech-Language Pathology. The program in speech-language pathology is designed to lead to professional licensure by the State of Ohio Board of Speech-Language Pathology and Audiology.

The Joint MSW Program offers:

- Preparation for the advanced practice of social work
- A degree program accredited by the Council on Social Work Education
- Part-time study
- Evening/weekend courses
- Regional field placements
- Advanced standing program for qualifying students with a BSW

Admission Requirements:

The Joint MSW Program is committed to diversity in the student body. An applicant for admission as a degree candidate in social work (either full-time, part-time, or advanced standing) must fulfill the general admission requirements of both the Graduate School and the MSW Program prior to admission. The applicant must therefore complete application forms for both the Graduate School and the MSW Program. It is the applicant’s responsibility to make sure that all required application materials have been received. Applications for full-time, part-time, and advanced standing close on February 15. All application materials must be received by this date. Full-time and part-time admissions are available only for the fall semester.

The applicant must submit the following to the Graduate School:

- Graduate application form accompanied by an application fee for first-time applicants
- An official transcript from each college or university attended (must include content in human biology as well as liberal arts coursework)

The following must be submitted to the School of Social Work:

- 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 professional or personal 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, and if/how this situation impacted the desire to pursue an advanced degree in social work.

- A recent resume which highlights social work or human service experience.
- Three letters of reference/recommendation forms (including one from immediate supervisor, if employed).
- A completed Application Checklist.

In addition, applicants to the Joint MSW Program must have:

- Undergraduate degree in social work or a related field.
- Minimum GPA of 3.00 in social and behavioral science courses taken prior to application for admission.
- Well-balanced liberal arts curriculum.
- Interview with a member of the faculty may also be required.

Admission to the master’s degree program is on a selective basis and is determined by the academic preparation and personal qualifications of the applicant. Intellectual maturity, emotional stability, motivation, and the capacity to work with people are essential qualifications.

Openings for admission are limited, and competition is considerable. Individuals who have the strongest qualifications in terms of the MSW Program’s admission criteria are selected for admission. Students admitted to the MSW Program must register for courses the same calendar year they are accepted. Admission cannot be deferred until the next year. Students must indicate their intention to enroll by the deadline indicated in the letter of acceptance.

Applicants should be aware that having a prior felony conviction or prior sanctions for unprofessional conduct may impact future potential for obtaining licensure as well as field placements and social work employment.

Students are expected to adhere to the program format under which they were admitted. Any changes in this initial admission status will be based on the program’s ability to accommodate the change. Changes must be requested in writing at the beginning of the previous academic year. The Admissions Committee may require an in-person interview at its discretion.

Scheduling of courses depends on the availability of rooms equipped with distance education technology as well as other factors. The days and times courses are offered may vary from year to year. Students enrolled in either full-time, part-time, or advanced standing programs must be prepared to be flexible when the schedule of classes changes.
Transfer Students

An applicant who wishes to transfer from another MSW program must follow the same admission process and meet the same admission requirements as other degree candidates. A formal written request for transfer must be made at the time of application for admission. A maximum of 20 graduate credit hours may be transferred from another program accredited by the Council of Social Work. The credit must fall within the six-year time limit for degree completion. A grade of "B" or better is required for transfer credit. The Admissions Committee will determine acceptance of transfer credit. Credit will not be given for work or life experience. Transfer students must submit field work evaluations at the time of application for admission.

Program Requirements:

- Complete a minimum of 60 graduate credits of approved courses in social work with an average grade of "B" or better on all classroom courses and satisfactory grades in all field courses. Students must register only for 600-level courses.
- Complete an approved program of courses which include the following required courses:

**Full Time Program**

**First Year Professional Foundation:**

- Fall Semester
  7750:601 Foundation Field Practicum 3
  7750:605 Social Work Practice with Small Systems 3
  7750:622 Fundamentals of Research I 3
  7750:631 Human Behavior and Social Environment: Small Social Systems 3
  7750:646 Social Welfare Policy I 3

- Spring Semester
  7750:602 Foundation Field Practicum 3
  7750:606 Social Work Practice with Large Systems 3
  7750:647 Social Welfare Policy II 3
  7750:623 Fundamentals of Research II 3
  7750:632 Human Behavior and Social Environment: Large Systems 3

**Second Year Concentrations (Direct Practice):**

- Fall Semester
  7750:603 Advanced Field Practicum 3
  7750:607 Advanced Practice with Small Systems I 3
  7750:611 Dynamics of Racism and Discrimination 3
  7750:683 Psychopathology and Social Work 3

- Spring Semester
  7750:604 Advanced Field Practicum 3
  7750:608 Advanced Practice with Small Systems II 3
  7750:664 Direct Practice Research 3

**Second Year Concentrations (Macro Practice):**

- Fall Semester
  7750:603 Advanced Field Practicum 3
  7750:611 Dynamics of Racism and Discrimination 3
  7750:631 Human Behavior and Social Environment: Small Social Systems 3
  7750:672 Community Organization and Planning 3

- Spring Semester
  7750:604 Advanced Field Practicum 3
  7750:671 Social Work Administration 3
  7750:673 Strategies of Community Organization 3

**Part-Time Program**

**Professional Foundation:**

- Fall Semester (First Year)
  7750:631 HBSE: Small Systems 3
  7750:646 Social Welfare Policy I 3

- Spring Semester (First Year)
  7750:632 HBSE: Large Systems 3
  7750:647 Social Welfare Policy II 3

- Fall Semester (Second Year)
  7750:622 Fundamentals of Research I 3
  7750:650 Foundation Field Practicum 3

- Spring Semester (Second Year)
  7750:623 Fundamentals of Research II 3
  7750:664 Direct Practice Research 3
  7750:666 Social Work Practice with Large Systems 3

**Concentrations (Direct Practice):**

- Fall Semester (Third Year)
  7750:661 Dynamics of Racism and Discrimination 3
  7750:663 Psychopathology and Social Work 3

- Spring Semester (Third Year)
  7750:664 Direct Practice Research 3
  7750:666 Social Work Practice with Large Systems 3

- Fall Semester (Fourth Year)
  7750:607 Advanced Practice with Small Systems I 3
  7750:603 Advanced Field Practicum 3

- Spring Semester (Fourth Year)
  7750:608 Advanced Practice with Small Systems II 3
  7750:604 Advanced Field Practicum 3

**Concentrations (Macro Practice):**

- Fall Semester (Third Year)
  7750:611 Dynamics of Racism and Discrimination 3
  7750:674 Community, Economic Systems and Social Policy Analysis 3

- Spring Semester (Third Year)
  7750:675 Program Evaluation 3

**Advanced Standing Program**

**Direct Practice Concentration**

- Summer Semester
  7750:650 Advanced Standing Integrative Seminar 6

- Fall Semester
  7750:611 Dynamics of Racism and Discrimination 3
  7750:663 Psychopathology and Social Work 3
  7750:657 Advanced Practice with Small Systems I 3
  7750:603 Advanced Field Practicum 3

- Spring Semester
  7750:664 Direct Practice Research 3
  7750:608 Advanced Practice with Small Systems II 3
  7750:604 Advanced Field Practicum 3

**Macro Practice Concentration**

- Summer Semester
  7750:650 Advanced Standing Integrative Seminar 6

- Fall Semester
  7750:611 Dynamics of Racism and Discrimination 3
  7750:672 Community Organization and Planning 3
  7750:674 Community, Economic Systems and Policy Analysis 3
  7750:603 Advanced Field Practicum 3

- Spring Semester
  7750:671 Social Work Administration 3
  7750:673 Strategies of Community Organization 3
  7750:604 Advanced Field Practicum 3

**Testing Out Policy**

In order to avoid duplication and redundancy of course content during the foundation year, the MSW Program allows students the opportunity to test out of the following courses:

- 7750:631 Human Behavior and Social Environment: Small Social Systems 3
- 7750:646 Social Welfare Policy 3
- 7750:622 Fundamentals of Research I 3

Students wishing to test out of one or more of the above courses must notify the MSW Program Director at least three weeks prior to the start of the semester in which the course is normally taught. The proficiency exam must be taken prior to classes starting in that semester. There are no fees or penalties associated with taking these exams, however, each exam may be taken only once.

Additional information about the MSW Program may be obtained from the School of Social Work.
College of Nursing

Cynthia F. Capers, R.N., Ph.D., Dean
Kathleen Ross-Aalaolmolki, R.N., Ph.D., Assistant Dean, Academic Nursing Programs
Christine A. Wynd, R.N., Ph.D., Director, Joint Ph.D. in Nursing Program
N. Margaret Wineman, R.N., Ph.D., Assistant Dean, Nursing Research and School Activities
http://www.uakron.edu/nursing/

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 nursing 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 health care 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 foci of professional nursing are individuals, families and communities.

The Individual is seen as a complex whole whose existence involves patterns, dynamic change, transformation and interdependence. The individual interrelates within the environment in biological, psychological, social, spiritual, cultural and other dimensions. The individual is unique and universal. The individual is a thinking, feeling, interacting, evolving, creating, valuing being. Families are individuals dynamically connected with each other over time 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 effecting personal health.

Environment includes all living and nonliving dimensions with which the 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 social, cultural, 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 interrelations 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, interdependent 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 how to develop and test knowledge about health, illness and nursing care, and how to use this knowledge to enhance teaching, improve patient care, and influence health care 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 (JPDN), a single doctoral program with a single, unified doctoral nursing faculty and student body. Students may choose which university will grant their degree. The diploma will be issued from the university's university of record and will recognize the Joint Doctor of Philosophy program. JPDN courses will be cross listed and scheduled at each university.

Program Purpose and Description: Preparation of Scholars in Nursing

The JPDN program is characterized by excellence through scholarship, integrity, and caring. The primary purpose of the JPDN is to produce nurse scholars. This purpose will be realized through the development and testing of theories and models of nursing science and nursing practice, the 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 their leadership and their ability to conduct and apply research, to integrate and extend knowledge through teaching, and to develop and implement health care 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 or the College of Nursing at either Kent State University or The University of Akron. Completed applications should be returned to the addresses indicated on the application forms. Applications will be reviewed by the JPDN admissions committee with a single set of JPDN admission criteria.

Each applicant for admission into the Ph.D. in Nursing Program must meet the following criteria:

• Evidence of successful completion of a master's degree in nursing at an accredited program with a minimum graduate 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 an 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 or potential for success.
• At the request of the JPDN admission committee, successfully complete a personal interview with a graduate faculty member who will assess research interests and motivation for successful completion of doctoral study in the JPDN program.
• Register for courses within two (2) years of acceptance into the JPDN, or other- 
wise the acceptance is void.

Students wishing to transfer into the Ph.D. in Nursing Program must comply with the university standards for acceptance and are referred elsewhere in this catalog for that information.

International students will be considered for admission. In addition to the above admission criteria, international students must demonstrate a high level of com- 
petence in English, a minimum score of 550 on the Test of English as a Foreign 
Language (TOEFL). International students must comply with university procedures for accepting international students.

Students will be assigned an academic advisor based on mentoring and mutual research interests. Advisor and student will develop an academic program plan cus- 
tomized to student interest, subject to advisor approval. Target dates for success- 
fully completing the qualifying examination and the completion of the dissertation 
will be developed early in the program plan. Students may change advisors for aca-
demic or dissertation purposes, subject to the approval of the JPDN directors.

For progression and graduation, students must meet the following degree require-
ments:
• maintain an overall grade point average of 3.0 on a four-point scale (or be liable to dismissal according to University policies);
• adhere to criteria concerning enrollment, residency, and leaves of absence;
• complete degree requirements within 9 years of enrollment;
• complete 42 semester hours of required course work;
• successfully complete the qualifying examination and dissertation requirements;
• successfully complete and orally defend a dissertation based upon original inves-
tigation and critical scholarship.

Students who do not meet the criteria for successful progression and graduation 
will be notified in writing.

Program Description and Curriculum

The JPDN is a post master’s degree, requiring 72 semester credit hours including 
the dissertation. It consists of five components, with selected customization to stu-
dent interests. The nursing knowledge component examines knowledge and the-
yory development as well as courses in selected domains of nursing knowledge 
related to student interest and faculty expertise. Research methods, designs, and 
statistics examines approaches to both qualitative and quantitative research. Stu-
dents must select at least one advanced research methods course to promote their research agenda: i.e., program evaluation, advanced qualitative or quantitative meth-
ods, or grantsmanship. Cognates will be chosen from courses outside nursing which support the student’s research interest. Health care policy courses focus on 
health care and nursing issues. These four components culminate into the fifth com-
ponent, the dissertation, which follows the successful completion of the qualify-
ing examination. The course work in each of these five components follows.

Structure and content of nursing knowledge:

Five required courses (15 credits)
8200:910 History and Philosophy of Nursing Science 3
8200:815 Theory Construction and Development in Nursing 3
8200:820 Introduction to Nursing Knowledge Domains 3
8200:840 Nursing Science Seminar I 3
8200:850 Nursing Science Seminar II 3

Research methods, designs, and statistics:

Three required methods/design courses (9 credits)
8200:825 Quantitative Research Methods 3
8200:830 Qualitative Research Methods 3
8200:845 Advanced Methods for Research 3

Two required statistics courses (6 credits)
8200:827 Advanced Health Care Statistics I 3
8200:837 Advanced Health Care Statistics II 3

Cognates:

Three required courses (9 credits)
Cognates 9
(Three courses are selected with the approval of the student’s academic advisor from a discipline outside of nursing to support the student’s research interest.)

Electives:

8200:892 Field Experience in Nursing 1-12
8200:895 Special Topics in Nursing 1-6
8200:896 Individual Investigation in Nursing 1-3
8200:898 Research in Nursing 1-15

Health Care and nursing policy:

One required course (3 credits)
8200:835 Nursing and Health Care Policy 3

Doctoral dissertation

30 credit hours required
8200:899 Doctoral Dissertation 30
8200:800 Doctoral Dissertation II 1

Qualifying for Candidacy for the 
Doctoral Dissertation

• All students in the JPDN Program are required to successfully complete a qual-
ifying examination before proceeding to conduct dissertation research. To be eli-
gible for candidacy for the dissertation, students must have completed 42 hours of 
required 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 program.

• 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 dissertation.

• Dissertation: The dissertation is based upon original investigation and demon-
strates the student’s ability to critically think in the theoretical and method-
ological approaches to development 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 30 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 four 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 mem-
ber must be selected from outside the program. Other qualifications of mem-
bers will be consistent with the student’s area of research and with the requirements for doctoral committees as stated in the policies and general cat-
alogs of both universities.

Innovative Curriculum Pathways to the Joint Ph.D. 
in Nursing Program for BSN Graduates and for 
Students Enrolled in MSN Option

The Innovative Pathways into the Joint Ph.D. in Nursing Program (JPDN) is an accel-
erated program that allows individuals with a BSN and students enrolled in the RN-
MSN program direct admission into the JPDN program. Acceleration is 
accomplished by restructuring MSN and Ph.D. curricula to recognize the mastery 
of specific content, thereby facilitating graduate study. There are two pathways: 
one for BSN graduates and one for RN-option students. Since existing accelera-
tion pathways differ at The University of Akron and Kent State University, individ-
uals applying for admission to this program must apply for admission through the 
Graduate School of The University of Akron.

BSN Graduates:

BSN students within one semester of graduation and professional nurses with a 
BSN degree may apply in December prior to the fall in which admission is desired. 
Admission criteria include:
• Enrollment in an accredited BSN program within one semester of graduation 
or hold the BSN degree.
• Provide evidence of successful completion (or the potential to complete the BSN 
by the following fall semester) of a baccalaureate degree program in nursing at an 
accredited school with a minimum grade point average of 3.0 on a 4.0 scale.
• Provide evidence of current licensure, or eligibility for licensure, by the Ohio Board of 
Nursing.
• Provide evidence of acceptable scores on the Graduate Record Examination.
• Submit a statement about nursing career interests and goals.
• Give a sample of written work. This may include, for example, a scientific term paper, 
a research paper, an honor’s project, a professional report, or a published article.
• Submit three (3) letters of recommendation from professors or other profes-
sionals who can adequately evaluate previous work and potential for success in 
the Ph.D. program. One of the three letters must be from a Doctoral Faculty Council 
member who has worked closely with the student.
• Satisfactorily complete a personal interview with a Doctoral Faculty Council mem-
ber.
• Register for full-time study during the fall semester after acceptance into the Ph.D. 
program, or otherwise the acceptance is void.
• Enroll in full-time study for four calendar years for students who are entering 
directly from the BSN program or full-time study for two academic years plus 
two calendar years for post-BSN applicants.

Students receive a maximum of 12 credit hours of by-passed credit for master’s level courses after successfully completing 12 credit hours of doctoral level courses. 
Bypass credit is given in accordance with applicable University of Akron policy.

Upon successful completion of 8200:815, 8200:825, 8200:830, and 8200:835, stu-
dents receive a maximum of 12 hours of by-passed credit for master’s level courses.

Students Enrolled in MSN Option

Innovative pathway students accomplish the above requirements by 
restructuring MSN and Ph.D. curricula to recognize the mastery of 
specific content, thereby facilitating graduate study. There are two pathways: one 
for MSN graduates and one for RN-option students. Since existing accelera-
tion pathways differ at The University of Akron and Kent State University, individual 
applying for admission to this program must apply for admission through the 
Graduate School of The University of Akron.

Each MSN graduate student will be advised by a faculty member who 
is designated to their specific concentration. Each student will be advised 
by a doctoral nurse scientist. Students enrolled in the MSN pathway will 
complete 42 semester hours of required course work, with a minimum of 
30 credit hours of by-passed credit for master’s level courses. Students 
will be required to complete the above courses with a minimum grade point average 
of 3.0 on a 4.0 scale. In addition, all students will be required to complete 
the required courses listed below. Students enrolled in the MSN pathway will be 
required to complete the following coursework:

One core course (3 credits)
8200:835 Nursing and Health Care Policy 3
Internship: Students entering directly from the BSN program will be required to complete two 10-week internships with the Co-op program (paid positions).

- Internship in generalist practice during Summer Session I
- Internship in advanced nursing practice during Summer Session II

MSN-Option Students: Currently enrolled RN-option students at The University of Akron may apply for admission following completion of the RN-option bridge courses. Admission criteria include:

- Enrollment in The University of Akron RN-option program.
- Minimum grade point average of 3.0 on a 4.0 scale for all previous coursework.
- Provide evidence of current licensure, or eligibility for licensure, by the Ohio Board of Nursing.
- Provide evidence of current malpractice insurance.
- Provide evidence of acceptable scores on the Graduate Record Examination.
- Submit a statement about nursing career interest and goals.
- Give a sample of written work. This may include, for example, a scientific term paper, a research paper, an honor’s project, a professional report, or a published article.
- Submit three (3) letters of recommendation from professors or other professionals who can adequately evaluate previous work and potential for success in the Ph.D. program. One of the three letters must be from a Doctoral Faculty Council member who has worked closely with the student.
- Satisfactorily complete a personal interview with a Doctoral Faculty Council member.
- Register for full-time study during the fall semester after acceptance into the Ph.D. program, or otherwise the acceptance is void.

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 Graduate Program regarding the applicant’s status. The Coordinator will send a recommendation to the dean of the Graduate School, who will notify the student of admission status. Applications received in the graduate office of the College of Nursing will be reviewed when the file is complete to facilitate the admission process.

MASTER OF SCIENCE IN NURSING
http://www3.uakron.edu/nursing/Academic/masters.htm

Accreditation
The master’s degree programs are fully accredited by the National League for Nursing Accreditation Commission (NLNAC) and have preliminary approval from the Commission on Collegiate Nursing Education (CCNE). 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, 1-888-669-9666 extention 153. CCNE can be contacted at One Dupont Circle, N.W., Suite 630, Washington, D.C., 20036

Expected Outcomes of the Program
- Applies scientific theories and research to implement the advanced nursing role
- Demonstrates competence according to national standards and guidelines in the advanced nursing role
- Demonstrates knowledge of legal, ethical, fiscal, policy, and leadership issues that impact the delivery of health care in the advanced nursing role
- Demonstrates knowledge of legal, ethical, fiscal, policy, and leadership issues that impact the advancement of the nursing profession in the advanced nursing role
- Identifies researchable nursing problems and contributes to research studies for advanced nursing and health care practice

Admission
- Baccalaureate degree in nursing from an NLNAC or CCNE accredited nursing program.**
- 3.00 GPA on a 4.00 scale for all previous college work.
- GRE (preferred) or Miller Analogies Test taken within the last five years for the Nurse Anesthesia track.
- GRE required for students with a GPA of 2.99 and below.
- Three (3) letters of reference from a recent employer; a member of the nursing profession; a former faculty member.
- 300-word essay describing professional goals.

- Interview prior to admission to the program.
- Current state of Ohio license to practice nursing and evidence of malpractice insurance.
- Prerequisite course requirements: Undergraduate Statistics, Nursing Research, Basic Health Assessment and Computer Skills. Graduate Level Statistics. A one year experience in an area where critical care and emergencies 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 should access the online graduate application through the Graduate School webpage or the webpage of the 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 Graduate Program regarding the applicant’s status. The Coordinator will send a recommendation to the dean of the Graduate School, who will notify the student of admission status. Applications received in the graduate office of the College of Nursing will be reviewed when the file is complete to facilitate the admission process.

Instructional 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, Child 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 both in nursing and in related disciplines. It provides the foundation for doctoral study and for ongoing professional development.

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 6-7 credits: 8200:613, Nursing Inquiry I and 8200:699 Master’s Thesis or 8200:618 Nursing Inquiry II.

RN Sequence
(This sequence is limited to registered nurse graduates of Associate Degree and Diploma nursing programs)

The RN program is designed for registered nurses who hold a diploma or associate degree in nursing or a baccalaureate degree in another field. It is specifically designed for RN’s who are interested in obtaining the baccalaureate degree in nursing and/or continuing on to a master’s degree in nursing. Students must complete 68-69 hours of prerequisite undergraduate coursework prior to acceptance into the sequence. The RN program consists of 32 credit hours of upperdivision baccalaureate coursework. Students wishing to begin work on the Master’s degree RN/MSN option may do so while meeting the baccalaureate requirements. Additional admission requirements and a graduate research class (Inquiry I) are part of the RN/MSN option. Continuation in the graduate program is predicated on meeting graduate program requirements and acceptance into the graduate nursing program.

Advanced Practice Options
Options are provided for advanced practice as a clinical nurse specialist, nurse practitioner, or nurse anesthetist, or for advanced roles as an administrator. Requirements for admission include at least one year of practice in the area of interest.

Advanced Practice Options
Options are provided for advanced practice as a clinical nurse specialist, nurse practitioner, or nurse anesthetist, or for advanced roles as an administrator. Requirements for admission include at least one year of practice in the area of interest.

The Master of Science in Nursing curriculum requires from 36 to 60 credits, depending on the Advanced Practice option selected by the student.

Core courses required of all students:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8200:603</td>
<td>Theoretical Basis for Nursing</td>
<td>3</td>
</tr>
<tr>
<td>8200:606</td>
<td>Information Management in Advanced Nursing Practice</td>
<td>3</td>
</tr>
<tr>
<td>8200:607</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>3</td>
</tr>
<tr>
<td>8200:699</td>
<td>Master’s Thesis</td>
<td>16</td>
</tr>
</tbody>
</table>

Functional role courses selected by students based upon area of specialty.
• Nurse Anesthesia
  The Anesthesia Track (60 credit hours) is accredited by the Council on Accreditation of Nurse Anesthesia Programs. The Nurse Anesthesia track meets certification requirements through American Association of Nurse Anesthetists' Council on Certification of Nurse Anesthetists (ANCC).

  8200:561 Advanced Physiological Concepts in Health Care I 3
  8200:562 Advanced Physiological Concepts in Health Care II 3
  8200:567 Nurse Anesthesia Residency I 4
  8200:564 Scientific Components of Nurse Anesthesia 3
  8200:561 Pharmacology for Nurse Anesthesia I 3
  8200:562 Introduction to Nurse Anesthesia 2
  8200:563 Principles of Anesthesia I 4
  8200:564 Pharmacology for Nurse Anesthesia II 3
  8200:565 Principles of Anesthesia II 4
  8200:566 Nurse Anesthesia Residency II 4
  8200:567 Professional Role Seminar 2
  8200:568 Nurse Anesthesia Residency III 4
  8200:569 Nurse Anesthesia Residency IV 4

• CRNA-MSN Anesthesia Option
  8200:640 Scientific Components of Nurse Anesthesia 3
  8200:641 Pharmacology for Nurse Anesthesia I 3
  8200:642 Introduction to Nurse Anesthesia 2
  8200:643 Principles of Anesthesia I 4
  8200:644 Pharmacology for Nurse Anesthesia II 3
  8200:645 Principles of Anesthesia II 4
  8200:646 Nurse Anesthesia Residency II 4
  8200:647 Professional Role Seminar 2
  8200:648 Nurse Anesthesia Residency III 4
  8200:649 Nurse Anesthesia Residency IV 4

• Child and Adolescent Health Nurse Practitioner
  The Child and Adolescent Health Nurse Practitioner track (45 credits) meets certification requirements through ANCC or PCBPNP.

  7400:585 Nutrition for Pediatric Nurse Practitioners 2
  8200:650 Pediatric/Adolescent Assessment 3
  8200:651 Child and Adolescent Health Nursing I 3
  8200:652 Child and Adolescent Health Nursing I Practicum 2
  8200:653 Child and Adolescent Health Nursing II Practicum 2
  8200:654 Child and Adolescent Health Nursing III Practicum 2
  8200:655 Child and Adolescent Health Nursing II 3
  8200:656 Pharmacology for Child and Adolescent Health Nursing 3
  8200:657 Child and Adolescent Health Nursing III 3
  8200:658 Child and Adolescent Health NP Internship (elective only) 1-4
  8200:659 Practicum: Child and Adolescent Health Nursing 5

• Behavioral Health Nursing
  Behavioral Health Nursing Track (49 credit hours) meets eligibility requirements for certification through American Nurses Credentialing Center (ANCC) as psychiatric clinical nurse specialist or psychiatric nurse practitioner.

  5600:720 Topical Seminar: Guidance and Counseling (IDSM IV) 3
  8200:610 Adult/Gerontological Assessment 3
  8200:612 Advanced Clinical Pharmacology 3
  8200:660 Behavioral Health Nursing I Practicum 2
  8200:661 Behavioral Health Nursing I 3
  8200:666 Clinical Psychopharmacology 3
  8200:663 Behavioral Health Nursing Internship (elective only) 1-4
  8200:664 Behavioral Health Nursing II Practicum 2
  8200:665 Behavioral Health Nursing II 3
  8200:667 Behavioral Health Nursing III 3
  8200:668 Behavioral Health Nursing III Practicum 2
  8200:669 Practicum: Behavioral Health Nursing 5

• Adult Gerontological Health Nursing Clinical Nurse Specialist Track (39 credits)
  Meets eligibility requirements for certification through American Nurses Credentialing Center (ANCC) or Clinical Nurse Specialist in selected areas.

  8200:610 Advanced Adult/Gerontological Assessment 3
  8200:612 Advanced Clinical Pharmacology 3
  8200:671 Adult/Gerontological Health Nursing CNS I 2
  8200:672 Adult/Gerontological Health Nursing CNS I Practicum 2
  8200:675 Adult/Gerontological Health Nursing CNS II 2
  8200:676 Adult/Gerontological Health Nursing CNS II Practicum 2
  8200:677 Adult/Gerontological Health Nursing CNS III 2
  8200:678 Adult/Gerontological Health Nursing CNS III Practicum 2
  8200:679 Practicum: Adult/Gerontological Health Nursing CNS 4

• Adult Gerontological Health Nurse Practitioner Track (47 credits) meets eligibility requirements for certification through American Nurses Credentialing Center (ANCC) and American Academy of Nurse Practitioners (AANP).

  8200:610 Advanced Adult/Gerontological Assessment 3
  8200:612 Advanced Clinical Pharmacology 3
  8200:620 Adult/Gerontological Health Nursing NP I 2
  8200:621 Adult/Gerontological Health Nursing NP II 2
  8200:622 Adult/Gerontological Health Nursing NP III 2
  8200:623 Adult/Gerontological Health Nursing Practicum II 2
  8200:627 Adult/Gerontological Health Nursing NP I Practicum 2
  8200:628 Adult/Gerontological Health Nursing NP II Practicum 2
  8200:629 Adult/Gerontological Health Nursing NP III Practicum 2
  8200:690 Clinical Management I 3
  8200:692 Clinical Management II 3
  8200:694 Clinical Management III 3

Advanced Role Option
  • Administration (36 credits)
    8200:630 Resource Management in Nursing Settings 3
    8200:632 Fiscal Management in Nursing Administration 3
    8200:633 Nursing Leadership in Organizations I 3
    8200:634 Nursing Leadership in Organizations II 3
    8200:635 Organizational Behavior in Nursing Settings 3
    8200:638 Practicum Nursing Administration I 2
    8200:639 Practicum Nursing Administration II 2

*Cognate electives may be substituted for 8200:638 in the Administration option

Graduate Degree Completion Program for the Certified Registered Nurse Anesthetist (CRNAs)
  The Graduate Degree Completion Program for Certified Registered Nurse Anesthetists (CRNAs) is designed to give practicing CRNAs the opportunity to complete additional course work that integrates their current clinical expertise within the framework of advanced practice nursing at the master’s level. This program allows CRNAs to advance their current status to be congruent with the master’s level education mandated for all current nurse anesthesia educational programs.

Admission Requirements:
  • Evidence of successful completion of an accredited program of nurse anesthesia
  • Evidence of successful completion of an accredited BSN program
  • Current certification/recertification as a CRNA
  • Current employment as a CRNA
  • Three professional recommendations
  • Satisfactory completion of a graduate-level statistics course

Curriculum
  • Professionalism Core:
    8200:603 Theoretical Basis 3
    8200:607 Policy Issues in Nursing 2
  • Inquiry Core:
    3470:689 Statistics 3
    8200:606 Information Management in Advanced Nursing Practice 3
    8200:613 Inquiry I 3
    8200:618 Inquiry II 3
  • Additional Courses:
    8200:612 Advanced Clinical Pharmacology 3
    8200:632 Fiscal Management in Nursing 3
    8200:630 Resource Management in Nursing 3
    8200:635 Organizational Behaviors in Nursing 3
    8200:xxx Elective 3

  Portfolio 7

  Total 36

MASTER OF PUBLIC HEALTH
The Northeastern Ohio Universities Master of Public Health (NEOUMPH) program is a multidisciplinary, interdepartmental, and inter-institutional organization that provides opportunities for graduate studies in public health. As a consortium-based program, the Master in Public Health degree is awarded by The University of Akron and utilizes faculty at The University of Akron, Cleveland State University, Kent State University, Northeastern Ohio Universities College of Medicine, and Youngstown State University. This program focuses on enabling public health and health care practitioners to better serve the community. Students take core courses as a cohort at distance learning sites on participating campuses using interactive videoconferencing. Core courses are scheduled on Saturdays from 9:00 a.m. to 4:00 p.m. (excluding an hour for lunch). Electives are taken on the campus where they are being offered and may be taken at any time during the program.

Mission Statement
The mission of the Northeastern Ohio Universities Master of Public Health program is to preserve and enhance the health and well-being of the community by providing an educational program that fosters collaboration among the participating academic institutions, students, public health practitioners, and the public health system, and that prepares graduates in the knowledge, skills, and analytic capabilities required to improve the health of diverse populations at the local, state, and national levels via community practice, research, and service.
Goals
- Provide an MPH program that fosters diversity through collaboration among academicians, researchers, public health practitioners, and students from each member institution and the Northeast Ohio community.
- Provide graduates with a foundation of public health skills and knowledge, including community assessment methods, research strategies, program implementation, evaluation, and policy development.
- Provide students with opportunities to apply public health concepts and skills to assess and improve the health status of residents of Ohio.
- Foster ongoing professional development of faculty and students, and the advancement of public health practice in the community through the development and implementation of continuing education programs.
- Conduct at least an annual evaluation of program activity to assure that it continues to meet the needs of both students and the Ohio community, and is based on the most current concepts and skills in public health research and practice.

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 96, 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 44272-0095. 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

Admitted students are assigned to 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) 325-6719, fax (330) 325-5807 or e-mail at pubhlth@neoucom.edu. The Program Co-Director on The University of Akron campus may be reached at (330) 972-8299.

Curriculum
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:
  - Prerequisite for all core courses is admission to the MPH Program.
  - 8300:601 Public Health Concepts 3
  - 8300:602 Social and Behavioral Sciences in Public Health 3
  - 8300:603 Epidemiology in Public Health 3
  - 8300:604 Biostatistics in Public Health 3
  - 8300:605 Health Services Administration in Public Health 3
  - 8300:606 Environmental Health Sciences in Public Health 3

- Additional program requirements:
  - 8300:697 Capstone Project 3-6
  - Electives 15-18
  - Total 39

A “grant” project, capstone project, portfolio, and exit presentation is required of each student.

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. Whittby, and the UA program played a significant role in the synthetic rubber industry of the U.S. government during World War II. An Institute of Rubber Research under the direction of Professor Maurice Morton was created in 1956, which became an Institute of Polymer Science in 1964. A Ph.D. program in Polymer Science 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 1983 and a Department of Polymer Engineering in the College of Engineering in January 1984 with Professor James L. White as director and department chair to give thrust to polymer processing and engineering applications.

In 1988 the College of Polymer Science and Polymer Engineering was established to consolidate the administration of the two academic departments, the Institute of Polymer Science and the renamed Institute of Polymer Engineering.

MISSION STATEMENT
The mission of the College of Polymer Science and Polymer Engineering is to serve its students through a high quality educational experience, 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; occasionally assisted by visiting scientists, and post-doctoral associates.
- 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 aims.
- 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 college faculty as 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 Institute of Polymer Engineering, emphasize polymer processing (including reactive processing), solid state structure/morphology and properties of polymers as related to process history as well as engineering analysis and design. Collaborative research among the faculty in the two departments...
ADMISSION REQUIREMENTS

Admissions to the graduate program in the college are competitive. The departmental admission committees carefully consider each applicant. Early application is suggested.

DEPARTMENT OF POLYMER SCIENCE

Students with an undergraduate degree in chemistry, physics, or engineering and a grade point average of 2.75/4.0 or better are admissible. Students holding a degree in biology or natural sciences usually need additional courses on the undergraduate level in mathematics, physics, and analytical chemistry. For such students, a special non-degree admission may be given for one or two semesters, followed by a full admission upon a student’s successful completion of the remedial undergraduate courses. All applications must be supported by at least one letter of recommendation from a teacher or supervisor that the candidate is able to handle independent scientific research. GRE scores are recommended with each application.

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

DEPARTMENT OF POLYMER ENGINEERING

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

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

DOCTOR OF PHILOSOPHY

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

Doctor of Philosophy in Polymer Science

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

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

• Complete a course of study prescribed by the student’s advisory committee based on the committee’s judgment of the student’s background and on the result of any special examinations it might impose. This course will consist of a minimum of, but usually more than, 36 credits in graduate courses, or their equivalent, plus sufficient Ph.D. research credits to make a total of 94 credits (exclusive of Master of Science thesis credit). Credits for participation in either Polymer Science of Polymer Engineering seminars do not apply toward the degree. At least 18 credits of graduate course work and all dissertation credits must be completed at the University.

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

• Completion of 18 credits among the following core courses (2 credits each) in polymer science:

- 4 credits of polymer chemistry courses:
  - 9871:601 Polymer Concepts
  - 9871:602 Synthesis and Chemical Behavior of Polymers
  - 9871:704 Condensation Polymerization
  - 9871:705 Free Radical Reactions in Polymer Science
  - 9871:706 Ionic and Monomer Insertion Reactions

- 4 credits of polymer physical chemistry courses:
  - 9871:674 Polymer Structure and Characterization
  - 9871:675 Polymer Thermodynamics

- 4 credits of polymer physical property courses:
  - 9871:631 Physical Properties of Polymers I
  - 9871:632 Physical Properties of Polymers II

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

- 3 credits of polymer science laboratory:
  - 9871:613 Polymer Science Laboratory

• Completion of 18 credits of elective courses appropriate to each student’s area of interest.

• Pass eight cumulative examinations which are given at monthly intervals during the academic year. The candidate is urged to begin these examinations early in the graduate program.

• Complete 9871:6078 Polymer Science Seminar I and II.

• Attendance at and participation in seminar-type discussions scheduled by the department. Credits for participation in either polymer science or polymer engineering seminars do not apply toward the degree.

• Present a public/departmental seminar on the completed research.

• Pass an oral examination upon completion of a research dissertation.

• Demonstrate competency in computer programming.

• Pass the general requirements for the Doctor of Philosophy degree.

• Satisfy the foreign language requirement for the doctoral degree by meeting the requirements of Plan A, B, or C as specified by the student’s advisory committee. Appropriate research skills for Plan C are to be specified by the department on the basis of the student’s area of specialization and intended research. These skills include proficiency in computer programming language, special mathematical methods, applied statistical analysis, and special literature search techniques.

Doctor of Philosophy in 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 Polymer Engineering. Requirements in the interdisciplinary field of Polymer Engineering for that degree are as follows:

• Take a Basic Engineering exam after the first Fall semester of study. The exam will cover heat transfer, fluid mechanics and solid mechanics, as determined by the department. If a student fails the examination or a portion of the examination he/she may be asked to take remedial undergraduate courses or graduate level courses at his/her own expense within one year from the date of the exam. NOTE: Any student who successfully completes course 9841:650, Introduction to Polymer Engineering, with a “B” or better grade is deemed to have satisfied the requirement of the Basic Engineering exam and does not have to take the exam. Students who achieve a “B-” or lower in the course would still be required to take the exam.

• Successfully complete a qualifying examination within three semesters after admission into the program. The examination shall cover graduate courses that the student has completed and basic undergraduate topics.

• Develop a plan of study approved by the student’s advisor and the Department Chair.

• Complete courses as developed in the plan of study. A minimum of 96 credits of graduate work must be earned. A total of 36 credit hours of lecture courses and 60 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 36 lecture course credit requirement.

• A student entering with a master’s degree or graduate credits from another institution may be given 18 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.
• Submit the written Doctoral Dissertation to the Graduate School by the required deadlines.
• Fulfill a second language requirement.
• Polymer engineering core (12 credits):
  9841:611 Structural Characterization of Polymers with Electromagnetic Radiation 2
  9841:621 Rheology of Polymeric Fluids 3
  9841:622 Analysis and Design of Polymer Processing Operations I 3
  9841:631 Engineering Properties of Solid Polymers 2
  9841:641 Polymeric Materials Engineering Science 2
• Polymer Engineering (600-level) electives:
  9841:601 Polymer Engineering Seminar 1
  9841:623 Analysis and Design of Polymer Processing Operations II 3
  9841:642 Engineering Aspects of Polymer Colloids 2
  9841:650 Introduction to Polymer Engineering 3
  9841:651 Polymer Engineering Laboratory 3
  9841:661 Polymerization Reactor Engineering 3
  9841:670 Polymer Nanocomposites 3
  9841:675 Carbon-Polymer Nanotechnology 3
  9841:680 Polymer Coatings 3
• Polymer Engineering (700-level) electives:
  9841:7xx Electives 10
• Research (60 credits):
  Students may take a combination of 9841:898 (Preliminary Research) and 9841:899 (Doctoral Dissertation) to meet this requirement, however, a minimum of 12 credits of the total 60 required must be of 9841:899.
• Foreign Language Requirement:
  Additionally, a foreign language or research technique (i.e., computer skill/statistics) is required for the Ph.D. in Polymer Engineering, using either Plan A, B, or C (see section under "Language Requirements" as described in this publication).

**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 credits in the following required core courses in polymer science: 9871:601 Polymer Concepts; 613 Polymer Science Laboratory; 631 Physical Properties of Polymers I; 634 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 30 credits: 12 credits of core courses, 6 credits of 600-level polymer engineering electives, 6 credits of technical electives, and 6 credits of Master’s Thesis.

**Polymer engineering core:**

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

**Polymer engineering elective:**

- 9841:601 Polymer Engineering Seminar 1
- 9841:623 Analysis and Design of Polymer Processing Operations II 3
- 9841:642 Engineering Aspects of Polymer Colloids 2
- 9841:650 Introduction to Polymer Engineering 3
- 9841:651 Polymer Engineering Laboratory 3
- 9841:661 Polymerization Reactor Engineering 3
- 9841:670 Polymer Nanocomposites 3
- 9841:675 Carbon-Polymer Nanotechnology 3
- 9841:680 Polymer Coatings 3

The Committee recommends 9841:651 to be compulsory for all full-time M.S. students, but it may be exempted as an elective for part-time students who are currently employed in polymer and related industries.

**Mathematics electives**

- 3450: Approved Mathematics 3

**Technical electives:**

- 3400:xxx: Approved Mathematics 3
- 4300:681 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 3
- 9841:xx Electives 3

**Polymer Engineering (700-level) electives:**

- 9841:7xx Electives 10

A minimum of 36 credits of coursework is required for the Ph.D. in Polymer Engineering.

**Research (60 credits):**

Students may take a combination of 9841:898 (Preliminary Research) and 9841:899 (Doctoral Dissertation) to meet this requirement, however, a minimum of 12 credits of the total 60 required must be of 9841:899.

**Thesis:**

- 9841:699 Master’s Thesis 6

**Requirements:**

- Polymer Engineering Core 12
- 600-level Polymer Engineering Electives 6
- Technical Electives 6
- Thesis 6
- Total 30

**Students will take a Basic Engineering exam after their first Fall semester of study. The exam will cover heat transfer, fluid mechanics and solid mechanics, as determined by the department. If a student fails the examination or a portion of the examination he/she may be asked to take remedial undergraduate courses or graduate level courses at his/her own expense within one year from the date of the exam. Students for whom the master’s degree is a terminal degree may be exempted from taking remedial courses with the approval of his/her advisor and the department chair. NOTE: Any student who successfully completes course 9841:650, Introduction to Polymer Engineering, with a “B” or better grade is deemed to have satisfied the requirement of the Basic Engineering exam and does not have to take the exam. Students who achieve a “B-” or lower in the course would still be required to take the exam.**

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

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

Interdisciplinary Studies programs feature courses which integrate and analyze issues and concepts from more than one field. The goal of this type of study is to place knowledge into 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 nurse 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>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<td>8200:692</td>
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<td>Acute Care Nurse Practitioner II</td>
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ADDITIONAL AND CERTIFICATE PROGRAMS

ADDITIONAL AND CERTIFICATE PROGRAMS IN FUNDAMENTAL PURSUIT OF KNOWLEDGE

The University of Akron has a long history of the interdisciplinary study of conflict, because understanding the nature of conflict is the first step toward reducing conflict and violence at home, in our communities, workplaces, and schools. This graduate certificate, jointly administered by the departments of Political Science and Sociology, will build on that tradition to enhance the capacity of students to effectively work toward reducing the harms associated with family conflict and violence.

Required Core Courses:
- Conflict Analysis Core Courses
  - 3700:622 Seminar in Alternatives to Violence at Home and Abroad
  - 3850:555 Family Violence
- Skill Development Core Courses
  - 7400:585-008 Seminar: General Mediation Training
  - 7400:585-007 Seminar: Divorce Mediation Training
- Elective Courses: (choose two)*
  - 3850:523 Sociology of Women
  - 3850:528 Victim in Society
  - 3700:690 Special Topics (conflict related)
  - 9200:638** Family Law
  - 9200:640** Alternative Dispute Resolution

Total credit hours 16

*To complete the certificate, students must submit a seminar paper from one of their courses selected from the electives list to the Director of the Center for approval as a scholarly investigation of the issues surrounding family conflict.
ADVANCED CERTIFICATE IN GLOBAL CONFLICT AT THE CENTER FOR CONFLICT MANAGEMENT

The University of Akron has a long history of the interdisciplinary study of conflict, because understanding the nature of conflict is the first step toward reducing conflict and violence at home, in our communities, workplaces, and schools. This graduate certificate, jointly administered by the departments of Political Science and Sociology, will build on that tradition to enhance the capacity of students to effectively work toward reducing the harms associated with global conflict and violence.

Required Core Courses:
- Conflict Analysis Core Courses
  - 3700:622 Seminar in Alternatives to Violence at Home and Abroad 3
  - 3850:556 Family Violence 3
- Skill Development Core Courses
  - 7400:585-008 Seminar: General Mediation Training 3
  - 7400:585-007 Seminar: Divorce Mediation Training 3
- Elective Courses (choose three):*
  - 3850:521 Race and Ethnic Relations 3
  - 3700:512 Global Environmental Politics 3
  - 3700:610 Seminar in International Politics 3
  - 3700:690 Special Topics (global conflict related) 1-3
- Total credit hours 19

*To complete the certificate, students must submit a seminar paper from one of their courses selected from the electives list to the Director of the Center for approval as a scholarly investigation of the issues surrounding global conflict.

ADVANCED ROLE SPECIALIZATIONS IN NURSING MANAGEMENT AND BUSINESS

This certificate program is open to all current master's and doctoral students in the College of Nursing, post-baccalaureate students, post-MSN students, and post-doctoral nurses who are currently in advanced practice.

Admission:
- Formal admission to the University of Akron is required as either a post-baccalaureate student, graduate student, or non-degree graduate student. The awarding of this certificate is not contingent upon a degree completion program.

Program of Study:
- Students should successfully complete all four courses listed below.
  - 8200:630 Resource Management in Nursing Settings 3
  - 8200:632 Fiscal Management in Nursing Administration 3
  - 8200:634 Nursing Leadership in Organizations II 3
  - 8200:635 Organizational Behavior in Nursing Settings 3
- Total credit hours 12

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 coursework in the history, organization, and management of campaigns intended to influence the outcome of political decisions. Working from a set of core courses, students are allowed to concentrate in the area of applied politics of greatest interest—campaigns, communications, lobbying, 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. The student shall schedule courses with the assistance of an advisor at the earliest possible time.

Core Courses (required–12 credits):
- 3700:570 Campaign Management I 3
- 3700:571 Campaign Management II 3
- 3700:672 Seminar: Political Influence and Organizations 3
- 3700:696 Internship in Government and Politics 3

Electives:
- Six credits selected from the following (at least 3 credits must be from 3700:502, 540, 572, 573, 574, 575, 576, or 630):

  - 3700:502 Politics and the Media 3
  - 3700:540 Survey Research Methods 3
  - 3700:572 Campaign Finance 3
  - 3700:573 Voter Contact and Elections 3
  - 3700:574 Political Opinion, Behavior and Electoral Policies 3
  - 3700:575 American Interest Groups 3
  - 3700:576 American Political Parties 3
  - 3700:630 Seminar in National Politics 3
  - 3850:614 Ethics and Public Service 3

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

Certificate

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

BEHAVIORAL HEALTH NURSE PRACTITIONER – POST-MSN

The Post-MSN Behavioral Health Nurse Practitioner certificate program is 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. Upon completion of the 16 credit program, the students are eligible to sit for the psychiatric nurse practitioner certification examination.

Admission

Admission criteria include the following:
1. Holds an earned master’s degree with a specialty of psychiatric nursing.
2. A GPA of 3.0 or better from the master’s degree program.
3. Completes an interview with the program coordinator.

Program of Study

Students must complete a minimum of 500 clinical hours for eligibility to sit for certification.

Required Courses
- 8200:608 Pathophysiological Concepts 3
- 8200:610 Advanced Adult/Gerontological Assessment 3
- 8200:612 Advanced Clinical Pharmacology 3
- 8200:662 Clinical Psychopharmacology 3
- 8200:663 Behavioral Health Nursing Internship (required) 1-4
- Total 16

CASE MANAGEMENT FOR CHILDREN AND FAMILIES

Helen K. Clemanshaw, 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 collaborative cross-systems case management for children and families in the context of community-based services. This course of study promotes collaboration among disciplines and services.

Admission

To participate in the program the student should:

1. Be formally admitted to The University of Akron as a postbaccalaureate, graduate or non-degree graduate student.
2. Make written application to the program and receive written notification of admission from The Center for Family Studies.

Requirements

Core:

Students should 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.

- 7400:561 Case Management for Children and Families I 3
- 7400:562 Case Management for Children and Families II 3
- 7400:563 Practicum in Cross-Systems Case Management for Children and Families 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. Organizations are using Internet technology to create new business opportunities and how they can transform an existing business into an e-Business.

Electives:
Students must successfully complete six credits of coursework selected from the various departmental courses listed below:

- Family and Consumer Sciences
  - 7400:501 American Families in Poverty 3
  - 7400:504 Middle Childhood and Adolescence 3
  - 7400:540 Family Crisis 3
  - 7400:546 Culture, Ethnicity and the Family 3
  - 7400:602 Family in Life-Span Perspective 3
  - 7400:610 Child Development Theories 3
  - 7400:651 Family and Consumer Law 3
  - 7400:666 Development in Infancy and Early Childhood 3

- Home-Based Intervention
  - 1820:503 Home-Based Intervention Theory 3
  - 1820:504 Home-Based Intervention Techniques and Practice 3

CHILD AND ADOLESCENT HEALTH NURSE PRACTITIONER – POST-MSN

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.
- Complete the following prerequisite courses: Pathophysiological Concepts, Advanced Pediatric/Adolescent Assessment, Nutrition.

Program of Study
Students are required to complete a minimum of 500 clinical practice hours in conjunction with the Child and Adolescent Health Nursing courses.

Required Courses:
- 8200:651 Child and Adolescent Health Nursing I 3
- 8200:652 Child and Adolescent Health Nursing I Practicum 2
- 8200:655 Child and Adolescent Health Nursing II 3
- 8200:653 Child and Adolescent Health Nursing II Practicum 2
- 8200:658 Pharmacology for Child and Adolescent Health Nursing 3
- 8200:658 Child and Adolescent NP Internship (required 4 credits) 1-4

Total 17

COMPOSITION
Lance Svehla, Ph.D., Coordinator

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

Required Courses:
- 3300:676 Theory and Teaching of Basic Composition 3
- 3300:673 Theories of Composition 3
- 3300:674 Research Methodologies in Composition 3

Optional Courses:
- 3300:570 History of English Language 3
- 3300:571 U.S. Dialects: Black and White 3
- 3300:589 Seminar in English: Grammatical Structures of Modern English 3
- 3300:575 Theory of Rhetoric 3
- 3300:589 Seminar in English: Sociolinguistics 3
- 3300:670 Modern Linguistics 3
- 3300:689 Seminar in English: Stylistics 3
- 3300:689 Seminar in English: Contextual Linguistics 3

DIVORCE MEDIATION
Helen Cleminshaw, 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
  - 9200:621 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
- 5600:669 Systems Theory in Family Therapy 3
- 7400:540 Family Crisis 3
- 7400:590 Family and Divorce 2
- 7400:602 Family in Life-Span Perspective 3
- 9200:684 Alternate Dispute Resolution 3
E-LEARNING

John R. Savery, Ph.D., Coordinator

Program
This certificate program in e-Learning requires a minimum of 16 credit hours. The certificate in e-Learning Technologies has been designed to assist students in becoming competent, employable professionals capable of making a significant contribution in the field of education and training. The graduate curriculum provides its students with exposure to a wide range of distance learning technologies, while still ensuring the basic competencies required of all practitioners. In this way, the program directly addresses the rapidly accelerating changes in distance learning technologies.

Admission
All applicants to the program should have previously earned a Bachelor's degree. Applicants wishing to pursue a Master's degree in Educational Foundations emphasizing Instructional Technology must apply to the Graduate School for admission into the program. Applicants wishing to pursue only the certificate program must apply to the graduate school for admission as a non-degree student.

Requirements (16 credits):

- 5100:629 e-Learning Fundamentals 1
- 5100:630 Topical Seminar: Advanced Multimedia 3
- 5100:631 Instructional Design 3
- 5100:632 Web-based Learning Systems 3
- 5100:639 Strategies for Online Instruction 3
- 5100:698 Technology Project 3
- Total 16

ENVIRONMENTAL ENGINEERING

This certificate program provides practicing professionals an opportunity to expand their knowledge base in environmental engineering. It is designed for people who cannot make the full time commitment to the graduate degree program but would like to receive recognition of their continued effort in the area of study or would like to cumulate credit hours toward their ultimate graduate degree goal.

Admission Criteria
This certificate is designed primarily for students with a B.S. degree in Civil Engineering or a closely related field.

Program of Study
Civil Engineering students may earn a Geotechnical Engineering Certificate by completing a total of 15 credit hours.

Civil Engineering students may earn an Environmental Engineering Certificate by completing five of the following courses:

- 4300:523 Chemistry for Environmental Engineers 3
- 4300:526 Environmental Engineering Design 3
- 4300:527 Water Quality Modeling and Management 3
- 4300:623 Physical/Chemical Treatment Processes 3
- 4300:624 Biological Wastewater Treatment Processes 3
- 4300:631 Soil Remediation 3

- Total 16

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
  (may be repeated as an elective)

Electives (minimum of 14 credits):
- 3010:501 Seminar in Environmental Studies 2
- 3010:590 Workshop in Environmental Studies 1-4
- 3100:521 Tropical Field Biology 4
- 3100:526 Freshwater Ecology Field and Laboratory Studies 3
- 3100:526 Wetland Ecology 4
- 3100:660 Environmental Physiology 3
- 3100:626 Wetland Ecology 4
- 3100:660 Environmental Physiology 3
- 3350:505 Geographic Information Systems 3
- 3350:507 Advanced Geographic Information Systems 3
- 3500:547 Remote Sensing 3
- 3500:549 Advanced Remote Sensing 3
- 3500:595 Soil and Water Field Studies 3
- 3370:570 Geochemistry 3
- 3370:574 Groundwater Hydrology 3
- 3370:661 Geologic Record of Past Global Change 3
- 3370:674 Advanced Groundwater Hydrology 3
- 3370:678 Urban Geology 3
- 3400:571 American Environmental History 3
- 3470:561 Applied Statistics I 4
- 3700:512 Global Environmental Politics 3
- 3850:686 Population 3
- 4200:563 Pollution Control 3
- 4200:750 Advanced Pollution Control 3
- 4300:523 Chemistry for Environmental Engineers 3
- 4300:526 Environmental Engineering Design 3
- 4300:527 Water Quality Modeling and Management 3
- 4300:528 Hazardous and Solid Wastes 3
- 4300:620 Sanitary Engineering Problems 2
- 4300:621 Environmental Engineering Principles 4
- 4300:631 Soil Remediation 3
- 4300:731 Bioremediation 3
- 9200:661 Environmental Law 3

GRADUATE CERTIFICATE IN GENDER CONFLICT AT THE CENTER FOR CONFLICT MANAGEMENT

An 18 credit graduate certificate offering graduate students an opportunity to examine the scholarly debates surrounding gender conflicts.

Required Courses:
- 3700:522 Understanding Racial and Gender Conflict 3
- 3850:639 Sociology of Gender 3

Electives:
- 3700:552 Politics and the Media 3
- 3700:622 Seminar in Alternatives to Violence at Home and Abroad 3
- 3850:523 Sociology of Women 3
- 3850:646 Social Inequalities 3
- 3850:510 Social Structures and Personality 3
- 3850:541 Sociology of Law 3
- 3850:555 Family Violence 3
- 3850:753 ST. Gender and Crime 3
- 3230:516 Anthropology of Sex and Gender 3
- 3230:563 Social Anthropology 3
- 3300:589 Seminar in English: Subversive Women 3
- 3300:589 Seminar in English: British Women Writers 3
- 3400:590 Special Studies: Women, Film, and History 4
- 3400:669 Reading Seminar in American History Since 1877 (US Women's History) 4

GEOGRAPHIC INFORMATION SCIENCES

Program
The geographic information sciences (GISci) encompass a variety of powerful new tools that greatly improve our ability to collect, store, manage, and analyze, and utilize information regarding the features of the Earth’s surface and to combine these with other types of economic, social, and environmental information. Included among these are geographic information systems (GIS), cartography, and satellite-based remote sensing. Professionals with proficiency in these concepts and methods are increasingly in demand in both the public and private sectors.

For further program information contact Graduate Advisor, Department of Geography and Planning, (330) 972-7620.

Requirements
This program of professional and scientific education is intended to enhance abilities in data handling, analysis, and graphic communication of simple and complex geographic data and information. The program is not limited to geography majors. It is designed to introduce GISci concepts and methods to students from a wide spectrum of disciplines. These courses provide for specialized study in the rapidly changing and significant area of GISci and cartography.
Eighteen (18) credits are required to complete this course. These include the four core courses:

- 3350:505 Geographic Information Systems 3
- 3350:507 Advanced Geographic Information Systems 3
- 3350:540 Principles of Cartography 3
- 3350:547 Remote Sensing 3

The remaining 6 credits shall come from the list of electives:

- 3350:542 Thematic Cartography 3
- 3350:544 Applications in Cartography and Geographic Information Systems 3
- 3350:548 Advanced Cartography 3
- 3350:549 Advanced Remote Sensing 3

**GEOTECHNICAL ENGINEERING**

This certificate program provides practicing professionals an opportunity to expand their knowledge base in geotechnical engineering. It is designed for people who cannot make the full time commitment to the graduate degree program but would like to receive recognition of their continued effort in the area of study or would like to accumulate credit hours toward their ultimate graduate degree goal.

**Admission Criteria**

This certificate is designed primarily for students with a B.S. degree in Civil Engineering or a closely related field.

**Program of Study**

Civil Engineering students may earn a Geotechnical Engineering Certificate by completing a total of 15 credit hours.

At least three (3) of the following courses must be taken:

- 4300:612 Advanced Soil Mechanics 3
- 4300:614 Foundation Engineering I 3
- 4300:615 Foundation Engineering II 3
- 4300:617 Numerical Methods in Geotechnical Engineering 3
- 4300:717 Soil Dynamics 3

Four of the following workshop courses may be taken and substituted for two (2) of the courses above:

- Load and Resistance Factor Design of Foundations and Geotechnical Features 1.5
- Ground Improvement Methods 1.5
- Mechanically Stabilized Earth Walls and Reinforced Soil 1.5
- Slopes 1.5
- Deep Foundations 1.5

Students interested in these workshop courses should contact the Department of Civil Engineering.

**GERONTOLOGY**

Harvey Sterns, Ph.D., Director

**Requirements**

This certificate program is a special course of study in gerontology that compliments graduate degree programs in various departments and colleges throughout the University. There is a combined graduate certificate program with Kent State University. Combined, the two universities offer a diverse range of graduate courses with aging-related content and joint faculty that are nationally and internationally recognized scholars in gerontology. 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 helps 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 of the certificate have been completed.

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

**Admission**

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

- Obtain admittance to the Graduate School.
- Submit an application to the program countersigned by the student’s major academic advisor.
- Participate in an interview with the Director or 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:**

- —— Research Methods Course 3
- 3006:680 Interdisciplinary Seminar in Life-Span Development and Gerontology 3
- 3006:695 Practicum in Life-Span Development and Gerontology 3

**Electives:**

- 3006:686 Retirement Specialist 2
- 3006:690 Workshop – Women: Middle and Later Years 2
- 3006:690 Workshop – Aging: Process and Intervention 2
- 3700:580 Policy Problems: Aging (Offered every other year) 3
- 3750:620 Psychology Core II: Developmental, Perceptual, Cognitive 2
- 3750:727 Psychology of Adulthood and Aging 4
- 3850:681 Cross Cultural Perspectives in Aging 3
- 3850:678 Social Gerontology 3
- 5400:541 Educational Gerontology Seminar 3
- 5400:661 Current Issues in Higher Education: Life-Span and Community Education 3
- 6500:683 Health Services Systems Management (with permission) 3
- 7400:603 Family Relationships in Middle and Later Years 3
- 7700:624 Neurogenic Speech and Language Disorders 3
- 7750:550 Social Needs and Services for Later Adulthood and Aging 3

*From student’s home department.

**SELECT A MINIMUM OF TWO COURSES. A STUDENT IS REQUIRED TO TAKE ONE OF THE ELECTIVES OUTSIDE THE MAJOR OR DEGREE PROGRAM. ONE CREDIT WORKSHOP MAY BE INCLUDED AS AN ELECTIVE, WITH PERMISSION.**

**HIGHER EDUCATION**

**Requirements**

This certificate program in higher education requires a minimum of 18 credits. The program of studies has been designed to serve the practicing or prospective college or university administrator or instructor.

**Admission**

All applicants to the program should have previously earned a 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.

**Program**

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

**Required:**

- 5100:703 Seminar: History and Philosophy of Higher Education 3
- 5190:500 Introduction to the Study of Higher Education 3
- 5190:600 Advanced Administrative Colloquium in Higher Education 3
- 5190:601 Internship in Higher Education 2
- 5190:602 Internship in Higher Education Seminar 1
- Total 10

**Options:**

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

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

- 5190:515 Administration in Higher Education (A) 3
- 5190:525 Topical Seminar: Higher Education 3
- 5190:626 Organization and Policy Development in Higher Education (B) 3

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

- 5190:525 Topical Seminar in Higher Education 3
- 5190:526 Student Services in Higher Education (A) 3
- 5190:527 The American College Student (B) 3
Helen Cleminshaw, 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 will receive their graduate certificate upon completion of the requirements for their graduate degree. The program represents a concentration in current theoretical knowledge and practice in home-based intervention. It adds another dimension to the knowledge and skills a student is able to offer in the many professions that relate to services to at-risk children and their families. This course of study coordinates multidisciplinary training of personnel in home-based intervention and helps to meet the need for trained professionals in home-based intervention.

The undergraduate and graduate curriculum committees of the Center for Family Studies will oversee the certificate program and certify through the Director of the Certificate Programs in Home-Based Intervention that all requirements for the certificate have been completed.

Admission
To participate in the program at the graduate level, the student should:
- Be formally admitted to The University of Akron Graduate School.
- Make written application to the program countersigned by student’s major academic 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 500 level will have an additional graduate level project.

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

Requirements
Core Courses:
- 1820:503 Home-Based Intervention Theory 3
- 1820:504 Home-Based Intervention Techniques and Practice 3
- 1820:505 Home-Based Intervention Internship 3-5

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

Theoretical Frameworks:
- Systems Theory
  - 3850:620 General Systems Theory 3
  - 5600:643 Theories and Philosophy of Counseling 3
  - 5600:655 Marriage and Family Therapy: Theory and Techniques 3
- Developmental Theory
  - 3850:512 Socialization: Child to Adult 3
  - 3820:602 Family in Life-Span Perspective 3
  - 3820:605 Developmental Parent-Child Interactions (online) 3
  - 3820:610 Child Development Theories 3
- Therapeutic Theory
  - 5600:651 Techniques in Counseling 3
  - 5600:660 Mental Therapy 3
  - 5600:669 Systems 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
  - 3750:630 Psychological Disorders of Children 4
  - 3750:704 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
  - 5600:550 Counseling Problems Related to Life-Threatening Illness and Death 3
  - 5600:620 Issues in Sexuality for Counselors 3
- Special Education
  - 5610:540 Developmental Characteristics of Exceptional Individuals 3
  - 5610:560 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)
  - 5500:571 Characteristics of Culturally Diverse Populations 3
- Family and Consumer Sciences
  - 7400:510 American Families in Poverty 3
  - 7400:504 Middle Childhood and Adolescence 3
  - 7400:506 Family Financial Management 3
  - 7400:540 Family Crisis 3
  - 7400:542 Human Sexuality 3
  - 7400:546 Culture, Ethnicity, and the Family 3
  - 7600:590 Workshop in Family and Consumer Sciences: Family and Divorce 2
  - 7400:596 Parent Education 3
- Social Work
  - 7750:510 Minority Issues in Social Work Practice 3
  - 7750:552 Social Work and Mental Health 3
  - 7750:554 Social Work in Juvenile Justice 3

HUMAN RESOURCE MANAGEMENT
Program
The Human Resource Management Certificate is a course of study that educates an individual who seeks a career in Human Resources or who is working in Human Resources without having had formal training.

Admission
To participate in the program, the student must be formally admitted to The University of Akron as a graduate or non-degree student and must complete 15 credits. Students should visit the Director of Graduate Studies in Business Administration to request that notification of the certificate be included on the student’s transcript as soon as the course of study is completed. Students admitted to the Human Resource Management Certificate Program may enroll only in those courses required for completion of the certificate.

Requirements (complete all 15 credits)
- 6500:600 Management and Organizational Behavior* 3
- 6500:650 Human Resource Systems for Managers 3
- 6500:656 Compensation and Performance Management 3
- 6500:658 Strategic and Global Human Resource Management 3
- 6500:660 Staffing and Employment Regulation 3

*Students who waive 6500:600 will be required to substitute either 6500:651 Organization Transformation or 6500:654 Management of Employee and Labor Relations per approval of Department of Management Chair.

LITERATURE
To be eligible for the graduate certificate in literature, 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 Graduate Coordinator in the Department of English. Of the five required courses (15 credits), two must be core courses, Chaucer and Shakespearean Drama; four of the five courses must be at the 600-level; and one must be American literature.

Core Courses:
- 3300:506 Chaucer* 3
- 3300:615 Shakespearean Drama 3

*Unless the student has passed a comparable course at the undergraduate level with a grade of B or better.
MANAGEMENT OF TECHNOLOGY AND INNOVATION

R. Ray Gehani, D.Eng., Ph.D., Director

In an increasingly global economy integrated with technology, the innovative enterprises with effective and efficient management of technology and innovation will gain competitive advantage over their rivals. To respond to these needs of our potential employers, this certificate program in Management of Technology and Innovation was developed by the College of Business Administration with the cooperation of the College of Polymer Science and Polymer Engineering and the guidance of the members of the Advancement Councils of the two colleges. This graduate certificate program offers courses in Management of Technology and other innovation-related business disciplines, including marketing, finance, accounting, entrepreneurship, and more. This certificate program will prepare the learners to innovatively manage a technology-driven enterprise.

To participate in the program the student should:

- Be formally admitted to The University of Akron as a graduate or non-degree graduate student.

Students admitted to the Management of Technology and Innovation Certificate Program may enroll only in those courses required for completion of the certificate.

**Required Courses:**

- 6500:665 Management of Technology 3
- 6500:669 Polymer Management Decisions 3
- 6600:600 Marketing Concepts 3
- 6200:601 Financial Accounting 3

**Recommended Electives:**

From these courses, select any six credits for which you have the proper prerequisites.

- 6200:610 Process Analysis and Cost Management 3
- 6400:602 Managerial Finance 3
- 6500:608 Entrepreneurship 3
- 6500:609 Management and Organizational Behavior 3
- 6500:602 Computer Techniques for Management 3
- 6500:650 Fundamentals of Human Resource Administration 3
- 6600:540 Product and Brand Management 3
- 6500:575 Business Negotiation 3
- 6500:566 Management of International Operations 3

MOTION AND CONTROL SPECIALIZATION

All manufacturing processes involve motion and control which may range from simple use of pneumatic cylinders in robotics to coordinated motion and sequence control in assembly lines. The technology in motion and control grows and changes at a pace that makes systems of over five years old almost obsolete. The primary purpose of the Motion and Control Specialization certificate program is to provide the graduating engineers with a focused expertise in motion and control and to furnish the necessary tools in order to enable them to follow the changes in technology after graduation. In addition, the program will also serve the practicing engineers and life-long learners to come back to school and refresh their skills using the certificate program.

Persons interested in this program should contact the Department of Mechanical Engineering.

**Admission:**

To participate in the program, the student should be formally admitted to The University of Akron as a post-baccalaureate, undergraduate, graduate, or non-degree graduate student.

**Requirements:**

Students must successfully complete all three courses listed below.

- 4600:442/542 Industrial Automatic Control 3
- 4600:444/544 Robot, Design, Control and Application 3
- 4600:467 Integrated Flexible Manufacturing Systems 3

*Undergraduate students must obtain permission to take this course.

NEW MEDIA TECHNOLOGIES

John R. Savery, Ph.D., Coordinator

All applicants to the program should have previously earned a bachelor's degree. Applicants wishing to pursue a master's degree in Educational Foundations emphasizing Instructional Technology must apply to the Graduate School for admission into the program. Applicants wishing to pursue only the certificate program must apply to the Graduate School for admission as a special non-degree student.

To receive the certificate in New Media Technologies, students are required to take 18 hours from the list of available electives.

**Available Electives:**

- 5100:590 Workshop: Instructional Technology* 3
- 5100:631 Instructional Design 3
- 5100:632 Web-Based Learning Systems 3
- 5100:633 Hypermedia 3
- 5100:634 Visual Literacy 3
- 5100:635 Emerging Technologies 3
- 5100:636 Topical Seminar: Advanced Multimedia (may be repeated for 6 hours) 3
- 5500:375 Instructional Technology Applications 3
- 7100:590 Workshop in Art* 3
- 7500:553 Music Software Survey and Use 3
- 7600:590 Workshops in Music Technology* 3
- 7600:516 New Media Writing 3
- 7600:517 New Media Production 3
- 7600:568 Nonlinear Editing 3
- 7600:590 Workshops in Communication* 3

*Workshops may be repeated for a total of 6 credit hours.

NURSE ANESTHESIA - POST MSN

The Post-Master’s Nurse Anesthesia certificate program prepares Registered Nurses to become Certified Registered Nurse Anesthetists and requires 27 months of concentrated theory and clinical practice. The program is built upon a core of biophysical sciences, pharmacology, principles of anesthesia, and professional role issues. Graduates of the program are prepared to deliver all types of per- and intraoperative anesthesia care to patients of all ages in a wide variety of health care settings and are eligible to take the National Certifying Examination. The program consists of 18 credits of graduate-level course work upon completion of required prerequisites and approximately 1000-1500+ hours of direct anesthetic management.

**Admission**

Admission criteria include the following:

1. Hold an MSN degree from a professionally credentialed nursing program.
2. Minimum GPA of 3.0 on a 4.0 scale for the master’s degree program.
3. GRE (greater than 1200) or MAT (greater than 50) within the last five years.
4. Current Ohio state license as a registered nurse.
5. Recent one-year experience in adult critical care.
6. Three letters of reference from a recent employer; a member of the nursing profession; a former faculty member.
7. Interview prior to admission to the program.
8. Acceptance into the anesthesia track is competitive and is decided by voting of the Admission Committee members.

**Program of Study (Phase II):**

- 8200:637 Residency I (PEDIATRICS AND OBSTETRICS) 4
- 8200:646 Residency II (Cardiac, Thoracic, Cardiovascular, and Neurology) 4
- 8200:648 Residency III (Hepatic, Renal, Endocrine, Head & Neck, Trauma, and Burns/Plastic) 4
- 8200:647 Professional Role Seminar 2
- 8200:649 Residency IV (Senior Seminar) 4

Total 18

NURSING EDUCATION

The certificate in Nursing Education allows for advanced role specialization in nursing education. Four sequential courses for a total of 12 credit hours comprise the certificate requirements. The certificate program is open to all current master’s and doctoral students in the College of Nursing, post-baccalaureate students, post-MSN students, post-doctoral and faculty currently teaching in nursing programs. Formal admission to The University of Akron is required as either a post-baccalaureate student, graduate student or non-degree graduate student. The awarding of this certificate is not contingent upon a degree completion program.

For information concerning admission to the certificate program, please contact the College of Nursing, Graduate Program, (330) 972-7555.

**Required Courses:**

- 8200:681 Instructional Methods in Nursing Education 3
- 8200:682 Nursing Curriculum Development 3
- 8200:683 Evaluation in Nursing Education 3
- 8200:684 Practicum: The Academic Role of the Nurse Educator 3
PARENT AND FAMILY EDUCATION

Susan D. Witt, 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 Coordinator. 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.

Contact the Coordinator of the program for requirements.

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.

- 7400:590 Parent Education 3
- 7400:500 Developmental Parent-Child Interactions (online) 3
- 7400:594 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
  - 7400:501 American Families in Poverty 3
  - 7400:504 Middle Childhood and Adolescence 3
  - 7400:540 Family Crisis 3
  - 7400:546 Culture, Ethnicity and the Family 3
  - 7400:602 Family in Life-Span Perspective 3
  - 7400:615 Child Development Theories 3
  - 7400:665 Development in Infancy and Early Childhood 3

- Social Work
  - 7750:555 The Black Family 3
  - 7750:685 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
  - 3750:726 Child Psychology 4
  - 3750:737 Psychology of Learning Disabilities 4

- Sociology
  - 3890:512 Socialization Child to Adult 3
  - 3890:677 Family Analysis 3

- Educational Foundations
  - 5100:648 Individual and Family Development Across the Lifespan 3
  - 5100:721 Learning Process 3

- Educational Guidance and Counseling
  - 5600:646 Multicultural Counseling 3
  - 5600:648 Individual and Family Development Across the Lifespan 3
  - 5600:655 Marriage and Family Therapy: Theories and Techniques 3
  - 5600:667 Marital Therapy 3
  - 5600:669 Systems Theory in Family Therapy 3

- Special Education
  - 5810:540 Developmental Characteristics of Exceptional Individuals 3
  - 5810:559 Communication and Consultation with Parents and Professionals 3

- Multicultural Education (Curricular and Instructional Studies)
  - 5500:571 Characteristics of Culturally Diverse Populations 3

- Educational Administration
  - 5170:604 School/Community Relations 3

Minimum: 19 Credits

- 5400:500 Postsecondary Learner 3
- 5400:501 Learning with Technology 1
- 5400:520 Postsecondary Instructional Technology 3
- 5400:530 Systematic Curriculum Design for Postsecondary Education 3
- 5400:535 Systematic Instructional Design in Postsecondary Education 3
- 5400:600 Survey of Postsecondary Institutions 3
- 5400:690 Internship in Postsecondary Education 3

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.

PUBLIC ADMINISTRATION AND URBAN STUDIES

Requirements

The certificates will require the successful completion of 15 graduate credits of defined coursework in a single content or issue area within either public administration or urban affairs. Upon completion of the coursework a certificate will be issued.

Admission

To participate in the certificate program an applicant first must satisfy the requirements for entrance into the Graduate School, or have a bachelor’s degree and the equivalent of five years experience in a professional, administrative, or leadership position. Only applicants for admission as a non-degree graduate student within the department or students who are fully admitted to other graduate programs at the University of Akron and meet the experiential requirements are eligible for the certificates. Students admitted to the graduate programs of the department are not eligible for the certificate programs. Therefore, a student who wishes to pursue additional coursework may be admitted to the certificate program in Postsecondy Teaching and Urban Studies. Upon completion of the requirements for the certificate, the student will be admitted to the graduate program in the University of Akron.

Program

There are three variations of the Certificate Program in Public Administration and Urban Studies: a certificate in Public Management, a certificate in Non-profit Management, a certificate in Local and Regional Development Administration, a certificate in Policy Analysis, a certificate in Program Evaluation, and a certificate in Urban Affairs.

POSTSECONDARY TEACHING

Susan J. Olson, Ph.D., Coordinator (e-mail: solson@uakron.edu)

Program

This certificate program in Postsecondary Teaching is a special course of study within the College of Education undergraduate and graduate programs to serve the practicing or prospective postsecondary faculty.

Persons are eligible for admission to the Certificate in Postsecondary Teaching if they have been admitted to study as special, non-degree or full-time students in any department or the University. Individuals who already hold undergraduate or graduate degrees may also pursue this certificate. 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.

Those formally admitted to The University of Akron and meeting the certificate entrance requirements may pursue the Certificate in Postsecondary Teaching. Students shall seek admission to this program by filing an application with the Program Coordinator. The student will schedule courses with the assistance of the Program Coordinator.

Those who have completed either a B.S. or M.S. 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 toward the certificate and all accepted coursework must be no older than six years at the time of completion of the certificate. Only graduate credit may be used for a graduate certificate and only undergraduate credit may be used for an undergraduate or post-baccalaureate certificate. Any course substitutions must be made with the 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. 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.
Each certificate requires the successful completion of 15 credit hours of required and elective coursework offered by the Department of Public Administration and Urban Studies, as specified below.

**Public Management**

- 3980:611 Introduction to the Profession of Public Administration (required) 3
- 3980:615 Public Organization Theory (required) 3
- 3980:616 Public Personnel 3
- 3980:617 Leadership and Decision Making (required) 3
- 3980:618 Citizen Participation 3
- 3980:626 Grantmanship 3
- 3980:660 Strategic Management in Public and Nonprofit Sectors (required) 3
- 3980:680 Special Topics 3

**Non-profit Management**

- 3980:617 Leadership and Decision Making 3
- 3980:619 Community Organizing 3
- 3980:626 Grantmanship (required) 3
- 3980:660 Strategic Management in Public and Nonprofit Sectors (required) 3
- 3980:662 Fund Raising and Resource Management (required) 3
- 3980:663 Non-profit Management (required) 3
- 3980:680 Special Topics 3

**Local and Regional Development**

- 3980:62 History of Urban Development (required) 3
- 3980:612 National Urban Policy 3
- 3980:619 Community Organizing 3
- 3980:641 Urban Economic Growth and Development (required) 3
- 3980:650 Comparative Urban Systems 3
- 3980:661 Public Project Design and Management (required) 3
- 3980:681 Special Topics 1-3

**Policy Analysis**

- 3980:600 Basic Quantitative Research (required) 3
- 3980:601 Advanced Quantitative Research (required) 3
- 3980:640 Fiscal Analysis 3
- 3980:643 Introduction to Public Policy 3
- 3980:673 Computer Applications in Public Organizations 3
- 3980:678 Analytical Techniques for Public Administration (required) 3
- 3980:680 Special Topics 3

**Program Evaluation**

- 3980:600 Basic Quantitative Research (required) 3
- 3980:601 Advanced Quantitative Research (required) 3
- 3980:640 Fiscal Analysis 3
- 3980:673 Computer Applications in Public Organizations 3
- 3980:677 Program Evaluation in Urban Studies (required) 3
- 3980:678 Analytical Techniques for Public Administration 3
- 3980:680 Special Topics 3

**Urban Affairs**

- 3980:602 History of Urban Development (required) 3
- 3980:612 National Urban Policy (required) 3
- 3980:618 Citizen Participation 3
- 3980:619 Community Organizing 3
- 3980:621 Urban Society and Service Systems 3
- 3980:650 Comparative Urban Systems 3
- 3980:680 Special Topics 3

**GRADUATE CERTIFICATE IN RACIAL CONFLICT AT THE CENTER FOR CONFLICT MANAGEMENT**

An 18 credit graduate certificate that offers students the opportunity to intensively examine racial conflict from an interdisciplinary perspective.

**Required Courses:**

- 3700:522 Understanding Racial and Gender Conflict 3
- 3850:521 Racial and Ethnic Relations 3

**Electives:**

- 3700:502 Politics and the Media 3
- 3700:562 Supreme Court and Civil Liberties 3
- 3700:530 Management of Probation and Parole 3
- 3700:622 Seminar in Alternatives to Violence at Home and Abroad 3
- 3850:646 Social Inequalities 3
- 3850:510 Social Structures and Personality 3
- 3850:530 Juvenile Delinquency 3
- 3850:541 Sociology of Law 3
- 3230:510 Evolution and Human Behavior 3
- 3230:563 Social Anthropology 3
- 3400:538 Nazi Germany 3
- 3400:554 The Civil War and Reconstruction, 1850-1877 4

**STRUCTURAL ENGINEERING**

This certificate program provides professionals an opportunity to expand their knowledge base in the design and behavior of structural systems. It is designed for people who cannot make the full time commitment to the graduate degree program but would like to receive recognition of their continued effort in an area of study or would like to cumulate credit hours toward their ultimate graduate degree goal.

**Admission Criteria**

This certificate is designed primarily for students with a B.S. degree in Civil Engineering or a closely related field.
Program of Study
Civil Engineering graduates may earn a Structural Engineering Certificate by completing the following five courses:

- 4300:551 Computer Methods of Structural Analysis 3
- 4300:554 Advanced Mechanics of Materials 3
- 4300:605 Structural Stability 3
- 4300:684 Advanced Reinforced Concrete Design 3
- 4300:686 Advanced Steel Design 3

Total 15

TEACHING ENGLISH AS A SECOND LANGUAGE†
Kenneth J. Pakenham, Ph.D., Director

Requirements
This program is intended for those seeking training and an initial qualification in the teaching of English as a second language for the purpose of teaching ESL in settings other than the Ohio public school system. The program is designed to introduce the student to the central issues in the theory and practice of teaching English to non-native speakers through courses in modern and applied linguistics, in second language pedagogy and in related disciplines. Students who do not have English as a native language must demonstrate adequate proficiency in English with a valid TOEFL score of at least 550.

Program
3300:573 Seminar in Teaching ESL: Theory and Method 3
3300:589 Seminar in English: Grammatical Structures of English 3
5500:570 Multicultural Education in the U.S.** 3
or 5300:589 Seminar in English: Sociolinguistics** 2-3
5500:543 Techniques for Teaching ESL in the Bilingual Classroom 3

Minimum: 9 Credits

Electives
Three classes selected from the Women's Studies Coordinating Council-approved list of graduate level courses.

- 1840:585 Feminist Theory 3
- 1840:589 Internship in Women's Studies 1-4
- 1840:590 Workshop: Women's Studies Lecture Series 3

TOTAL 15

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

**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 to serve the practicing or prospective business and/or industrial technical-trainer. Persons are eligible for admission to the Certificate in Technical and Skills Training if they have been fully admitted to The University of Akron to study as graduate students. Individuals who hold undergraduate or graduate degrees may also pursue this certificate. All coursework must be completed within six years.

Requirements
Minimum: 19 Credits

- 5400:500 Postsecondary Learner 3
- 5400:501 Learning with Technology 1
- 5400:515 Training in Business and Industry 3
- 5400:520 Postsecondary Instructional Technology 3
- 5400:530 Systematic Curriculum Design for Postsecondary Instruction 3
- 5400:535 Systematic Curriculum Design in Postsecondary Education 3
- 5400:675 Instructional Applications Seminar 3

NOTE: 5400:501 is required before (or with) first courses in Postsecondary Technical Education (5400). The Instructional Applications Seminar is the last course taken.

TRANSPORTATION ENGINEERING
This certificate program provides practicing professionals an opportunity to expand their knowledge base in the design and operation of transportation systems. It is designed for people who cannot make the full time commitment to the graduate degree program but would like to receive recognition of their continued effort in the area of study or would like to cumulate credit hours toward their ultimate graduate degree goal.

Admission Criteria
This certificate is designed primarily for students with a B.S. degree in Civil Engineering or a closely related field.

Program of Study
Civil Engineering students may earn a Transportation Engineering Certificate by completing the following three courses:

- 4300:566 Advanced Transportation Engineering I 3
- 4300:663 Advanced Transportation Engineering II 3

Total 15

WOMEN'S STUDIES
For information, contact Women's Studies, located in the Polsky Building 315B, (330) 972-7008.

Interdisciplinary and specialized, the Women's Studies graduate program fosters a critical approach to knowledge about women. By focusing on cultural practices that have largely excluded and devalued differences in gender, sexual orientation, ethnicity, race, and class, Women's Studies prepares students to appreciate and act in a pluralistic world. The Women's Studies graduate certificate integrates scholarship and research on women and gender from literature, psychology, history, sociology, and communication. Students are challenged to explore diverse viewpoints and discover the partial and often self-interested emphases of our society's most powerful institutions -- family, church, academia, business, and government.

Admission
Hold a Bachelor's Degree with a minimum 2.75 grade point average.

Requirements (required 5-7)

- 1840:580 Feminist Theory 3
- 1840:589 Internship in Women's Studies 1-4
- 1840:590 Workshop: Women's Studies Lecture Series 3

Electives
Three classes selected from the Women's Studies Coordinating Council-approved list of graduate level courses.

- 1840:585 Special Topics in Women's Studies: Women, Minorities and Media 3
- 1840:585 Special Topics in Women's Studies: Women, Poverty and Welfare 3
- 1840:585 Special Topics in Women's Studies: Women as Survivors 3
- 3200:550 Selected Topics in Ancient Culture: Women and Gender in Classical Antiquity 3
- 1840:589 Internship in Women's Studies 3
- 3300:589 Seminar in English: Twentieth Century Women Writers 3
- 3300:589 Seminar in English: Women and Film 3
- 3400:500 Women in Revolutionary China 3
- 3750:574 Psychology of Women 4
- 3850:523 Sociology of Women 3
- 7100:501 Special Topics in History of Art: Women in Art 3
- 7600:508 Women, Minorities and News 3
- 7750:511 Women's Issues in Social Work Practice 3

or other classes as approved by Women's Studies graduate coordinator for the certificate.
SECTION 5. Graduate Courses

Course Numbering Index*

Interdisciplinary Programs

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Buchtel College of Arts and Sciences

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College of Education

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College of Polymer Science and Polymer Engineering

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<tr>
<td>9841</td>
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</table>

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

3300:507 Middle English Literature

In the above example, the first four digits of the number (3300) indicate the college and department. In the case, 3000 represents the Buchtel College of Arts and Sciences; 300 refers to the Department of English. The second set of digits (507) following the colon, indicates exactly which course in the Department of English is being specified. The course number also indicates the level at which the course is being taught and the point at which the student is ready to take the course. A student must apply for and be admitted to the Graduate School before registering for graduate credit.

An explanation of that numbering system follows:

500-699 Master's-level courses (also, 600-799 J.D.-level courses)
700-899 Doctoral-level courses

Interdisciplinary Programs

DIVORCE MEDIATION 1800:

601 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.

602 DIVORCE MEDIATION PRACTICUM 2 credits
Prerequisite: 601. Practical application of divorce mediation procedures. Review of strategies and ethical considerations.

HOME-BASED INTERVENTION THERAPY 1820:

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

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

505 HOME-BASED INTERVENTION INTERNSHIP 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: 1840/300. 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 SPECIAL TOPICS IN WOMEN'S STUDIES 1-3 credits
Prerequisite: permission. May be repeated. Specialized topics and current issues in Women's Studies. Covers content and issues not currently addressed in other academic courses. Emphasis will be on original source materials, critical analyses and the synthesis of empirical and theoretical aspects.

589 INTERNSHIP IN WOMEN'S STUDIES 1-3 credits
Prerequisite: must complete 12 graduate credit hours with at least a 3.0 overall grade point average. (May be repeated.) Specialized topics and current issues in 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
Prerequisite: permission. May be repeated. Group experiential study of special issues in Women's Studies.

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.) 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 & GERONTOLOGY 3006:

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

685 SPECIAL TOPICS 1-3 credits
Prerequisite: permission of instructor. Specialized topics and current issues in life-span development and gerontological components and from government and community facilities and services. May be used as elective credit but not as part of certificate required courses.

686 RETIREMENT SPECIALIST 2 credits
Prerequisite: course is open to students in the Gerontology Program at the University of Akron. May be repeated. Group studies of special topics in life-span development and gerontology. Emphasis is on original source materials, critical analyses and responses to current issues in the field.

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

ENVIRONMENTAL STUDIES 3010:

501 SEMINAR IN ENVIRONMENTAL STUDIES 2 credits
Prerequisite: course is open to students in the Environmental Science Program at the University of Akron. May be repeated. Seminar on a selected topic in environmental science. May be used as elective credit but not as part of certificate required course.

590 WORKSHOP IN ENVIRONMENTAL STUDIES 1-4 credits
Prerequisite: varies with topic. Credit in graduate program must have prior approval of advisor. May be repeated. Group studies and tours related to the design and implementation of pre-retirement planning and examination of life-span planning education as employed by labor, business and education.

595 FIELD/LAB STUDIES IN ENVIRONMENTAL SCIENCE 3 credits
Prerequisite: permission. May be repeated. Field laboratory inquiry into a specific interdisciplinary, environmental science topic. Students complete a research project where they collect, analyze, and interpret real world data. May be repeated for a maximum of 6 credit hours.
### Arts and Sciences

#### Graduate Courses

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<tr>
<td>548</td>
<td>Anatomy and Physiology of Marine Life</td>
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<tr>
<td>549</td>
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<tr>
<td>567</td>
<td>Principles of Transmission Electron Microscopy</td>
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**Prerequisites**

- Prerequisite: 112 or permission of instructor.
- Prerequisite: 112 or permission of instructor.
- Prerequisite: 112 or permission of instructor.
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**Corequisites**

- Corequisite: 3150:301.
- Corequisite: 3150:301.
- Corequisite: 3150:301.
- Corequisite: 3150:301.

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**Optional:**

- Laboratory (3 credit hours).
- Laboratory (3 credit hours).
- Laboratory (3 credit hours).
- Laboratory (3 credit hours).
- Laboratory (3 credit hours).
- Laboratory (3 credit hours).
- Laboratory (3 credit hours).
- Laboratory (3 credit hours).

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**Notes:**

- Prerequisite: 311 or 681 or equivalent.
- Prerequisite: 311 or 681 or equivalent.
- Prerequisite: 311 or 681 or equivalent.
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- Prerequisite: 311 or 681 or equivalent.

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**Special Emphasis:**

- Special emphasis is given to Ohio species.
- Special emphasis is given to Ohio species.
- Special emphasis is given to Ohio species.
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- Special emphasis is given to Ohio species.
- Special emphasis is given to Ohio species.
- Special emphasis is given to Ohio species.

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**Other:**

- Examination of characteristics and ecology of major groups of Caribbean algae.
- Study of mechanisms determining gas exchange and energy metabolism.
- Study of how a cell's structure, biochemistry, and physiology influence complex systems from molecular to behavioral in plants and animals.
- Study of mechanisms from molecular to behavioral in how stress influences body systems and signals.
- Study of mechanisms from molecular to behavioral in how stress influences body systems and signals.
- Study of mechanisms from molecular to behavioral in how stress influences body systems and signals.
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- Study of mechanisms from molecular to behavioral in how stress influences body systems and signals.

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**Additional:**

- Field trips involved; minor project, laboratory experiment.
- Field trips involved; minor project, laboratory experiment.
- Field trips involved; minor project, laboratory experiment.
- Field trips involved; minor project, laboratory experiment.
- Field trips involved; minor project, laboratory experiment.
- Field trips involved; minor project, laboratory experiment.
- Field trips involved; minor project, laboratory experiment.
- Field trips involved; minor project, laboratory experiment.

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**Textbook:**

- Required of anyone working with animals, and covers government regulations, care of animals and a lab to teach basic animal handling and measurement techniques.
869 PRINCIPLES OF SCANNING ELECTRON MICROSCOPY 3 credits
Prerequisite: 311, 691. Understanding of modern techniques and applications of scanning electron microscopy. An introduction to digital imaging and computer-assisted analysis. Emphasis is placed on critical thinking and problem-solving.

695 SPECIAL TOPICS: BIOLOGY 1-3 credits
May be repeated. Prerequisite: permission. Special topics in biology. May be repeated with change in topic.

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

BIOLOGY/NEOUCOM

3110:

630 HUMAN GROSS ANATOMY I 3 credits
Prerequisites: graduate standing and permission. An intensive survey of human macromorphology.

631 HUMAN GROSS ANATOMY II 3 credits
Prerequisite: graduate standing and permission. An intensive survey of human macroanatomy.

695 SPECIAL TOPICS: BIOLOGY/NEOUCOM 1-6 credits
May be repeated. Prerequisite: permission. Advanced topics in medical education covering areas not otherwise available. May be repeated with change in topic.

CHEMISTRY

3150:

501 BIOCHEMISTRY LECTURE I 3 credits
Prerequisites: 264, 691. Introduction to the chemical and physical properties of elements. Overview of fundamental concepts and molecular structure.

502 BIOCHEMISTRY LECTURE II 3 credits
Prerequisite: 408/409. Overview of metabolism; thermodynamics; carbohydrate, fatty acid, amino acid, and nucleoside anabolism and catabolism; hormonal control of metabolism. Phosphorylation.

572 ADVANCED INORGANIC CHEMISTRY 3 credits
Prerequisite: 304 or 306. 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 study of special topics in chemistry. May not be used to meet undergraduate or graduate major requirements in chemistry.

603 BIOCHEMISTRY LECTURE III 3 credits

610 BASIC QUANTUM CHEMISTRY 3 credits
Prerequisite: 314 or permission of instructor. Quantum mechanics with applications to molecular systems. Includes angular momentum, molecular homonuclear, variation and perturbation methods and molecular orbital theory.

611 SPECTROSCOPY 3 credits
Prerequisite: 610 or permission of instructor. Interaction of light with matter, linear and nonlinear spectroscopies, vibrational and electronic spectroscopy. Radiationless transitions and photochemistry.

619 TRANSITION-METAL ORGANOMETALLICS 3 credits
Prerequisites: 472 or equivalent. The organic chemistry of the transition metal elements. Topics covered include synthesis, characterization methods, structure, bonding, reactivity, and application.

620 MAIN GROUP ORGANOMETALLICS 3 credits
Prerequisite: 472 or equivalent. The organometallic chemistry of main group elements. Topics covered include synthesis, characterization methods, structure, bonding, reactivity, and application.

621 ADVANCED PREPARATIONS 1-2 credits
Prerequisite: permission. Methods for preparing and purifying organic and inorganic compounds. Laboratory.

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

629 PHYSICAL INORGANIC CHEMISTRY 3 credits
Prerequisites: 241, 242, or permission. 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 2 credits
Prerequisites: 314, 472, or permission. Detailed treatment of chemistry of transition elements. Group theoretical applications, ligand field theory, kinetics and mechanism magnetism, electronic spectra, molecular orbital theory.

631 METALS IN MEDICINE 3 credits
Prerequisite: 517 or permission of instructor. This course will cover the synthesis and development of metal based medicines including the tumor drug chelaplatin, texathem 99m-based imaging agents, and silver antimicrobials.

635 THERMODYNAMICS AND STATISTICAL THERMODYNAMICS 3 credits
Prerequisites: 101, 313 or permission of instructor. Rigorous treatment of laws of thermodynamics and their applications to selected chemical systems. Fundamentals of statistical thermodynamics and applications to systems in chemical equilibrium.

636 CHEMICAL KINETICS 3 credits
Prerequisite: 303 or permission of instructor. Phenomenological kinetics, experimental methods of investigation and analysis of reaction systems. Theoretical treatments of reaction rates.

639 DESCRIPTIVE INORGANIC CHEMISTRY 3 credits
Prerequisite: Undergraduate inorganic chemistry. The synthesis, characterization, structure, bonding and reactivity of inorganic compounds. Emphasis is placed on applications and 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: 342, 422 and 424 or equivalent. Theory and application of instrumental measurements. Interpretation of data.

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

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, UV/VIS spectroscopy, IR spectroscopy, GC, GC/MS, mass spectrometry, FTIR/NIR, Raman spectroscopy, 2D-NMR.

683 MECHANIC 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, acids and bases, equilibrium, kinetics, linear free energy relationships, reagent intermediates, and reaction mechanisms.

684 MECHANIC 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, carbonyl chemistry, functional group manipulations, oxidations, reductions, cycladdition reactions.

699 MASTER'S THESIS 1-6 credits
May be repeated. Subject from modern physical chemistry.

710 SPECIAL TOPICS: ANALYTICAL CHEMISTRY 1-3 credits
May be repeated. Prerequisite: permission. Topics in advanced analytical chemistry. Electroanalysis, activation analysis, atomic absorption spectrometry, mass spectrometry, liquidliquid, liquid-solid and gas chromatography, ion exchange, thermoanalytical methods, separations, standards, sampling, recent developments.

711 SPECIAL TOPICS: INORGANIC CHEMISTRY 1-3 credits
May be repeated. Prerequisite: permission. Consideration of topics in modern inorganic chemistry such as coordination chemistry of transition elements, ligand field theory, representative catalytic elements, nonaqueous solvents, organometallic compounds, homogeneous catalysis.

712 SPECIAL TOPICS: PHYSICAL CHEMISTRY 1-3 credits
May be repeated. Prerequisite: permission. Subject from modern physical chemistry.

715 SPECIAL TOPICS: BIOCHEMISTRY 1-6 credits
May be repeated. Prerequisite: permission. Recent developments in areas of biochemistry.

720 ADVANCED BIOCHEMICAL TECHNIQUES 3 credits
Prerequisites: 405/406 or equivalent. Advanced laboratory course on techniques in biochemical analysis. Includes optical and hydrodynamic methods, radioanalytical techniques, scanning and magnetic resonance spectrophotometry.

722 ENZYMIC REACTIONS 3 credits
Prerequisites: 405/406. Consideration of enzymes catalyzing biological reactions, general aspects and specific examples for phosphoryl, acyl, glycosyl transfer reactions, and general function, elimination, conjugation, disproportionation and reorientations. Chemistry of cofactors.

724 BIOINORGANIC CHEMISTRY 4 credits
Prerequisites: 405/406. Survey of the structure and properties of metal ion complexes with amino acids, nucleotides and macromolecules; metal ion metabolism; metals in medicine.

726 ADVANCED METALLOLOGY 3 credits
Prerequisites: 405/406. Study of advanced pathways in carbohydrate, lipid and protein metabolism with emphasis placed on metabolic dysfunction.

740 PHYSICAL ORGANIC CHEMISTRY 3 credits
Prerequisites: 883, 884 or permission of instructor. An advanced treatment of the theory and mechanisms of organic chemistry. FMO theory, molecular mechanics, molecular strain, kinet- ics, thermodynamics, acidity functions, linear free energy relationships.

750 ADVANCED SYNTHETIC ORGANIC CHEMISTRY 3 credits
Prerequisites: 880, 884 or permission of instructor. Advanced treatment of organic func- tional group manipulations in the context of the total synthesis of natural products.

889 DOCTORAL DISSERTATION 1-6 credits
May be repeated. A qualified student accepted as a candidate for Doctor of Philosophy in Chemistry. Supervised original research undertaken in organic, inorganic, physical, analytical or biochemistry.

CLASSICS

3200:

501 EGYPTOLOGY I 3 credits
The history and antiquities of ancient Egypt.

504 ARCHAEOLOGY 3 credits
May be repeated with change in topic. Prerequisite: permission of instructor. The pre-African languages.

590 WORKSHOP IN CLASSICS 1-3 credits
May be repeated with change in topic. Group study of special topics in Classics. May not be used to fulfill undergraduate major requirements in Classics; for elective credit only.

5978 READING AND RESEARCH IN THE ANCIENT NEAR EAST 1-3 credits
Prerequisite: permission of instructor. Advanced work in various aspects of Ancient Near East- ern Studies (Archaeology, Assyriology, Egyptology, etc.).

ANTHROPOLOGY

3230:

510 EVOLUTION AND HUMAN BEHAVIOR 3 credits
Prerequisites: 310, 311. Critical examination of the theory of natural selection and its usefulness for understanding the origins and evolution of human and modern human social behavior.

516 ANTHROPOLOGY OF SEX AND GENDER 3 credits
Prerequisites: 350 or 355. A course that explores cross-cultural variation regarding sex, gender, and sexuality. It examines the ways that cultures create, maintain, and reproduce gender concepts and gender roles.

520 THE ANTHROPOLOGY OF FOOD 3 credits
Prerequisite: 310. Utilizing anthropological approaches and theories, this course explores the social relations and cultural beliefs associated with food cross-culturally.

555 CULTURE AND PERSONALITY 3 credits
Prerequisite: 310 or permission of instructor. Examines various aspects of Western and non-Western medical systems from an anthropological perspective. Compares traditional medical systems around the world.
### ARCHAEOLOGY

**ARCHAEOLOGICAL THEORY**
- 3 credits
- Prerequisites: 100. Advanced seminar covering history of scientific archaeological exploration, major archaeological paradigms, and current trends in archaeology. Required for Certificate in Field Archaeology.

**ARCHAEOLOGICAL LABORATORY METHODS**
- 3 credits
- Prerequisite: 100. Laboratory course teaching essential skills for artifact documentation and analysis. Focus on quantification, statistics, conservation, illustration, lithics, ceramics, paleoecological, paleontological remains, and soils.

**ARCHAEOLOGICAL FIELD SCHOOL**
- 3 credits
- Prerequisite: 100. Field-school course teaching basic archaeological techniques: mapping, excavation of prehistoric and historic sites, survey and documentation. Repeatable up to 6 credits.

**SPECIAL TOPICS IN ARCHAEOLOGY**
- 3 credits
- Prerequisite: 100 or permission. Designed to meet the needs of students with interests in selected problem areas in archaeology. Offered irregularly when resources and permissions permit. May include archaeological field school, laboratory research or advanced course work not presently offered by department on a regular basis.

### ECONOMICS

**STATE AND LOCAL PUBLIC FINANCE**
- 3 credits
- Prerequisites: 410. Recommended: 450. Examines economic rationale and problems for provision of goods and services by different governmental units. Considers alternative revenue sources and special topics.

**GAME THEORY**
- 3 credits
- Prerequisite: 200. Application of the basic concepts of game theory (analysis of strategic behavior) to relevant economic issues including bargaining, cartels, voting, conflict resolution, and non-competitive pricing.

**ECONOMIC FORECASTING**
- 3 credits
- Prerequisites: 200 and 201 or 244, 3470:261, and 3470:262. Studies method of building, identifying, analyzing, and checking dynamic economic models and the use of these models for forecasting. Emphasis is on the application of available computer software systems.

**LABOR MARKET AND SOCIAL POLICY**
- 3 credits
- Prerequisite: 355. Intensive study of current labor and social policy issues (e.g. discrimination, poverty, migration, education, demographic and labor market changes, impact of international trade on employment).

**LABOR MARKET ANALYSIS AND EVALUATION**
- 3 credits
- Prerequisite: 200 and 201 or 244. Applied labor market research using specialized techniques. Employment, health, education, and other current policy issues and programs analyzed and evaluated. Original research project required.

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

**ECONOMICS OF DEVELOPING COUNTRIES**
- 3 credits
- Prerequisites: 200 and 201 or 244. Basic problems of economic development. Theories of economic development, issues of political economy and institutions. Topics include poverty, population, migration, employment, finance, international trade, environment.

**PRINCIPLES OF INTERNATIONAL ECONOMICS**
- 3 credits
- Prerequisites: 200 and 201 or 244. International trade and foreign exchange, policies of free and controlled trade, international monetary problems.

**DEVELOPMENT OF ECONOMIC THOUGHT**
- 2 credits
- Prerequisites: 200 and 201 or 244. Evolution of theory and method, relation of ideas of economists contemporary to conditions.

**MONETARY AND BANKING POLICY**
- 3 credits
- Prerequisites: 380, 400, 402. Current currency and credit policies of control by central banks and governments, United States Treasury and Federal Reserve System.

**URBAN ECONOMICS: THEORY AND POLICY**
- 3 credits
- Prerequisites: 380 and 400 or permission of instructor. Analysis of urban issues from a regional economic perspective. Emphasis on urban growth, land-use patterns, housing, income distribution, poverty and urban fiscal policy.

**WORKSHOP IN ECONOMICS**
- 3 credits
- (May be repeated) Group studies of special topics in economics. May not be used to meet undergraduate or graduate major requirements in economics. May be used for elective credit only.
524 EARLY ENGLISH FICTION
Prerequisites: 111 and 112. Development of English novel before 1830. Focus on works of Richardson, Fielding, Sterne, Austen and Scott.

530 VICTORIAN POETRY AND PROSE
Poetry, prose of the late 19th Century, excluding fiction, with attention to Tennyson, Brown- ing, Arnold, Carlyle, Ruskin and other major writers.

531 VICTORIAN FICTION
Reading major novels of Victorian era, of varying length, by Emily Bronte, Dickens, Eliot, Thackeray, and Hardy. Characterization, theme, and attitude toward life emphasized.

535 20TH CENTURY BRITISH POETRY
Concentrated study of major poets of Yeats, Eliot, and Auden with attention also to: Hardy, Housman, Spender, C. Day Lewis, Dylan Thomas and others.

536 BRITISH FICTION: 1900-1925
Study of novels, Joyce, D.H. Lawrence, and Virginia Woolf with attention to their innovations in narrative style, their psychological realism and symbolism.

537 BRITISH FICTION SINCE 1925
Study of important British novelists since 1925, excluding Lawrence, Joyce, and Woolf. Atten- tion to development of British short story from 1925 to present.

548 AMERICAN ROMANTIC FICTION
Examination of several American novelists, tracing its genesis, romantic period and period move- ments toward realism. Writers discussed include Cooper, Poe, Hawthorne, and Melville.

549 AMERICAN FICTION: REALISM AND NATURALISM
Examination of American writers of realistic and naturalistic fiction (e.g., Howells, James, Crane) and, tracing developments in American fiction against background of cultural and historical change.

550 MODERN AMERICAN FICTION
Study of significant American short and long fiction from World War I to the present.

553 AMERICAN WOMEN POETS
Prerequisites: 111 and 112. Study of modern poets’ uses and revisions of tradition, women’s relationship to race, concepts of art and of the artist-as-woman, and the debate between “pub- lic” and “private” poetry.

556 TORREAU, EMERSON, AND THEIR CIRCLE
A study of life and writing of David Thoreau, Ralph Waldo Emerson, and other key figures of the American Renaissance.

557 MODERN EUROPEAN FICTION
Representative European writers from about 1880 to present, in translation. Focus on fiction of such writers as Zola, Tolstoy, Dostoevsky, Mann, Proust, Kafka and Sолженицын.

559 EROS AND LOVE IN EARLY WESTERN LITERATURE
An analysis of sex and love in the western literature from Greco-Roman times to 1800. Emphasis on allegorical, magical, fantastic or realistic uses of sexuality and “romantic love”.

560 HISTORY OF ENGLISH LANGUAGE
Prerequisites: 111 or their equivalents, or permission of the instructor. Development of English language, from its beginnings: sources of its vocabulary, its sounds, its rules; semantic change; political and social influences on change; dialects; origins; correctness.

561 U.S. DIALECTS: BLACK AND WHITE
Prerequisites: 111 and 112 or their equivalents, or permission of the instructor. Study of current and former distinctive dialects of American English, with special attention to regional and social dimensions.

562 SYNTAX
Prerequisites: 371, 111 or their equivalents, or permission of the instructor. Principles of syntactic description. Sentence structures are investigated from a variety of languages, with emphasis on English.

563 SEMINAR IN TEACHING ESL: THEORY AND METHOD
Prerequisites: 111 or their equivalents, or permission of the instructor. Theoretical issues in linguistic description and language acquisition as relevant to learning of a second lan- guage. Elaboration of principles for the teaching of English as a second language based on research in linguistics, psycholinguistics and second language pedagogy.

565 THEORY OF RHETORIC
Prerequisites: 111 and 112 or their equivalents, or permission of the instructor. Ancient and modern theories of rhetoric, with attention to classical oration, “topics” of rhetoric and their application to teaching of English.

568 SCIENCE FICTION
A study of a twentieth-century British and American science fiction, featuring primary forms of the science fiction story and the work of major authors.

571 SEMINAR IN ENGLISH
Prerequisites: 111 or 112. Study of special topics in English literature and language.

578 TEACHING COLLEGE COMPOSITION PRACTICUM
Prerequisite: permission of supervisor. Graduate internship, including analytical reading and writing, and practice in individual and group conferences.

618 SHAKESPEAREAN DRAMA
Examination of the major plays, including Macbeth, Measure for Measure, Much Ado About Nothing and Hamlet.

619 MILTON
Emphasis on Milton’s major poems and prose works: Paradise Lost, Paradise Regained, Are- paistoga. Student becomes acquainted with Milton the man and Milton the artist.

620 AUTOBIOGRAPHY AS LITERATURE
This course examines the genre of autobiography and memoir. A wide representation of auto- biographies will be the focus of discussion and analysis.

625 AUTOBIOGRAPHICAL WRITING
Using a workshop format, this course examines autobiographical essays written by class members. Attention will be given to the art and craft of writing autobiography.

627 KEATS AND HIS CONTEMPORARIES
Writings of John Keats, studied against background of romantic poetic theory and poetry of poets’ contemporaries.

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

645 POE AND HAWTHORNE
Substantial readings from each author: tales, novels, essays, letters, poetry. Also, representa- tive literary criticism about each author.

660 CULTURAL STUDIES: THEORY AND PRACTICE
This course explores the relationship between Cultural Studies and English Studies, examin- ing its impact on Cultural Studies on the practice of textual analysis.

665 LITERARY CRITICISM
Inquiry into nature and value of literature and problems of critical criticism as represented in major statements of ancient and modern critics.

670 MODERN LINGUISTICS
Introductory examination of methods and results of modern grammatical research in syntax, semantics, phonology and dialects. Goals include understanding of language variation and linguistic grounds for linguistic studies of literature.

673 THEORIES OF COMPOSITION
Study of composition theories and research, with attention to their implications for writing and writing instruction. Particular focus on such topics as composing processes, invention, form, style, modes of writing, language varieties and evaluation of writing. Class sessions include discussion of papers and presentations.

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

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

676 THEORY AND TEACHING OF BASIC COMPOSITION
Review of current research and exploration of specific instructional methods for teaching basic composition.

679 SCHOLARLY WRITING
Study of composing, analyzing and evaluating academic arguments. Practice in specific forms of academic writing such as reviews of research, articles and book reviews.

683 SEMINAR IN SATIRE
A study of satire from the middle ages through the late 20th Century, with particular attention to techniques of satiric attack, modes of comedy and irony and literary criticism.

689 SEMINAR IN ENGLISH
May be repeated with change of topic. Special topics within the general field of literature and language, usually focusing on figures or themes.

691 BIBLIOGRAPHY AND LITERARY RESEARCH
Choosing research topics, typical problems in literary scholarship, abstracting of scholarly material and bibliographic sources for literary research. Bibliographic exercises done, models of literary scholarship read.

698 INDIVIDUAL READING IN ENGLISH
1-3 credits
Individual study under guidance of professor who directs and coordinates student’s reading and research.

699 MASTER’S THESIS
Original work in the field of literature and language and completion of graduate student’s required thesis.

GEOGRAPHY AND PLANNING 3350:

505 GEOGRAPHIC INFORMATION SYSTEMS
Prerequisites: 540 or permission. Introduction to the principles and concepts underlying geo- graphic information systems (GIS) and their application in professional practice and academic research. Laboratory.

507 ADVANCED GEOGRAPHIC INFORMATION SYSTEMS
Prerequisite: 505. Advanced instruction in the theory and application of geographic informa- tion systems (GIS) including hands-on experience with both raster and vector GIS. Laboratory.

509 ARCHAEOGEOPHYSICAL SURVEY
Prerequisites: 3240/250 or 3570 101 or 3570 310. Advanced instruction in subsurface geo- physical surveys in archaeology. Emphasis on magnetic gradiometry and electrical resistivity techniques, magnetics and geological and archaeological interpretation.

515 ENVIRONMENTAL PLANNING
Scientific and technical principles for decision-making in planning, with emphasis on soils, land use, water and water quality issues. Data analysis and methods of site evaluation.

520 URBAN GEOGRAPHY
Prerequisite: 100 or 3580/301 or 3250 100 or permission of instructor. Spatial structure of urban systems, interaction between cities, internal structure of cities. Perspectives on urban change; contemporary urban geographic problems; urban and regional planning issues.

522 TRANSPORTATION SYSTEMS PLANNING
Prerequisite: 320 or permission. Study and analysis of transportation systems from a geo- graphic perspective. Emphasis on transportation problems and issues, elements of trans- portation planning.

532 LAND USE PLANNING LAW
Prerequisite: permission. Graduate student with past and present approaches to land use con- trol in the United States and examine the political, economic, social and legal forces which have shaped existing land-use legislation.

533 PRACTICAL APPROACHES TO PLANNING
Prerequisite: 320 or permission. Role of geographic investigation in city, regional and resource planning.

537 PLANNING ANALYSIS AND PROJECTION METHODS
Introduction to the primary analytic techniques for small-area demographic and economic analysis and projection.

538 LAND USE PLANNING METHODS
3 credits
Application of GIS and other computer-based tools to the preparation, implementation and evaluation of comprehensive land use plans.
Graduate Courses

539 HISTORY OF URBAN DESIGN AND PLANNING 3 credits
Origins of human settlements and planning from the perspective of urban design and related social/physical developments. Comparison of world regional and historical urban forms. Experience in "reading" settings as visual landscapes.

540 PRINCIPLES OF CARTOGRAPHY 3 credits
Theoretical and practical applications of cartographic principles used to design and produce maps. Includes: research papers, public presentations, publication, and other professional methods. Laboratory.

542 THEMATIC CARTOGRAPHY 3 credits
Prerequisite: 340 or permission. Principles and techniques of thematic mapping. Stresses map and communication tools. Examines principles of thematic mapping techniques and means of presenting quantitative and qualitative data. Laboratory.

544 APPLICATIONS IN CARTOGRAPHY AND GEOGRAPHIC INFORMATION SYSTEMS 3 credits
Prerequisite: 340 or 540 and 405 or 505 or permission. Application of analytic and presentational techniques from cartography and geographic information systems to practical problems in geography and planning. Laboratory.

547 REMOTE SENSING 3 credits
Prerequisite: 305 or permission. Concepts, systems, and applications of aerial photography and other remote-sensing data for analyzing geographic, geological, and other earth phenomena.

548 ADVANCED CARTOGRAPHY 3 credits
Prerequisite: 345 or 545. Advanced study of cartographic principles with an emphasis on the use of color for map design and production. (Laboratory).

549 ADVANCED REMOTE SENSING 3 credits
Prerequisite: 416/616 or permission. Current research in remote sensing. Applications of human cultural and biophysical environment. Practice in planning, design, execution and interpretation of remote sensing studies. (Laboratory).

550 DEVELOPMENT PLANNING 3 credits
A study of planning concepts and techniques for developing countries, including growth and development, planning agencies, regional inequities and alternative approaches.

581 RESEARCH METHODS IN GEOGRAPHY AND PLANNING 3 credits
Prerequisite: 12 credits in geography and planning. Investigation of library and archive resources. Emphasis on development of professional writing skills.

583 SPATIAL ANALYSIS 3 credits
Prerequisite: 416/616 or permission. Analysis of mapped statistical surfaces. Principles for use of map as model for statistical evidence, prediction, hypothesis testing.

589 SPECIAL TOPICS IN GEOGRAPHY 1-3 credits
Topics to be selected from topics of interest in geography. (May be repeated for a total of six credits.) Group studies of special topics in geography.

590 WORKSHOP IN GEOGRAPHY 1-3 credits
(May be repeated for a total of six credits) Group studies of special topics in geography.

595 SOIL AND WATER FIELD STUDIES 3 credits
Prerequisite: 102 or permission. Properties, origins and uses of major soil and water regime landscapes. Stresses relationships between soil and the hydrological cycle, urbanization, sub-urbanization and agriculture. Field trips required.

596 FIELD RESEARCH METHODS 3 credits
Prerequisite: 416/616 or permission. Field work enabling student to become competent in collecting, organizing and analysis of data while carrying out field research projects.

597 REGIONAL FIELD STUDIES 1-3 credits
Field-oriented intensive study of geographic features of a region or regions through direct observations and travel using appropriate field study methods. (Repeatable up to six credits)

600,1,2 SEMINAR 3 credits each
(May be repeated for a maximum of six credits each) Prerequisite: permission. Investigation and analysis of selected topics in particular fields of geography. Specialization indicated by section number of title.

630 PLANNING THEORY 3 credits
Introduction to the political, institutional and ethical foundations and procedural theories of urban and regional planning.

631 FACILITIES PLANNING 3 credits
Study of need, process and limitation of urban facilities planning.

633 COMPARATIVE PLANNING 3 credits
A survey of national, regional and local planning implementation measures in use in the developing world. Particular attention will be given to the planning experiences of European nations and other developing regions.

658 PLANNING INTERNSHIP 3 credits
Prerequisite: permission. Individual experience in selected planning agencies for supervised field experience in urban and regional planning. (May be repeated for a total of six credits)

681 PLANNING COLLOQUIUM 1 credit
(May be repeated for a maximum of four credits.) Lecture series on topics of interest in geography and planning, by academic and non-academic professionals for both faculty and students. Does not satisfy degree requirements. Credit/Non-Credit.

689 INDEPENDENT READING AND RESEARCH 1-3 credits
Prerequisite: permission of instructor. Independent investigation of selected topics under guidance of faculty member. (May be repeated for a total of six credits.)

699 THESIS RESEARCH 1-6 credits
Independent and original work toward a thesis.

GEOLGY

3370:

505 ARCHAEOLOGICAL GEOLOGY 3 credits (includes lab)
Prerequisite: 101 or by permission of instructor. Provides background in geologic principles and techniques relevant to archaeologists. Topics include stratigraphy, absolute dating, locality assessment, zooarcheology, taphonomy, and remote sensing. Required lab.

507 ARCHAEOGEOLOGICAL SURVEY 3 credits
Prerequisites: 2340-250 or 3370-101 or 3950-310. Advanced instruction in subsurface geophysical and analytical techniques in archaeology. Emphasis on magnetic gravimetry and electrical resistivity techniques, image processing and geological and archaeological interpretation.

510 REGIONAL GEOLOGY OF NORTH AMERICA 3 credits
Prerequisites: 101, 102, 210 or permission, recommended: 360. Examination of physical provinces of North America emphasizing structure, tectonic setting, stratigraphy and processes responsible for landforms in each province. Laboratory.

511 GLACIAL GEOLOGY 3 credits
Prerequisite: 210 or permission. Causes and effects of Pleistocene expansion of polar ice sheets with emphasis on glacial deposits and world climatic changes.

521 COASTAL GEOLOGY 3 credits
Prerequisites: 101, 324 or permission of instructor. Study of the origins and evolution of coasts and coastal deposits with particular attention paid to the interaction of wave action and currents with sediment, and the development of associated sedimentary features.

525 PRINCIPLES OF SEDIMENTARY BASIN ANALYSIS 3 credits
Prerequisite: 101 or 360 or permission of instructor. Analysis of depositional systems, regional and global stratigraphic cycles, and sedimentation and plate tectonics.

532 OPTICAL MINERALOGY-INTRODUCTORY PETROGRAPHY 3 credits
Prerequisites: 230 and 231 or permission. Optical techniques for identification, characterization, and classification of minerals and rocks using the petrographic microscope. Laboratory.

533 ADVANCED PETROGRAPHY 3 credits
Prerequisite: 532. Petrogenesis of igneous, metamorphic and sedimentary rocks as determined by microscopic studies of textures and mineral assemblages using thin section. Laboratory.

535 PETROLEUM GEOLOGY 3 credits
Prerequisites: 350 or permission; recommended: 324. Natural occurrences of petroleum. Characteristics, origin, exploitation and exploration methods. Laboratory.

536 COAL GEOLOGY 3 credits
Prerequisites: 101, 102; recommended: 324. Origin, composition and occurrence of coal with emphasis on deposits in Pennsylvania, Ohio, West Virginia, and Kentucky. Applications and uses of geology to coal mining.

537 GEOLOGICAL WELLS 1-3 credits
Prerequisites: 101, 102, 210, 230, 350, 360. Methods of finding data sources (including electronic), creating valid data presentation. (Repeatable up to six credits)

541 FUNDAMENTALS OF GEOPHYSICS 3 credits
Prerequisites: 3450:223 or permission and 3650:292. Fundamental concepts in solid earth geophysics, planetary physics, atmospheric and geomagnetism. Contributions of geophysics to recent major developments in geoscience.

544 ENVIRONMENTAL MAGNETISM 3 credits
Prerequisite: 101 or permission of instructor. Introduction to the theory and methods of environmental magnetism and the application of environmental magnetism to interpreting sedimentary deposits.

545 EXPLORATION GEOPHYSICS 3 credits
Prerequisites: 3450:223, 3650:292 or permission. Basic principles and techniques of geophysical exploration with emphasis on gravimetric, magnetic, seismic and electrical methods and application to geological problems. Laboratory.

547 BOREHOLE GEOPHYSICS 3 credits
Prerequisite: permission of instructor. Basic principles and techniques of geophysical well logging with emphasis on electrical, radioactive and sonic methods and their quantitative evaluation. Applications in oil, gas and groundwater exploration. Laboratory.

550 ADVANCED STRUCTURAL GEOLOGY 3 credits
Prerequisite: 350 or permission. Fundamental and advanced concepts of structural geology with emphasis on current and developing concepts. Laboratory.

562 ADVANCED PALEONTOLOGY 3 credits
Prerequisites: 360 and 360 lab. Provides advanced training in paleontological subjects. Topics will include paleoenvironmental analysis, biostatigraphic correlation, fossil preservation, diversification and extinction patterns and geochemical signs of fossils.

563 MICROPALYEOLOGY 3 credits
Prerequisites: 360 or permission. Introduction to techniques of micropaleontology evolution and paleocology of selected microfossil groups. Laboratory.

570 GEOCHEMISTRY 3 credits
Prerequisites: 10, 230, 350-151, 152, 153, or permission. Application of chemical principles to the study of geologic processes. Laboratory.

572 STABLE ISOTOPE GEOCHEMISTRY 3 credits
Prerequisites: 3150, 3151, 152, 153, 3450/221; 3370-101, 102. Application of stable isotope geochemistry to the study of the hydrologic and carbon cycles, modern sedimentary environments, and the interpretation of sedimentary rocks.

574 GROUNDWATER HYDROLOGY 3 credits
Prerequisite: 101. Origin, occurrence, regimen and utilization of groundwater. Qualitative and quantitative presentation of geological and geochemical aspects of groundwater hydrology. Laboratory.

581 ANALYTICAL METHODS IN GEOLOGY 2 credits
Prerequisites: 230 and 231. Survey of analytical methods used to solve geologic problems with emphasis on method selection, proper sample collection, analysis of data quality and data presentation.

584 GEOSCIENCE INFORMATION ACQUISITION AND MANAGEMENT 2 credits
Prerequisites: you must be a Geology Department graduate student or senior major in geology, or have permission of instructor. Methods for finding, gathering, managing, and evaluating geoscience information. Emphasis on finding data sources (including electronic), creating valid data sets, visualizing data.

585 INDIVIDUAL READINGS IN GEOLOGY 1-4 credits
Prerequisite: permission of graduate advisor required. (May be repeated for a total of 8 credits; may not be used to meet degree requirements.) Directed reading to fit individual student programs. Credit/Non-credit.

590 WORKSHOP 1-3 credits
May be repeated. Group studies of special topics in geology. May not be used to meet undergraduate or graduate major requirements in geology. May be used for elective credit only.

593 GEOLOGY FIELD CAMP I 3 credits
Prerequisites: 101 and 102 and permission of instructor. Introduction to collection and interpretation of field data and construction of geological maps.

594 GEOLOGY FIELD CAMP II 3 credits
Prerequisites: 231, 350, 3450/583 or permission of instructor. Advanced techniques and methods of field geology necessary for detailed geological map interpretation.

631 ROCKS AND MINERALS 4 credits
Prerequisites: 101 and permission. Intensive course integrating crystallography, mineralogy and petrology for the science teacher and graduate student from disciplines other than geology. Laboratory.
### Mathematics 3450:

#### 501 History of Mathematics

- 3 credits
  - Prerequisite: 307 with a grade of C or better. Origin and development of mathematical ideas. Course does not meet degree requirements in the department.

#### 510 Advanced Linear Algebra

- 3 credits
  - Prerequisite: 312. Study of vector spaces, linear transformation, canonical and quadratic forms, inner product spaces.

#### 511 Advanced Algebra I

- 3 credits
  - Prerequisite: 307 or permission. Study of groups, rings, fields, integral domains, vector spaces, field extensions, Galois theory.

#### 512 Advanced Algebra II

- 3 credits
  - Prerequisite: 410/510 or permission of instructor. Study of groups, rings, fields, integral domains, vector spaces, field extensions, Galois theory.

#### 513 Theory of Numbers

- 3 credits
  - Prerequisite: 222 or permission. Euclidean algorithm, unique factorization theorem, congruences, primitive roots, Index, quadratic residues, number-theoretic functions, Gaussian integers and continued fractions.

#### 515 Combinatorics and Graph Theory

- 3 credits
  - Prerequisite: 222 or permission. Introduction to basic ideas and techniques of mathematical counting, properties of structure of systems.

#### 520 Mathematical Technology and Communication

- 3 credits
  - Prerequisites: 222 and 312 or permission of the instructor. Graphical, numerical, and algebraic computation with applications using a variety of mathematical hardware and software. Symbolic manipulators, dynamic geometry software, programs, scripts and web browsers.

#### 521 Advanced Calculus I and II

- 3 credits each
  - Prerequisite: 223 or 307 is highly recommended. Real number system, sequences, series, set theory, continuity, differentiation, integration, partial derivatives, multiple integration, maxima and minima, convergence and uniform convergence, power series, improper integrals, transformations, line and surface integrals.

#### 525 Complex Variables

- 3 credits
  - Prerequisites: 223. Complex variables, elementary functions, differentiation and analytic functions, integration and Cauchy's theorem, power series, Laurent series and residue theorem; applications such as conformal mappings, inversion of integral transform.

#### 529 Advanced Numerical Methods I

- 3 credits
  - Prerequisites: 222 and 346020 or permission of instructor. Numerical methods in polynomial interpolation, rootfinding, numerical integration, and numerical linear algebra.

#### 530 Advanced Numerical Methods II

- 3 credits

#### 532 Partial Differential Equations

- 3 credits
  - Prerequisite: 335. The classical initial value and boundary value problems of mathematical physics, Sturm-Liouville theory, Fourier series and transform methods.

#### 533 Systems of Ordinary Differential Equations

- 3 credits
  - Prerequisites: 335 and either 302 or 424. Analysis, solution of systems of equations, linear, non-linear. Topics: stability theory, perturbation methods, asymptotic methods, applications from physics and social sciences.

#### 536 Mathematical Models

- 3 credits
  - Prerequisite: 335 and six-hour sequence in an approved applied area, or permission. Formulation and analysis of mathematical models in social and physical sciences. Analysis of deterministic and stochastic models. Topics may include stochastic processes, linear programming, simulations, game theory, theory of measurement, theory of measurement.

#### 538 Advanced Engineering Mathematics I

- 3 credits
  - Prerequisites: 335 and 312 or permission. Matrices, eigenvalue problems, systems of ODEs, vector analysis, complex variables.

#### 539 Advanced Engineering Mathematics II

- 3 credits
  - Prerequisites: 335 and 312 or permission. Special functions, fourier series and transforms, PDEs.

#### 541 Concepts in Geometry

- 4 credits
  - Prerequisites: 337 with a grade of C or better or permission of instructor. Axiomatic treatment of both Euclidean and non-Euclidean geometries. Other concepts included are finite geometries, transformations, constructions and inversions.

#### 545 Introduction to Topology

- 3 credits
  - Prerequisite: 307 or permission of instructor. Introduction to topological spaces and topologies, mapping, cardinality, homeomorphisms, connected spaces, metric spaces.

#### 560 Topology

- 1-4 credits
  - Prerequisite: 223 or 529 or permission of instructor. May be repeated for a total of 12 credits. Topics in topology and applied mathematics at an advanced level.

#### 561 Workshop in Mathematics

- 1-4 credits
  - Prerequisite: 307. Group studies of special topics in mathematics and applied mathematics. May not be used to meet graduate or credit requirements in mathematics and applied mathematics. Study of special topics in mathematics. Study of special topics in mathematics.

#### 563 Advanced Numerical Analysis I

- 3 credits
  - Prerequisites: 522/525 or knowledge of C++, FORTRAN, or MATLAB. Error propagation; theoretical analysis of numerical methods in interpolation, integration, and ordinary differential equations.

#### 564 Advanced Numerical Analysis II

- 3 credits
  - Prerequisites: 522/525 (grade of C or better) and knowledge of C++, FORTRAN, or MATLAB. Theoretical analysis of numerical methods in linear algebra.

#### 565 Calculus of Variations

- 3 credits
  - Prerequisite: 335. Problems with fixed and movable endpoints, problems with constraints, generalization to several variables, the maximum principle, linear time-optimal problems, the connective between classical theory and the maximum principle.

#### 566 Advanced Partial Differential Equations

- 3 credits
  - Prerequisite: 522/525 or permission of instructor. Existence and uniqueness of solutions to general classes of partial differential equations. Methods for solving these classes introduced, emphasizing both analytical and numerical techniques.

#### 568 Advanced Methods of Applied Mathematics I and II

- 3 credits each
  - Prerequisites: 421/521 or 436/538, 439/539 or permission of instructor. Selected topics in methods of applied mathematics.

#### 570 Optimization

- 3 credits
  - Prerequisite: 222 or permission. Unconstrained and constrained optimization theory and methods applied in problems.

#### 571 Advanced Combinatorics and Graph Theory

- 3 credits
  - Prerequisite: 335. Theory and techniques of combinatorics as applied to network problems and graph theoretic problems.

#### 580 Theory and Application of Wavelets

- 3 credits
  - Prerequisite: permission of instructor. Theory of wavelets and applications to signal and image analysis. Topics include time-frequency representations, filter bands, discrete and continuous wavelet transforms, wavelet packets, and applications.

#### 589 Advanced Topics in Mathematics

- 1-3 credits
  - May be repeated for a total of six credits. Prerequisite: permission of advisor. Seminar-type discussion on topics in mathematics leading to supervised research project. No more than 2 credits apply to major requirements.

#### 592 Seminar in Mathematics

- 1-3 credits
  - May be repeated for a total of 9 credits. Prerequisite: permission of advisor. Seminar-type discussion on topics in mathematics leading to supervised research project. No more than 2 credits apply to major requirements.

#### 596 Practicum in Mathematics

- 1-3 credits
  - May be repeated for a total of 9 credits. Prerequisite: permission of advisor. Seminar-type discussion on topics in mathematics leading to supervised research project. No more than 2 credits apply to major requirements.

#### 598 Master's Research

- 1-6 credits
  - May be repeated for a total of 12 credits. Prerequisite: permission of advisor. Research in suitable topics in mathematics or applied mathematics culminating in a research paper. A minimum of 2 credits is required for the major requirement.
COMPUTER SCIENCE  

501 FUNDAMENTALS OF DATA STRUCTURES  3 credits  
Prerequisite: programming experience in C. Basic data structures and algorithms: stacks, queues, linked lists, trees, hash tables, and graphs; sorting and search algorithms. Introduction to data abstraction and algorithm analysis. (May not be used to meet computer science major requirements).

505 INTRODUCTION TO C AND UNIX  3 credits  
Prerequisite: Programming experience. C language programming. UNIX shell programming. File structure, system calls, and interprocess communication. (May not be used to meet computer science major requirements).

506 WINDOWS PROGRAMMING  3 credits  
Prerequisites: 208 or 406 or 406 or permission. Windows operating systems, integration of development environment, event-driven programming, graphical user interface design, using object libraries, component object model, object linking and embedding, client-server objects.

518 INTRODUCTION TO DISCRETE STRUCTURES  3 credits  
Prerequisites: 208 or permission. Introduction to algebraic structures of particular use in computer science. Topics include algorithms and flow chart language, graphs and digraphs, trees, lattices codes. (May not be used to meet computer science major's degree requirements).

521 INTRODUCTION TO OBJECT-ORIENTED PROGRAMMING LANGUAGES  3 credits  
Prerequisite: 316. Object-oriented design, analysis, and programming using different development models. Comparison with other programming paradigms.

526 OPERATING SYSTEMS  3 credits  
Prerequisites: 300 and 398, or 50 or equivalent. Introduction to various types of operating systems: batch processing systems, multiprogramming systems and interacting processes; storage management; process and resource control; deadlock problem. Course is independent of any particular operating system. (May not be used to meet computer science major's degree requirements).

528 UNIX SYSTEM PROGRAMMING  3 credits  
Prerequisites: 316 and knowledge of C. An overview of the UNIX operating system. Shell programming, process management, process management, scheduling algorithms, resource protection, system programming.

530 THEORY OF PROGRAMMING LANGUAGES  3 credits  
Prerequisite: 316. Advanced concepts underlying programming languages and their applications. Major themes of formal languages. Basic features include finite-state automata, regular expressions. Regular context-free and context-sensitive grammars. (May not be used to meet computer science major's degree requirements).

535 ANALYSIS OF ALGORITHMS  3 credits  
Prerequisites: 316 and 4815/818. Design and analysis of efficient algorithms for random access machines; derivation of pattern classification algorithms.

540 COMPILER DESIGN  3 credits  
Prerequisites: 307 and 396. Techniques used in writing and modifying compilers including translation, loading, execution, symbol tables and storage allocation; compilation of simple expressions and statements. Organization of a compiler for handling lexical scan, syntax scan, semantic analysis, code optimization, error diagnoses, and code optimization. Use of compiler writing languages.

545 INTRODUCTION TO BI-INFORMATICS  3 credits  
Prerequisites: Completion of 316 with a grade of C- or better of introduction. Major themes in bioinformatics include concepts in molecular genetics, molecular interactions, database searching, segmentation alignment, phylogenetic trees, structure prediction, and molecular visualization. (May be used to meet computer science major's degree requirements).

555 DATA COMMUNICATIONS AND COMPUTER NETWORKS  3 credits  
Prerequisites: 316 or 416/461, ISQ, TCP/IP, DNS, database networking, protocols, flow and error control, routing, topology, network protocols, network taxonomies, and socket-based programming.

557 COMPUTER GRAPHICS  3 credits  
Prerequisite: 316. Curve and surface design, computer graphics languages, computer graphics output, computer animation, color graphics, ray tracing, geometric transformation, projection, shadowing, animation, and virtual reality.

560 ARTIFICIAL INTELLIGENCE AND HEURISTIC PROGRAMMING  3 credits  
Prerequisite: 316. Study of programs which have employed some intelligent behavior. Level of exploratory at which computers can display intelligence.

565 COMPUTER ARCHITECTURE  3 credits  
Prerequisites: 306 and 311 or 4400.310, or completion of a computer architecture at a grade of C or better. An introduction to the hardware organization of the computer system at the register, processor, and memory level. An in-depth study of the architecture of a particular computer systems family. (May not be used to meet computer science major's degree requirements).

570 AUTOMATA, COMPUTABILITY AND FORMAL LANGUAGES  3 credits  
Prerequisite: 418/518. Presentation of theory of formal languages and their relation to automata. Topics include description of formal languages, fundamental computability, grammar, finite, pushdown and linear bounded automata; turning machines; closure properties; computational complexity, stack automata and decidability.

575 DATABASE MANAGEMENT  3 credits  
Prerequisite: 316. Fundamentals of database organization, data manipulations and representation, data integrity, privacy.

579 INTRODUCTION TO PARALLEL PROCESSING  3 credits  
Prerequisite: 316 and knowledge of parallel processing: past and present. Parallel algorithms, models of parallel computation. Emphasis on parallel algorithm design and performance optimization. A broad study of parallel paradigms with relation to real world applications.

580 INTRODUCTION TO SOFTWARE ENGINEERING AND FORMAL METHODS  3 credits  
Prerequisite: 316. Introduction to formal software specification and validation. Introduction of methodologies and tools of design, development, validation, and maintenance.

589 TOPICS IN COMPUTER SCIENCE  1-3 credits  
May be repeated. Prebles to instruction of topics in computer science at an advanced level.

591 WORKSHOP IN COMPUTER SCIENCE  1-3 credits  
Group studies of special topics in computer science. (May not be used to meet computer science major's degree requirements).

597 INDIVIDUAL STUDY IN COMPUTER SCIENCE  1-3 credits  
May be repeated. Can apply to degree, minor, or certificate only with departmental approval. 
Prerequisite: permission. Directed studies designed as introduction to research problems under guidance of designated faculty member.

598 ADVANCED OPERATING SYSTEMS  3 credits  
Prerequisite: 426/526 or equivalent. Advanced topics in operating system design: synchronization mechanisms, performance evaluation, security, distributed operating systems.

630 ADVANCED THEORY OF PROGRAMMING LANGUAGES  3 credits  
Prerequisites: 403/503 and 418/518. An in-depth study of various issues in the design and implementation of programming languages, such as formal type systems, operational semantics, and other semantics, and lambda calculus.

635 ALGORITHMS AND COMPLEXITY THEORY  3 credits  
Prerequisites: 426/526 or equivalent. Advanced graph algorithms, matrix multiplication, fast Fourier transforms, lower bound theory, complexity hierarchies, NP-complete and intractable problems, approximation techniques.

640 ADVANCED COMPILER DESIGN AND CONSTRUCTION  3 credits  
Prerequisites: 400/500 or equivalent. Continuation of 400/500. Theory of LLI and LIL parsers, compiler writing tool environments and code optimization, implementation of advanced language features. Major programming project required.

645 COMPUTER NETWORKS AND DISTRIBUTED SYSTEMS  3 credits  
Prerequisites: 465/565 and 455/555. Introduction to network protocols, protocol layering models, internet and stream transport services, client-server paradigm, principles and protocols of interconnected networks operating as unified systems, and TCP/IP technology.

657 ADVANCED COMPUTER GRAPHICS  3 credits  
Prerequisites: 457/557. Knowledge of C and UNIX. Topics include 3D viewing and projections, image manipulation, 3D transformation, OpenGL shading, clipping and animation via raster files, fractal mapping, surface rendering, and solid mapping.

568 VISUALIZATION  3 credits  
Prerequisites: 457 or 567 or permission of instructor. Visualization pipeline, data representation in visualization, visualization algorithms, object-oriented visualization, scientific visualization, volume visualization, visualization applications and research topics.

660 EXPERT SYSTEMS  3 credits  
Prerequisite: 457/567 or maturity in mathematics. Architecture of expert systems, knowledge representation and acquisition, inference mechanisms for expert systems, uncertainty management, expert system tools and applications.

665 ADVANCED COMPUTER ARCHITECTURE  3 credits  
Prerequisite: 465/565 or equivalent. Fundamentals of computer architecture and design, with emphasis on cost/performance tradeoffs. Studies of pipeline, vector, RISC, and multiprocessor architectures.

670 ADVANCED AUTOMATA AND COMPATIBILITY  3 credits  
Prerequisite: 470/510 or equivalent. An in-depth study of concepts related to computability. Topics include nondeterminism, recursive function theory, the Chomsky hierarchy, Turing machines and undecidability.

675 ADVANCED DATABASE MANAGEMENT  3 credits  
Prerequisites: 475/575 or equivalent. Database relational database theory, including formal query languages; query processing and optimization techniques; reliability techniques including recovery, concurrency, security, and integrity; current trends in database technology.

676 DATA MINING  3 credits  
Prerequisite: Completion of 575 with a grade of C- or better or permission of instructor. Study fundamental data mining algorithms and their applications in the process of Knowledge Discovery from Databases. Study data warehousing systems and architectures.

677 PARALLEL PROCESSING  3 credits  
Prerequisite: 477/577. Advanced computer architectures, theories of parallel computing, system level parallel optimization, efficient programming language and application requirements of cost-effective computer systems. Classical results and practical insights into implementing parallel algorithms on parallel-architecture parallel machines.

680 SOFTWARE ENGINEERING  3 credits  
Prerequisites: 307 and 396. Introduction to current techniques and methodologies used in software design, development, validation and maintenance.

699 ADVANCED TOPICS IN COMPUTER SCIENCE  1-3 credits  
May be repeated. Prerequisite: permission of advisor. Seminar-type discussions on topics in computer science. No more than three credits may apply to major requirements.

700 PRACTICUM IN COMPUTER SCIENCE  1-3 credits  
Prerequisite: gradate teaching assistant or permission. Training and experience in college teaching of computer science under the supervision of an experienced faculty member. May not be used to meet degree requirements. Credit/No-credit.

712 DISSERTATION  1-3 credits  
Prerequisite: permission of instructor. Directed studies designed as introduction to research problems under guidance of designated faculty member.

520 COMPUTER ARCHITECTURE  3 credits  
Prerequisites: 418 or 518 or permission. Design of multiprocessor systems. Study of hardware and software design of parallel processing systems. Architectural design of computer systems. (May not be used to meet computer science major's degree requirements).

525 ADVANCED DATABASE MANAGEMENT  3 credits  
Prerequisite: 495/595. Advanced database management systems. Special topics in database management, system architecture, database design, query languages, transactions, query processing, implementation techniques, normal forms, database design, the relational model, and the physical design of data files.

530 AUTOMATA, COMPUTABILITY AND FORMAL LANGUAGES  3 credits  
Prerequisite: 418 or 518. Presentation of theory of formal languages and their relation to automata. Topics include description of formal languages, fundamental computability, grammar, finite, pushdown and linear bounded automata; turning machines; closure properties; computational complexity, stack automata and decidability.

535 DATABASE MANAGEMENT  3 credits  
Prerequisite: 316. Fundamentals of database organization, data manipulations and representation, data integrity, privacy.

540 INTRODUCTION TO PARALLEL PROCESSING  3 credits  
Prerequisite: 316 and knowledge of parallel processing: past and present. Parallel algorithms, models of parallel computation. Emphasis on parallel algorithm design and perfor-
GRADUATE COURSES

STATISTICS 3470:

550 PROBABILITY
3 credits
Prerequisite: 3450:221. Introduction to probability, random variables and probability distributions, expected value, sums of random variables, Markov processes.

551.2 THEORETICAL STATISTICS I AND II
3 credits each
Prerequisite: 460/560 or 461/561 or 664 or equivalent or permission. Elementary combinatorial probability theory, probability distributions, mathematical expectation, functions of random variables, sampling distributions, point and interval estimation, tests of hypotheses, regression and correlation, introduction to experimental designs.

560 STATISTICAL METHODS
4 credits
Application of statistical methods to the social sciences including description statistics, probability distributions, statistical inference (parametric, nonparametric), categorical data analysis, linear regression, correlation, computer applications. May not be used to meet Mathematical Sciences degree requirements.

561 APPLIED STATISTICS I
4 credits
Prerequisite: 3450:222 or 286 or equivalent. Applications of statistical theory to natural and physical sciences and engineering, including probability distributions, interval estimation, hypothesis testing (parametric and nonparametric), and simple linear regression and correlation.

562 APPLIED STATISTICS II
4 credits
Prerequisite: 461/561 or equivalent. Applications of the techniques of regression and multifactor analysis of variance.

565 DESIGN OF SAMPLE SURVEYS
3 credits
Prerequisite: 461/561 or equivalent. Design and analysis of frequently used sample survey techniques.

566 RELIABILITY MODELS
3 credits
Prerequisite: 461/561. Selected topics in reliability modeling including parametric and nonparametric methods, competing modes of failure, censored data and accelerated life models

571 ACTUARIAL SCIENCE I
3 credits
Prerequisite: 561 or 561 or equivalent. Study of various statistical, financial, and mathematical calculations used to determine insurance premiums related to contingent risks based on individual risk model frameworks.

572 ACTUARIAL SCIENCE II
3 credits
Prerequisite: 471/571 Continuation of Actuarial Science I. Study of multiple life functions, multiple life models, valuation theory for pension plans, insurance models including expenses, nonforfeiture benefits and dividends.

575 FOUNDATIONS OF STATISTICAL QUALITY CONTROL
3 credits
Prerequisite: 461/561 or equivalent. Course provides a solid foundation in the theory and applications of statistical quality control techniques used in industry.

580 STATISTICAL DATA MANAGEMENT
3 credits
Prerequisite: 561 or 561 or equivalent. Students learn data organization and structures, design of statistical databases, statistical software analysis, importing and exporting of data between software, and missing data analysis.

589 TOPICS IN STATISTICS
3 credits (May be repeated for a total of six credits) Prerequisite: permission. Selected topics in advanced statistics, including quality control, reliability, sampling techniques, decision theory, advanced inference, stochastic processes and others.

591 WORKSHOP IN STATISTICS
3 credits (May be repeated with change of topic) Group studies of special topics in statistics. May not be used to meet undergraduate or graduate major requirements in mathematics and statistics. May be used for elective credit only.

595 STATISTICAL CONSULTING
3 credits
Prerequisite: 480/580 or permission. Students will be assigned to work with an instructor on current projects in the Center for Statistical Consulting. May be repeated for a total of 4 credits; however, only 2 credits will count toward major requirements. Does not count for elective credit for math science department majors.

605 ADVANCED PROBABILITY AND STOCHASTIC PROCESSES
3 credits
Prerequisite: 651 or equivalent. Random walk, distributions, unlimited sequence of trials, laws of large numbers, convolutions, branching processes, renewal theory, Markov chains, time-dependent stochastic processes.

615 PROBABILITY AND STATISTICS
4 credits
Prerequisite: 3450:223 or equivalent. Probability, random variables, moments and generating functions, random vectors, special distributions, limit theorems, sampling, point estimation, hypothesis testing, correlation, regression.

625 ADVANCED MATHEMATICAL STATISTICS
4 credits
Prerequisite: 651. Convergence of random variables, the Central Limit Theorem; theory of estimation; theory of hypothesis testing, the multivariate normal density; introduction to linear models; Bayesian statistics.

655 LINEAR MODELS
3 credits
Prerequisites: 3450:32 and 651 or equivalent. General linear model in matrix notation, general linear hypothesis, regression models, experimental design models, analysis of variance and covariance, variance components.

660 ADVANCED STATISTICAL METHODS
4 credits
Prerequisite: 460/560 or 461/561 or equivalent or permission. Theory and applications of the techniques of regression and multifactor analysis of variance.

661 STATISTICS FOR THE LIFE SCIENCES
3 credits
Prerequisite: college level algebra or equivalent. Data description and presentation, probability applications in the life sciences (including sensitivity, specificity, relative risk), principles and application of statistical inference, ANOVA, correlation and regression.

663 EXPERIMENTAL DESIGN
3 credits
Prerequisite: 461/561 or equivalent or permission. Selected topics in experimental design including random and fixed effects, nested designs, split plot designs, confounding, fractional factorial designs, Latin squares, and analysis of covariance.

664 STATISTICS FOR THE HEALTH SCIENCES
4 credits
(May not be used to meet degree requirements for mathematical sciences majors.) Prerequisite: college level algebra or equivalent. Descriptions of statistical problems and applications, data description and presentation, hypothesis testing, outliers, influence, multicollinearity, transformations, categorical regressors; logistic regression.

665 REGRESSION
3 credits
Prerequisite: 461/561 or equivalent or permission. Correlation, simple and multiple linear regression, robust squares, model building and checking estimators, hypothesis testing, outliers, influence, multicollinearity, transformations, categorical regressors; logistic regression.

666 NONPARAMETRIC STATISTICS-METHODS
3 credits
Prerequisite: 460/560 or 461/561 or equivalent or permission. Theory and techniques using techniques requiring less restrictive assumptions. Nonparametric analogues to t- and F-tests, ANOVA, regression and correlation. Computer applications.

667 FACTOR ANALYSIS
3 credits
Prerequisite: 460/560 or 461/561 or 664 or equivalent or permission. Theory and techniques for identifying variables through use of principal components and factor analysis. Identification of groups using cluster analysis. Computer applications.

668 MULTIVARIATE STATISTICAL METHODS
3 credits
Prerequisite: 462/562 or 663 or 664 or equivalent or permission. Multivariate techniques including distance concept, Hotelling’s T2, multivariate ANOVA, regression and correlation, linear contrasts, factorial experiments, nested and repeat measure designs, Bonferroni F tests, nested designs, discrimination analysis, canonical correlations, application.

670 BIOSTATISTICS
3 credits
Prerequisite: 461/561 or 461/561 or 664 or equivalent or permission. Statistical issues and methods for identifying variables through use of principal components and factor analysis. Identification of groups using cluster analysis. Computer applications.

675 RESPONSE SURFACE METHODOLOGY
3 credits
Prerequisite: 462/562 or 663 or 664 or equivalent or permission. First and second order response designs, efficient experimental plans, methods for the analysis, and optimization of response functions.

679 ADVANCED TOPICS IN STATISTICS
3 credits (May be repeated for a total of six credits) Prerequisite: 651. Selected topics in statistics including concepts in order, statistics, advanced inference, sequential analysis, stochastic processes, reliability theory, Bayesian statistics and regression.

692 STATISTICS MASTERS PAPER
1-3 credits
(May be repeated) Prerequisite: permission of advisor. Supervised writing of paper for Master of Science in Statistics Nonthesis Option.

695 PRACTICUM IN STATISTICS AND MATHEMATICS
1.3 credits
Prerequisite: graduate teaching assistant or permission. Training and experience in college teaching of statistics. Not may be used to meet degree requirements. Credit/No credit.

696 INDIVIDUAL READING
1-4 credits (May be repeated for a total of four credits) Prerequisite: graduate standing and permission. Directed studies in statistics under guidance of selected faculty member.

698 MASTER’S RESEARCH
1-6 credits (May be repeated) Prerequisite: permission of advisor. Research in suitable topics in statistics culminating in a research paper. No more than 2 credits applicable to major requirements.

699 MASTER’S THESIS
1-6 credits (May be repeated) Prerequisite: permission of advisor. Supervised research leading to a master of science degree. Only 2 credits applicable to major requirements.

ENGINEERING APPLIED MATHEMATICS 3490:

790 ADVANCED SEMINAR IN APPLIED MATHEMATICS
1-4 credits
Prerequisite: Permission. (May be repeated for a total of 12 credits) For students seeking graduate degrees in Applied Mathematics. Advanced projects and studies in various areas of applied mathematics.

898 PRELIMINARY RESEARCH
1-5 credits
Prerequisite: Permission. (May be repeated.) Completion of qualifying examination and approval of Student Advisory Committee. Preliminary investigation of Ph.D. dissertation topic.

899 DOCTORAL DISSERTATION
1-5 credits
Prerequisite: Permission. (May be repeated.) Completion of candidacy examination and approval of Student Advisory Committee. Original research by a Ph.D. candidate.

MODERN LANGUAGES 3500:

590 WORKSHOP
1-4 credits
Prerequisite: permission of instructor. (May be repeated for a maximum of eight credits) Group studies of special topics in modern languages.

LATIN 3510:

593 LATIN READING AND RESEARCH
3 credits each
Prerequisite: Permission of instructor. General Latin epigraphy, prose composition or philology; numismatics or certain other archaeological topics may be offered. May be repeated for credit with change of subject.

FRENCH 3520:

502 ADVANCED FRENCH GRAMMAR
3 credits
Prerequisite: 302 or equivalent. Advanced study of normative French grammar with emphasis on inflection, morphology, grammar rules, and phonetic principles.

507 FRENCH LITERATURE OF THE MIDDLE AGES AND THE RENAISSANCE
4 credits
Prerequisite: 305 or 306 or equivalent. Reading and discussion of selected Medieval and Renaissance literary works. Conducted in French.

511 17TH CENTURY FRENCH LITERATURE
4 credits
Prerequisite: 305 or 306 or equivalent. Reading and discussion of selected literary works in poetry, drama and novels. Conducted in French.

513 FRENCH CINEMA
2 credits
Prerequisite: 301 or 302 or 202 with permission of instructor. Study and discussion of various aspects of French culture and civilization as characterized in movies.

515 18TH CENTURY FRENCH LITERATURE
4 credits
Prerequisite: 305 or 306 or equivalent. Reading and discussion of selected emblem books: emphasis on the Philosophes. Conducted in French.

519 19TH CENTURY FRENCH LITERATURE
4 credits
Prerequisite: 305 or 306 or equivalent. Reading and discussion of selected works pertaining to romantic, realistic and naturalistic movements. Conducted in French.
522 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS OR CULTURE
OR LITERATURE
Prerequisites: 407 or 408 or equivalent. May be repeated. Development of specialized language skills or reading of significant works of literature or culture not studied in other courses. 1-4 credits

527 20TH CENTURY FRENCH LITERATURE
Prerequisite: 305 or 306 or equivalent. Reading and discussion of the most representative works of period. Conducted in French. 4 credits

560 SELECTED THEMES IN FRENCH LITERATURE
Prerequisites: 305 and 306 or equivalent. Reading and discussion of literary works from France according to an important theme. 3 credits

5928 INDIVIDUAL READING IN FRENCH
Prerequisites: 302 and permission of the French section. Individual reading in French, offered at the graduate level. (May be repeated for a total of eight credits.) 1-4 credits

6928 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. 1-4 credits

GERMAN

3630:

522 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS, CULTURE, AND LITERATURE
Prerequisites: 301 and graduate standing. Development of specialized language skills; advanced readings in German literature or culture. (May be repeated for a total of eight credits.) 1-4 credits

5928 INDIVIDUAL READING IN GERMAN
Prerequisites: 301 and graduate standing. Individual reading in German, offered at the graduate level. (May be repeated for a total of eight credits.) 1-4 credits

ITALIAN

3650:

597 INDIVIDUAL READING IN ITALIAN
Prerequisites: graduate standing and permission of instructor and department chair. Individual study under guidance of professor who directs and coordinates student’s reading and research. 1-4 credits

SPANISH

3680:

503 ADVANCED GRAMMAR
Prerequisites: 301, 302, and 303 or instructor’s permission. Advanced study of Spanish syntax and grammatical analysis. Does not count toward the M.A. in Spanish. Conducted in Spanish. 3 credits

504 INTRODUCTION TO SPANISH LINGUISTICS
Prerequisites: 401, 402, and 403 or instructor’s permission. This course provides a detailed overview of the structure of Spanish and areas of inquiry within linguistics: phonetics, phonology, morphology, syntax, semantics, and applied fields. 4 credits

505 SPANISH LINGUISTICS: PHONOLOGY
Prerequisites: 401, 402, and 403 or instructor’s permission. Descriptive study of Spanish phonetics and morphology, comparison of Spanish and English sounds, historical aspects, regional accents, and sociolinguistic variation. Conducted in Spanish. 4 credits

506 SPANISH LINGUISTICS: SYNTAX
Prerequisites: 401, 402, and 403 or instructor’s permission. Descriptive study of Spanish syntax, introduction to theories of grammar, overview of Spanish semantics and pragmatics. Conducted in Spanish. 4 credits

507 SURVEY OF HISPANIC LITERATURE: SPAIN
Prerequisites: 340 and two of the group: 401, 402, 403, or instructor’s permission. Historical overview of representative works and literary movements in Spain. Does not count toward the M.A. in Spanish. Conducted in Spanish. 4 credits

508 SURVEY OF HISPANIC LITERATURE: SPANISH AMERICA
Prerequisites: 340 and two of the group: 401, 402, 403, or instructor’s permission. Historical overview of representative works and literary movements in Spanish America. Does not count toward the M.A. in Spanish. Conducted in Spanish. 4 credits

509 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. 4 credits

510 SPANISH APPLIED LINGUISTICS
Prerequisite: 401, 402, and 403 or instructor’s permission. This course discusses current theories of second language acquisition and their implications for the learning of problemmatic Spanish structures. 4 credits

511 SPAIN DURING THE BAROQUE PERIOD
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. 4 credits

512 CERVANTES: DON QUIJOTE
Prerequisite: 407 or 408 or permission of instructor. Reading and analysis of Don Quijote as the first modern novel in the historical context of Renaissance and Baroque esthetics. Conducted in Spanish. 4 credits

513 THE DON JUAN MYTH IN SPANISH CULTURE
Prerequisite: 407 or 408 or permission of instructor. Study of the evolution of the Don Juan myth from its origins to its latest versions in the 20th century. 4 credits

514 CULTURAL POLITICS IN THE RIVER PLATE
Prerequisite: 407 or 408 or permission of instructor. This course will examine the military dictatorships of the sevenies in Argentina and Uruguay by looking at how these regimes affect culture. 4 credits

515 THE AGE OF REASON AND THE ROMANTIC REBELLION IN SPAIN
Prerequisite: 407 or 408 or permission of instructor. Study of the Enlightenment and the Romantic movement as reflected in the works of the major artists and writers of these periods. Conducted in Spanish. 4 credits

516 REPRESENTING REALITY IN 19TH CENTURY SPAIN
Prerequisite: 407 or 408 or permission of instructor. A comparative study of the major literary and artistic movements in Spain from Realism to Modernism. Conducted in Spanish. 4 credits

518 20TH CENTURY SPAIN: THE AVANT-GARDE IN LITERATURE AND ART
Prerequisite: 407 or 408 or permission of instructor. Study of the impact of the Civil War on Spanish culture. 4 credits

519 THE SPANISH CIVIL WAR AND ITS CULTURAL IMPACT
Prerequisite: 407 or 408 or permission of instructor. Study of the impact of the Civil War on Spanish culture. 4 credits

PHILOSOPHY

3600:

511 PLATO
Prerequisite: 211 or permission of instructor. Detailed study of the origin and development of Plato’s Theory of Forms and the related theories of knowledge, ethics, and politics. 3 credits

514 AQUINAS
Prerequisite: one course in philosophy or permission of instructor. An in-depth examination of the philosophy of St. Thomas Aquinas covering his contributions in metaphysics, epistemology, ethics, political theory, and philosophical theology. 3 credits

515 AUGUSTINE
Prerequisite: one course in philosophy or permission of instructor. An in-depth examination of the philosophy of St. Augustine covering his contributions in metaphysics, epistemology, ethics, political theory, and philosophical theology. 3 credits

518 20TH CENTURY ANALYTIC PHILOSOPHY
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, Ayer, Moore, Wittgenstein, Ryle and Austen. 3 credits

519 BRITISH EMPIRISM
Prerequisites: one introductory course and 333 or permission of instructor. Intensive analysis of selected major works of Locke, Berkeley and Hume. 3 credits

522 CONTINENTAL RATIONALISM
Prerequisites: one introductory course and 333, or permission of instructor. Intensive analysis of selected major works of Descartes, Spinoza and Leibnitz. 3 credits

524 EXISTENTIALISM
Prerequisites: one course in philosophy or permission of instructor. In-depth inquiry into the thought of Kierkegaard, Jaspers, Heidegger, Sartre, Tillich and other existentialists with their concern for the human condition. 3 credits

526 PHENOMENOLOGY
Prerequisites: One philosophy course or permission of instructor. Inquiry into methodology of Husserl and Heidegger and their influence upon Western European and American thought. 3 credits

532 ARISTOTLE
Prerequisite: 211 or permission of instructor. Detailed study of Aristotle’s metaphysics, philosophy of nature, philosophy of mankind and ethics. 3 credits

534 KANT
Prerequisite: 333 or permission of instructor. Study of Kantian system of thought and its relation to history of philosophy. Includes thorough investigation of one or more of Kant’s philosophical works. 3 credits

562 HISTORY OF KNOWLEDGE
Prerequisite: one course in philosophy or permission of instructor. Examination of nature of knowledge; theories of perception, conception and truth, problem of induction and relation of language to knowledge. 2 credits

564 PHILOSOPHY OF SCIENCE
Prerequisites: 101, 170 or permission of instructor. Nature of scientific inquiry, types of explanation, laws and causality, theoretical concepts and reality. Also considers critics of hypothetico-deductive view of science, e.g., Hanson and Kuhn. 2 credits

571 METAPHYSICS
Prerequisites: one course in philosophy or permission of instructor. Theories about ultimate nature and ultimate explanation of reality. Uses readings from classical and contemporary sources. 2 credits

580 SEMINAR
May be repeated. Prerequisite: permission of instructor. 3 credits

581 PHILOSOPHY OF LANGUAGE
Prerequisites: 101 and 170 or permission of instructor. Contemporary philosophies about nature of language and its relation to reality and human thinking. Includes discussion of views of linguists such as Chomsky.
PHYSICS 3650:

501 EVERYDAY PHYSICS 4 credits
  Prerequisite: permission of instructor. College-level physics content for future teachers. Inquiry, discovery, activities, discussion, and experimental learning takes place in a laboratory-embodied lecture environment.

506 PHYSICAL OPTICS 3 credits
  Prerequisite: 350, 3450.335. Propagation, reflection, and refraction of electromagnetic waves, spherical waves, polarization, interference and interferometry, Fresnel and Fraunhofer diffraction, Fourier optics, coherence theory, and quantum optics.

531 MECHANICS I 3 credits
  Prerequisites: 292 and 3450.335. Mechanics at intermediate level. Newtonian mechanics, motion of a particle in one dimension, central field problem, system of particles, conservation laws, rigid bodies, gravitation.

532 MECHANICS II 3 credits
  Prerequisite: 3450.335. Advanced mechanics at the senior or beginning graduate level, moving coordinate systems, mechanics of continuous media. Lagrange's equations, tensor algebra and stress analysis, rotation or rigid bodies, vibration theory.

536 ELECTROMAGNETISM I 3 credits
  Prerequisites: 292, 3450.335 or permission of instructor. Electricity and magnetism at intermediate level. Electric, magnetic, and magnetostatics, electric field, scalar potential, electromagnetic Laplace's and Poisson's equations, current, magnetic field, vector potential, magnetic materials, induction.

537 ELECTROMAGNETISM II 3 credits
  Prerequisite: 3450.335. Special relativity, four vectors, Maxwell's equations in covariant form; propagation, reflection and refraction of electromagnetic waves; multiple radiation.

541 QUANTUM PHYSICS I 3 credits
  Prerequisites: 300 and 3450.335. Introduction to quantum theory. Schrödinger equation, observables, angular momentum, perturbation theory, variational principle, bound states, scattering theory, radiative interactions, spin and the Paul Principle.

542 QUANTUM PHYSICS II 3 credits
  Prerequisite: 441.494. Applications of quantum mechanics to atomic, nuclear and solid state physics, covering alpha and beta decay, periodic potential, Hydrogen and Helium atoms, intermediate forces, quantum statistics.

551 ADVANCED LABORATORY I 3 credits
  Prerequisite: 323 or permission of instructor. Experimental techniques applicable to research in contemporary physics, such as Fourier optics, optical spectroscopy, lasers, optics, and thin-film growth and characterization.

552 ADVANCED LABORATORY II 3 credits
  Prerequisite: 323 or permission of instructor. Experimental projects applicable to contemporary physics. Diode and dye lasers, laser feedback, chromatic, Moiré, electron tunneling, and fiber optics.

556 TECHNIQUES OF PHYSICS INSTRUCTION 1 credit
  Teaching assistants are introduced to current research in learning physics, shown applications for their laboratory, and trained in skills needed as a laboratory teaching assistant.

570 INTRODUCTION TO SOLID-STATE PHYSICS 3 credits
  Prerequisite: 441 or permission of instructor. Account of basic physical processes occurring in solids, with emphasis on fundamental relation between these processes and periodicity of atomic lattice.

581,2 METHODS OF MATHEMATICAL PHYSICS 1 AND 2 3 credits each
  Prerequisites: 292, 3450.335 and senior or graduate standing in a physics or engineering vector, generalized coordinates, tensors, calculus of variations, vector spaces, linear transformations, matrices, eigenvalues, Hilbert space, boundary value problems, transcendentals, functions, complex variables, analytic functions, Green's functions, integral equations.

589 SELECTED TOPICS: PHYSICS (May be repeated) 1-4 credits
  Prerequisite: permission. Further investigations of various selected topics in physics, under guidance of faculty member.

599 INDEPENDENT STUDY (May be repeated) 1-4 credits
  Prerequisite: permission. Further investigations of various selected topics in physics, under guidance of faculty member.

599b PHYSICS COLLOQUIUM 1 credit
  Lectures on current research topics in physics by invited speakers. May be repeated, but only one credit counts toward M.S. degree. Credit/Noncredit.

605 COMPUTER PHYSICS: NUMERICAL SOLUTIONS TO PHYSICS PROBLEMS I 3 credits
  Prerequisite: 335 or permission. Review of FORTRAN and basic topics in computer science; numerical solutions to physics problems, including Newton's and Schrödinger's equations. Treatment and reduction of experimental data, plotting, simulation.

606 COMPUTER PHYSICS: NUMERICAL SOLUTIONS TO PHYSICS PROBLEMS II 3 credits
  Prerequisite: 335 or permission. Advanced topics in computer science; numerical solutions to physics problems, including a detailed study of individual interest.

610 SURFACE PHYSICS 3 credits
  Prerequisite: 470. An interdisciplinary course stressing the fundamentals and applications of physical surface phenomena, including corrosion, catalysis, adhesion, and tribology.

615 ELECTROMAGNETIC THEORY I 3 credits
  Prerequisite: 437.537 or permission of instructor. Electrodynamics and magnetostatics at advanced level. Theory of electromagnetic waves, classical theory of electromagnetism, vector calculus, electromagnetic waves, Maxwell's equations and laws of reflection, refraction, wave guides and cavities.

616 ELECTROMAGNETIC THEORY II 3 credits
  Prerequisite: 347.537. Scattering and diffraction, plasma physics, special theory of relativity, dynamics of relativistic particles in fields, collisions of charged particles, radiation from moving charges, bremsstrahlung, Bremsstrahlung.

625 QUANTUM MECHANICS I 3 credits
  Prerequisites: 445/541, 485/581 or permission of instructor. Basic concepts of quantum mechanics, wave-particle representation theory, particle in a central field, addition of angular momenta and spins, Clebsch-Gordon coefficients, perturbation theory, scattering, transition probabilities.

626 QUANTUM MECHANICS II 3 credits

641 LAGRANGIAN MECHANICS 3 credits
  Prerequisite: 425/526 or permission of instructor. Principle of least action and Lagrangian equation of motion, conservation laws, integration of equation of motion, collisions, small oscillations, Hamilton's equations, canonical transformations.

661 STATISTICAL MECHANICS 3 credits
  Prerequisite: 442/542 or permission of instructor. Fundamental principles of statistical mechanics, Gibbs, Fermi and Bose Statistics, solids, liquids, gases, phase equilibrium, chemical reactions.

669 CRITICAL PHENOMENA AND PHASE TRANSITIONS 3 credits
  Prerequisite: 625, 641, 661, or permission of instructor. Modern theory of critical phenomena and phase transition theory. Spin systems, binary mixtures, polymers and liquid crystals. Non-integer exponents and scaling.

670 SOLID-STATE PHYSICS I 3 credits
  Prerequisite: 470, 625 or permission of instructor. Theory of physics of crystalline solids. Properties of reciprocal lattice and Bloch's theorem. Lattice dynamics and specific heat. Electronic states; cellular method, tight-binding method, Green's function method.

676 SOLID-STATE PHYSICS II 3 credits

689 SPECIAL PROBLEMS IN THEORETICAL PHYSICS 1-3 credits
  May be repeated. Prerequisite: permission. Intended to facilitate expansion of particular areas of interest in theoretical physics. Consultation with faculty member and independent study beyond available course work.

691 SEMINAR IN THEORETICAL PHYSICS 1-3 credits
  May be repeated. Prerequisite: permission.

GRADUATE RESEARCH 1-5 credits
  Prerequisite: permission. Candidates for M.S. degree may obtain up to five credits for faculty supervision of project completed by student.

698 SPECIAL TOPICS: PHYSICS 1-4 credits
  Prerequisite: permission. Further investigation of various selected topics in advanced physics.

707 POLITICAL SCIENCE 3700:

502 POLITICS AND THE MEDIA 3 credits
  Examination of relationships between the press, the news media and political decision makers.

505 POLITICS IN THE MIDDLE EAST 3 credits
  The rise of the state system in the Middle East after World War I; an analysis of the political, ideological forces influencing the political behavior of the people of the Middle East. In-depth study of selected political systems.

510 INTERNATIONAL DEFENSE POLICY 3 credits
  Prerequisite: At least one of the following: 220, 310, 3400:340, 360, 407, 408, or permission. Introduction to political uses of military forces. Major focus on methodological, conceptual, and ethical dilemmas confronted in developing and implementing defense policy.

512 GLOBAL ENVIRONMENTAL POLITICS 3 credits
  Prerequisites: 300, 310 or permission of instructor. Examines the general dimensions of the global environmental challenge, including the roles played by technology and the structure of the system of international relations.

515 COMPARATIVE FOREIGN POLICY 3 credits
  Prerequisite: 310 or 220 or permission. Study of foreign policies of selected nations, with special attention to processes and instruments of decision-making in the major powers.

522 UNDERSTANDING RACIAL AND GENDER CONFLICT 3 credits
  This is the core course for the Certificate in Racial and Gender Conflict, providing students with an opportunity to intensively examine racial and gender conflict.

530 MANAGEMENT OF PROBATION AND PAROLE 3 credits
  This course is an overview of the practice of probation and parole. Current issues relating to control, management, and sanctioning of criminal offenders are discussed.

535 ADMINISTRATION OF PRISONS 3 credits
  This course examines common activities and practices of American prisons. Specific topics include riots, prison violence, prisoner rights, correctional officers, and case management issues.

540 SURVEY RESEARCH METHODS 3 credits
  Prerequisite: 100 or 201 or permission. Study of the survey research methods as applied to the analysis of public opinion, political behavior and public policy formation.

541 THE POLICY PROCESS 3 credits
  Prerequisite: eight credits in political science. Intensive study of policy-making process, emphasizing roles of various participants in executive and legislative branches as well as private individuals and groups.

542 METHODS OF POLICY ANALYSIS 2 credits
  Prerequisite: 201. Examinations of methods available for analyzing public policies. Techniques used in policy analysis are illustrated with case studies of actual policy problems.

543 POLITICAL SCANDALS AND CORRUPTION 3 credits
  This course will provide information on major political scandals, including media coverage, public opinion, the role of special prosecutors, and the impacts of scandals.

550 ADMINISTERING PRISONS, PROBATION, AND PAROLE 3 credits
  Prerequisite: 100. This course examines the political dynamics of correctional institutions' governance and internal power relations, electoral politics and correctional policies, and political imprisonment.

561 THE SUPREME COURT AND CONSTITUTIONAL LAW 3 credits
  Prerequisite: 100 or permission. Interpretation of the Constitution by the Supreme Court with emphasis on federal judicial, legislative and executive power; separation of powers; and federalism.

562 THE SUPREME COURT AND CIVIL LIBERTIES 3 credits
  Prerequisite: 100 or permission. Interpretation of the Constitution by the Supreme Court with emphasis on freedom of speech and press, freedom of religion, criminal rights and right to privacy.

570 CAMPAIGN MANAGEMENT I 3 credits
  Prerequisite: permission. Reading, research and practice in campaign management.
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<th>Course Number</th>
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<tr>
<td>571</td>
<td>Campaign Management II</td>
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<td>572</td>
<td>Campaign Finance</td>
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<td>573</td>
<td>Voter Contact and Elections</td>
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<td>574</td>
<td>Political Opinion, Behavior and Electoral Politics</td>
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<td>575</td>
<td>American Interest Groups</td>
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<td>576</td>
<td>American Political Parties</td>
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<td>580</td>
<td>Policy Problems</td>
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<td>581</td>
<td>The Politics of Policing</td>
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<td>582</td>
<td>Current Issues (CI Topic)</td>
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<td>586</td>
<td>Scope and Theories of Political Science</td>
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<td>589</td>
<td>Workshop in Political Science</td>
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<td>600</td>
<td>Seminar in National Politics</td>
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<td>601</td>
<td>Seminar in Comparative Politics</td>
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<td>602</td>
<td>Seminar in Alternatives to Violence at Home and Abroad</td>
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<td>603</td>
<td>Seminar in Political Traditions</td>
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<td>605</td>
<td>Seminar on Law, Punishment, and Politics: U.S. and the World</td>
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<td>606</td>
<td>Campaign and Election Law</td>
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<td>610</td>
<td>Psychological Tests and Measurements</td>
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<td>611</td>
<td>Abnormal Psychology</td>
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<td>Psychology of Small Group Behavior</td>
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<td>616</td>
<td>Psychological Research Using Quantitative and Computer Methods I</td>
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<td>617</td>
<td>Psychological Research Using Quantitative and Computer Methods II</td>
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**Psychology Program: 375 credits**

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<tr>
<td>510</td>
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<td>519</td>
<td>Psychological Research Using Quantitative and Computer Methods III</td>
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The University of Akron 2005-2006
700 SURVEY OF PROJECTIVE TECHNIQUES 4 credits
Prerequisites: 630 or instructor's permission. Introduction to rational, assumptions and ethics, and research of projective testing. Elementary administration, scoring and interpretation of tests, and survey of other important contemporary projective instruments.

701 PSYCHODIAGNOSTICS 4 credits
Prerequisite: 700. Application of psychological testing to problems of diagnosis and evaluation. Prerequisites: Experience in administration, scoring and interpretation. Integration of projective data with other assessment techniques in various settings of use.

707 SUPERVISION IN COUNSELING PSYCHOLOGY I 4 credits
Prerequisite: doctoral student or permission of instructor. Instruction and experience in supervising a graduate student in counseling.

709 INTRODUCTION TO COUNSELING PSYCHOLOGY 2 credits
Prerequisite: Graduate standing in the Collaborative Program in Counseling Psychology. Introduction to historical foundations of and recent developments in counseling psychology, with an emphasis on contemporary research literature in the field.

710 THEORIES OF COUNSELING AND PSYCHOTHERAPY 4 credits
Prerequisites: 630 or instructor's permission. Major systems of individual psychology explored within a philosophy of science framework: Freudian, behavioral, Rogerian, cognitive, and humanistic. Includes research, contemporary problems and ethical considerations.

711 VOCATIONAL BEHAVIOR 4 credits
Prerequisite: 630 or permission of instructor. Theories and research on vocational behavior and vocational counseling. Topics include major theories of vocational behavior, empirical research on these theories, applied work in vocational counseling and applied research.

712 PRINCIPLES AND PRACTICE OF INDEPENDENT INTELLIGENCE TESTING 4 credits
Prerequisites: 630 or graduate standing in school psychology, and instructor's permission. Historical, methodological, and methodological trends in intelligence testing, supervised practice in administration, scoring and interpretation of individual intelligence tests for children and adults.

713 PROFESSIONAL, ETHICAL AND LEGAL ISSUES IN ORGANIZATIONAL PSYCHOLOGY 4 credits
Prerequisite: doctoral student or permission of instructor. Examination of major issues in the field such as the counselor as a professional and as a person, and issues, problems and trends in counseling.

714 OBJECTIVE PERSONALITY EVALUATION 4 credits
Prerequisites: completion of 830 or 4005/50, and 420/520, and 5600.645. Study of the development, administration, and interpretation of objective instruments for personality assessment (MMPI, CPI, MBTI, TBF and selected additional inventories).

715 RESEARCH DESIGN IN COUNSELING 3 credits
Prerequisite: doctoral student or permission of the instructor. Study of research designs, evaluation procedures, and review of current research.

717 ISSUES OF DIVERSITY IN COUNSELING PSYCHOLOGY 4 credits
Prerequisites: 630 or one semester of practicum work. Critical examination and application of research and theory in counseling diverse populations, focusing on race/ethnicity, sex/gender, sexual orientation, age, disability, and spirituality.

718 HISTORY AND SYSTEMS IN PSYCHOLOGY 2 credits
Prerequisite: 630. Philosophical and scientific antecedents of psychology and the development of systematic viewpoints in the 19th and 20th centuries.

727 PSYCHOLOGY OF ADULTHOOD AND AGING 4 credits
Prerequisite: graduate standing in psychology or in the collaborative program in counseling psychology or permission of the instructor. Aspects of development, aging with emphasis on lifespan methodology and research design. Age-related changes in intelligence, personality, sensation, perception, learning, memory, and socialization and intervention approaches.

728 APPLIED COGNITIVE AGING PSYCHOLOGY: SOCIAL DEVELOPMENT 4 credits
Prerequisites: 727. Graduate standing in psychology, or permission of instructor. Study of factors influencing social development in the later years. Topics to be covered include: social support, aging with disabilities, health, and spirituality.

731 APPLIED COGNITIVE AGING PSYCHOLOGY: INFORMATION PROCESSING 4 credits
Prerequisite: 727 graduate student in psychology, or permission of instructor. Perception, learning, motivation, attention, and problem solving in adulthood and their effects on areas such as dementia, communication, judgment, awareness, expertise, wisdom, and creativity.

732 APPLIED COGNITIVE AGING PSYCHOLOGY: HIGHER PROCESSES 4 credits
Prerequisite: 727 graduate student in psychology, or permission of instructor. Memory, comprehension, decision processes, intelligence, and knowledge, and their relation to everyday functioning in areas such as dementia, communication, judgment, awareness, expertise, wisdom, and creativity.

733 APPLIED COGNITIVE AGING PSYCHOLOGY: RESEARCH 4 credits
Prerequisite: 727 graduate student in psychology, or permission of instructor. Intensive reading in selected content area, design and conduct of a complete research study. (May be repeated.)

735 APPLIED COGNITIVE AGING PSYCHOLOGY: COGNITIVE NEUROPSYCHOLOGY 4 credits
Prerequisite: 640 or instructor's permission. An advanced course that acquaints graduate students with the most recent literature in cognitive neuropsychology within the context of aging research.

738 APPLIED DEVELOPMENTAL PSYCHOLOGY 4 credits
Prerequisite: 727 graduate student in psychology, or permission of instructor. Examination of methodologies, evaluation, child abuse, early intervention, day care, kibbutzim, social networks, subcultural variations, and hosp/aging.

740 INDUSTRIAL GERONTOLOGY 4 credits
Prerequisites: 660, graduate standing in psychology, or permission of instructor. Study of age-related issues in work involving adult and older adult workers. Topics include personnel selection, training, motivation, and expectations of older employees, health and safety, job design, vocational guidance, and retirement.

750 ADVANCED PSYCHOLOGICAL TESTS AND MEASUREMENTS 4 credits
Prerequisite: 660, graduate standing in psychology or in the collaborative program in counseling psychology or permission of the instructor. Analysis of test construction techniques. Statistical analyses of tests with review of published tests and measurements used in psychology. Study of psychometric theory and principles.

751 ORGANIZATIONAL PSYCHOLOGY 4 credits
Prerequisite: 660, graduate standing in psychology, or permission of the instructor. Prerequisites: The application of organizational systems theory framework to the study of the relationships between organizational characteristics and human behavior, the internal processes of organizations, and the relationships between organizations and their environment.

752 PERSONNEL SELECTION AND ADVANCED APPLIED TESTING ISSUES 4 credits
Prerequisite: graduate standing in psychology or permission of the instructor. Review of industrial training methods and programs in terms of various theoretical orientations, as well as consideration of techniques to evaluate these programs.

754 RESEARCH METHODS IN PSYCHOLOGY 4 credits
Prerequisites: 660, graduate standing in psychology or permission of the instructor. Review of research methods and programs in terms of various theoretical orientations, as well as consideration of techniques to evaluate these programs.

755 COMPUTER APPLICATIONS IN PSYCHOLOGICAL RESEARCH 4 credits
Prerequisite: graduate standing in psychology or permission of the instructor. Practice in application of computers to psychological research including data collection, analysis and interpretation. Also covers computer simulation of decision making including use of different models.

756 ROLE OF ATTITUDES AND VALUES IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY 4 credits
Prerequisites: 660, graduate standing in psychology, or permission of the instructor. Consideration of the role of attitudes and values in the area of industrial/organizational psychology, explaining attitude changes, measurement of attitudes and the use of survey methodology.

757 ORGANIZATIONAL MOTIVATION AND LEADERSHIP 4 credits
Prerequisites: 660, graduate standing in psychology, or permission of instructor. Survey of theories of motivation specifying both the intrinsic and extrinsic determinants of worker motivation. The leadership process and its relation to motivation, group performance and attributions is also analyzed.

758 JOB EVALUATION AND EQUAL PAY 4 credits
Prerequisite: 660. Major job evaluation systems will be reviewed and critiqued. Issues such as minimum qualifications for a job will be reviewed. Advantages and disadvantages of various job evaluation systems will be discussed, including the Equal Pay Act, comparable worth and other issues will be discussed. Regression approaches to job evaluation and applicable court cases will be reviewed.

760 ORGANIZATIONAL CHANGE AND TRANSFORMATION 4 credits
Prerequisites: 660 or permission of instructor. Survey of theories and introduction to practical methods of organizational change and transformation used to increase organizational effectiveness and improve employee quality of work life.

761 INFORMATION PROCESSING AND INDIRECT/ORGANIZATIONAL PSYCHOLOGY 4 credits
Prerequisites: 660, graduate standing in psychology or permission of instructor. Aspects of information processing in cognitive psychology as applied to traditional concerns of industrial/organizational psychology such as psychological assessment or motivation.

762 PERSONNEL PSYCHOLOGY AND THE LAW 4 credits
Prerequisite: 660. Issues in personnel psychology which have legal implications are reviewed. The impact of recent court decisions are evaluated in staffing and compensation.

763 PERFORMANCE FEEDBACK AND EVALUATION 4 credits
Prerequisite: 660, graduate standing in psychology, or permission of instructor. Examines current research and practice in the area of performance appraisal. Topics will include: criterion development, rater training, appraisal effectiveness, feedback processes, and performance measurement.

764 GRADUATE SEMINAR IN PSYCHOLOGY 1-4 credits
(May be repeated.) Prerequisite: standing in psychology and permission of the instructor. Special topics in psychology.

795 ADVANCED COUNSELING PRACTICUM 4 credits
Prerequisite: 671. Graduate standing in psychology or permission of instructor. This course provides graduate students in counseling with actual client contacts and supervisory experiences under faculty supervision. Credit/no credit.

796 COUNSELING PSYCHOLOGY PRACTICUM 4 credits
(May be repeated.) Prerequisite: 795 (eight hours) or 5600:675 (five hours). Advanced counseling psychology students will have supervised training with clients in a variety of settings and will focus on supervised development of specialized theoretical applications. Credit/no credit.

797 INDEPENDENT READING AND/OR RESEARCH 1-3 credits
(May be repeated.) Prerequisite: permission of the instructor. Individual readings, and/or research on a topic under supervision of faculty member with whom specific arrangements have been made.

799 DISSERTATION 1-2 credits
Prerequisite: open to properly qualified students. Required minimum 12 credits, maximum subject to departmental approval. Supervised research on topic deemed suitable by the dissertation committee.

899 DOCTORAL DISSERTATION 1-2 credits
(May be repeated.) Prerequisite: open to properly qualified students. Required minimum 12 credits, maximum subject to departmental approval. Supervised research on topic deemed suitable by the dissertation committee.

SOCIOL 3850:

510 SOCIAL STRUCTURES AND PERSONALITY 3 credits
Prerequisite: 100 or permission. Interrelationships between position in society, personality characteristics. Personality treated as both result and determinant of social structure and process. Lecture.

511 SOCIAL INTERACTION 3 credits
Prerequisite: 100 or permission. Intensive study of advanced theory and research in social psychology, particularly how social interaction and self-conception affect one another. Lecture.

512 SOCIALIZATION: CHILD TO ADULT 3 credits
Prerequisite: 100 or permission. Theoretical and empirical analyses of process by which infant, child, adolescent and adult learn social and cultural requirements necessary to function in new roles, changing roles and societies in general.

521 RACIAL AND ETHNIC RELATIONS 3 credits
Prerequisite: 100 or permission. Theoretical and structural frameworks of race and ethnic relations from a variety of perspectives emphasizing both historical and contemporary issues. Lecture.

523 SOCIOLOGY OF WOMEN 3 credits
Prerequisites: 100 or permission of instructor. Examination of research and theories pertaining to women's status in society, including economic conditions, the relationship between structure and experience, and other gender-related issues.

525 SOCIOLOGY OF URBAN LIFE 3 credits
Prerequisite: 100 or permission. Emergence and development of urban society. Examination of urban social structure from neighborhood metropolis, the problems and prospects. Emphasis on life styles of unique urban situations and experiences of victimization with special focus on crime victimization.
530 JUVENILE DELINQUENCY 3 credits
Prerequisite: 100 or permission. Analysis of social structure and process from which delinquent behavior arises. Emphasis on current and past research. Lecture/discussion.

531 CORRECTIONS 3 credits
Prerequisite: 330 or 430. Theories, beliefs and practices of community and institutional corrections systems, including past and current social research. Course taken prior to 3 credit hour Field Placement in Corrections (9804.471).

532 SOCIOLOGY OF DEVIAN'T BEHAVIOR 3 credits
Prerequisites: 100 and at least six additional credits of sociology courses or permission. Survey of the theories of deviance and relevant empirical research. Special emphasis given to interaction processes and social control. Lecture.

533 SOCIOLOGY OF LAW 3 credits
Prerequisites: 100 and at least six additional credits of sociology courses or permission. Survey of perspectives on the role of law and its impact on social processes. Emphasis on use of laws, social change and aspects of legal professions. Lecture.

534 SOCIAL ISSUES IN AGING 3 credits
Prerequisite: 100 or permission. Analysis of major social issues and problems facing older persons. Special attention is given to the unmet needs of the elderly as well as an examination of current social policy proposals to meet these needs.

535 SOCIOLOGY OF MENTAL ILLNESS 3 credits
Prerequisite: 100 or permission. The social history of the mental hospital, theories and epidemiology of mental illness, community-based treatment models, the organization of mental health services, the role of personal social networks and mutual support groups.

555 FAMILY VIOLENCE 3 credits
Prerequisite: 100. Family violence with a focus on child abuse, courtship violence, spouse/partner abuse, and elder abuse. Theories, methodologies, and strategies to end family violence are explored.

560 SOCIOLOGICAL THEORY 3 credits
Prerequisite: 100 or permission. An overview and examination of theoretical issues in sociology, through the study of both classical and contemporary theoretical works.

601 PROSEMINAR IN SOCIOLOGY 4 credits
Prerequisite: Teaching assistant in sociology or permission of instructor. Introduction to professional aspects of sociology and major areas of study/research in the field. Credit/Noncredit.

602 FAMILY AND SOCIETY 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Examination of the interaction between family and society; family as both independent/dependent variable, at micro/macro levels. Development and impact of family policies is discussed.

604 RESEARCH DESIGN AND METHODS 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Intensive analysis of problems in research design, i.e., those encountered in thesis preparation. (Same as KSU 6/72211) Seminar.

613 SOCIOLOGY OF PROGRAM EVALUATION AND PROGRAM IMPROVEMENT 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Program evaluation as it occurs in different social programs. Topics includes history evaluation, value assumptions, political decision, ethical issues, and social change, use of experimentation and alternatives and the use for program development. Seminar.

615 EPIDEMIOLOGIC METHODS IN HEALTH RESEARCH 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Designed to introduce the student to methods of developing and understanding information concerning the distribution of illness and injury in society and evaluations of interventions to reduce the burden.

625 SOCIOLOGY OF SENTIMENTS AND EMOTIONS 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. A sociological perspective is employed to analyze and understand the production, distribution and utilization of socially created sentiments and emotions. (Same as KSU 672438) Seminar.

631 SOCIAL PSYCHOLOGY 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Intensive examination of social psychological theory and research, both class and contemporary. Provides students with background and working knowledge of social psychological aspects of social phenomena. (Same as KSU 72433) Seminar.

634 PERSONALITY AND SOCIAL SYSTEMS 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Examination of contemporary theory and research on linkages between personality and society. Some applications of studies of modernization, social class and occupations and sex roles. (Same as KSU 724321) Seminar.

639 SOCIOLOGY OF GENDER 3 credits
Prerequisite: Permission. Examination of theories and research on gender origins, characteristics and changes. Emphasizes recent empirical research on gender role patterns and processes in various industrial societies. (Same as KSU 672998) Seminar.

645 SOCIAL ORGANIZATION 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. General survey of major theories, concepts and problems pertaining to creation, alteration and dissolution of social systems; their effect on individuals. Problems of professionals in bureaucracies. (Same as KSU 72540) Seminar.

646 SOCIAL INEQUALITIES 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. A general study of the field of medical sociology with special emphasis on analysis of health and health care in the contemporary urban life setting. (Same as KSU 72993) Seminar.

647 URBAN HEALTH CARE 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Relationships between urban social structures and processes and organization and functioning of health care delivery systems in urbanized nations. Seminar.

653 DEVIAN'TE 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Examination of nature and types of deviance. Problems and issues in theory and research. (Same as KSU 72760) Seminar.

654 SOCIOLOGY OF CRIMINAL BEHAVIOR 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Analysis of relationship of crime and delinquency to social structure and social processes. Responses by criminal justice agencies. Seminar.

655 JUVENILE DELINQUENCY: THEORY AND RESEARCH 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Analysis of theories of delinquency, ecological, class structural, substructural, etc. Review of relevant research also presented. Seminar.

665 SOCIOLOGY OF CORRECTIONS 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Analysis of correctional institutions as social systems and their formal structure and informal dynamics. Analysis of present state of corrections research. Seminar.

677 FAMILY ANALYSIS 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Analysis and evaluation of sociological theory and research in the family. Concentration on theories of marriage and family theory and research design in sociological study of the family. (Same as KSU 72542) Seminar.

678 SOCIAL GERONTOLOGY 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Impact of aging upon individuals and society. Reactions of individuals and society to aging. (Same as KSU 72467) Seminar.

679 POLITICAL SOCIOLOGY 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Description, analysis and interpretation of political behavior through application of sociological concepts. (Same as KSU 72544) Seminar.

681 CROSS CULTURAL PERSPECTIVES IN AGING 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. A comparison of aging in various cultures and societies around the world.

686 POPULATION 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Examination of theories of population growth in various cultures and societies around the world.

687 SOCIAL CHANGE 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Advanced seminar in theories of social change. (Same as KSU 72628) Seminar.

696 MASTER'S RESEARCH PAPER 1-6 credits
(Must be repeated for a minimum of six credits.) Prerequisite: Graduate standing in Sociology or permission of instructor. Supervised writing of a paper for Master's Research Paper Option.

697 READINGS IN CONTEMPORARY SOCIOLOGICAL LITERATURE 1-3 credits
May be repeated. Prerequisites: Graduate standing in Sociology, two credits of sociology, and permission of advisor, instructor, and chair of the department. Intensive reading and interpretation of written material in student's chosen field of interest. Regular conferences with instructor.

698 DIRECTED RESEARCH 1-3 credits
May be repeated. Prerequisite: Graduate standing in Sociology or permission of instructor. Empirical research to be conducted by the student under graduate faculty supervision.

699 MASTER'S THESIS 1-6 credits
(Must be repeated for a minimum of six credits) Prerequisite: Graduate standing in Sociology or permission of instructor. Supervised thesis writing.

700 COLLEGE TEACHING OF SOCIOLOGY 3 credits
Prerequisite: Teaching assistant in sociology or permission of instructor. Training and experience in college teaching of sociology. Approved for credit toward the Ph.D. degree. Not open as credit toward the M.A. (Same as KSU 67284) Seminar.

705 MULTIVARIATE TECHNIQUES IN SOCIOLOGY 3 credits
Prerequisites: 604 or permission. A look into the major issues and problems facing older persons. Special attention is given to the unmet needs of the elderly as well as an examination of current societal policy proposals to meet these needs.

706 MEASUREMENT IN SOCIOLOGY 3 credits
Prerequisite: 706 or equivalent, graduate standing in Sociology or permission of instructor. Theory and methods of measurement reliability and validity in social science. Topics include estimating reliability and validity, scale and item design, alternative measurement strategies, measurement models. Seminar.

709 ADVANCED DATA ANALYSIS 3 credits
Prerequisite: 706 or equivalent, graduate standing in Sociology or permission of instructor. Critical examination of data analysis techniques having particular relevance to research problems in sociological study. (Same as KSU 72228) Seminar.

710 SOCIAL SAMPLING 3 credits
Prerequisites: 604 or permission. Theory and methods of sampling in sociology. Topics include sample design, sampling efficiency, nonresponse, mortality in longitudinal designs, urban, organizational, and survey sampling, stratified and cluster sampling. Seminar.

711 SURVEY RESEARCH METHODS 3 credits
Prerequisites: 604 or permission. In-depth study of design and administration of social surveys. Seminar.

712 EXPERIMENTAL AND QUASI-EXPERIMENTAL RESEARCH IN SOCIOLOGY 3 credits
Prerequisites: 604 or permission. Application of experimental and quasi-experimental methods in sociological research with special attention given to appropriate designs, statistical analyses and empirical literature. Seminar.

714 QUALITATIVE METHODOLOGY 3 credits
Prerequisites: 604 or permission. Theory building and theory testing through the utilization of such techniques as participant-observation, open-ended interview, content analysis, historiography, indexes, records from churches, schools, social agencies, and other contemporary sources and qualitative statistics. (Same as KSU 72228) Seminar.

721 SPECIAL TOPICS IN SOCIOLOGICAL THEORY 1-3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Open course to cover content area not readily subsumable under other headings. Content of course to be determined by instructor. (Same as KSU 72996) Seminar.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>621</td>
<td>URBAN SOCIETY AND SERVICE SYSTEMS</td>
<td>3 credits</td>
<td>Prerequisite: permission. Analysis of social bases of urban society; hierarchies, social problems.</td>
</tr>
<tr>
<td>622</td>
<td>HEALTH PLANNING AND PUBLIC POLICY</td>
<td>3 credits</td>
<td>Basic knowledge of the health service delivery system is provided for planners and administrators in the public sector.</td>
</tr>
<tr>
<td>623</td>
<td>PUBLIC WORKS ADMINISTRATION</td>
<td>3 credits</td>
<td>Prerequisite: permission. Examines the building, maintenance and management of public works.</td>
</tr>
<tr>
<td>624</td>
<td>EMERGENCY MANAGEMENT POLICY IMPLEMENTATION AND ANALYSIS</td>
<td>3 credits</td>
<td>Prerequisite: permission. Examines the implementation of emergency management policy at the federal, state, and local levels. Analyzes current policy initiatives in this emerging field.</td>
</tr>
<tr>
<td>625</td>
<td>STRATEGIC PERSPECTIVES IN EMERGENCY MANAGEMENT</td>
<td>3 credits</td>
<td>Prerequisite: permission. Public administration responsibilities in emergency management. Examines unfunded mandates and the optimal strategies for success in the four phases of emergency management.</td>
</tr>
<tr>
<td>626</td>
<td>GRANTSMANSHIP</td>
<td>3 credits</td>
<td>Students will gain knowledge of the grant-seeking and awarding processes. Emphasis is on public funding opportunities and public organizations in the states.</td>
</tr>
<tr>
<td>627</td>
<td>PARKS AND RECREATION</td>
<td>3 credits</td>
<td>Prerequisite: permission. Deals with theory, practice, evaluation of recreational administration, parks planning.</td>
</tr>
<tr>
<td>640</td>
<td>FISCAL ANALYSIS</td>
<td>3 credits</td>
<td>Prerequisite: permission. Study of revenue and expenditure patterns of the city’s government.</td>
</tr>
<tr>
<td>641</td>
<td>URBAN ECONOMIC GROWTH AND DEVELOPMENT</td>
<td>3 credits</td>
<td>Prerequisite: permission. Examination of urban economic unit and its susceptibility to social, economic, political and physical change.</td>
</tr>
<tr>
<td>642</td>
<td>PUBLIC BUDGETING</td>
<td>3 credits</td>
<td>Prerequisite: permission. Current professional practice and theoretical issues in public budgeting. Public policy and planning in public sector operating budgets.</td>
</tr>
<tr>
<td>643</td>
<td>INTRODUCTION TO PUBLIC POLICY</td>
<td>3 credits</td>
<td>Prerequisite: permission. Introduction to models of public policy formulation; identification of major policy issues; and public policy implementation and policy impact.</td>
</tr>
<tr>
<td>644</td>
<td>PUBLIC SECTOR FUND MANAGEMENT</td>
<td>3 credits</td>
<td>Prerequisite: 640, 642. Provides an overview of theoretical approaches for recording and reporting data related to public projects or programs and reviews methods for investing project funds.</td>
</tr>
<tr>
<td>650</td>
<td>COMPARATIVE URBAN SYSTEMS</td>
<td>3 credits</td>
<td>Prerequisite: permission. Conceptual schemes and methodology for comparative urban analysis among a number of major cities selected from different countries.</td>
</tr>
<tr>
<td>660</td>
<td>STRATEGIC MANAGEMENT IN PUBLIC AND NON PROFIT SECTORS</td>
<td>3 credits</td>
<td>This course examines disciplined effort to produce fundamental decisions and actions that shape what public organizations are, what they do and why they do it.</td>
</tr>
<tr>
<td>661</td>
<td>PUBLIC PROJECT DESIGN AND MANAGEMENT</td>
<td>3 credits</td>
<td>Prerequisites: 600, 642. Provides in-depth theoretical overview of the public projects cycle including hands-on approaches to project design. Examines frameworks for implementation, monitoring and analysis of project impact.</td>
</tr>
<tr>
<td>662</td>
<td>FUNDRAISING AND RESOURCE MANAGEMENT</td>
<td>3 credits</td>
<td>Prerequisite: permission. Examines alternative methods of fundraising and unique resource management challenges and opportunities of nonprofit organizations.</td>
</tr>
<tr>
<td>663</td>
<td>NON-PROFIT MANAGEMENT</td>
<td>3 credits</td>
<td>Prerequisite: permission. This course will provide students with a broad understanding of the nonprofit sector. Current professional practice and theoretical issues in public budgeting. Public policy and planning in public sector operating budgets.</td>
</tr>
<tr>
<td>664</td>
<td>MANAGING INFORMATION AND TECHNOLOGY IN THE PUBLIC SECTOR</td>
<td>3 credits</td>
<td>Prerequisite: permission. Examines the implementation of emergency management policy at the federal, state, and local levels. Analyzes current policy initiatives in this emerging field.</td>
</tr>
<tr>
<td>667</td>
<td>PROGRAM EVALUATION IN URBAN STUDIES</td>
<td>3 credits</td>
<td>Prerequisite: 600 or equivalent. Major considerations appropriate for conducting evaluations of a wide variety of human service programs and policies affecting urban and metropolitan areas.</td>
</tr>
<tr>
<td>672</td>
<td>ALTERNATIVE URBAN FUTURES</td>
<td>3 credits</td>
<td>Overview of topics and issues associated with alternative urban futures and their implications for planning and public policy in urban communities.</td>
</tr>
<tr>
<td>673</td>
<td>COMPUTER APPLICATIONS IN PUBLIC ORGANIZATIONS</td>
<td>3 credits</td>
<td>Prerequisites: 600 and 601. Introduction to microcomputer applications in the public sector, including data entry, statistical analysis, report writing, graphical representation and spreadsheets.</td>
</tr>
<tr>
<td>674</td>
<td>ANALYTICAL TECHNIQUES FOR PUBLIC ADMINISTRATORS</td>
<td>3 credits</td>
<td>Prerequisite: 600. Public sector applications of quantitative methods, including decision analysis, queueing theory, mathematical programming, and simulation.</td>
</tr>
<tr>
<td>675</td>
<td>ADVANCED TECHNIQUES IN POLICY ANALYSIS</td>
<td>3 credits</td>
<td>Prerequisites: 600, 601. Public sector application of techniques for analyzing policy proposals including decision analysis and simulations.</td>
</tr>
<tr>
<td>680</td>
<td>SELECTED TOPICS IN URBAN STUDIES</td>
<td>3 credits</td>
<td>Prerequisite: permission. Selected topics in specific areas of urban planning, in various development processes of cities, or in various urban policy and administrative issues. (A maximum of 27 credits may be earned in 680 and 681.)</td>
</tr>
<tr>
<td>689</td>
<td>URBAN STUDIES SEMINAR</td>
<td>3 credits</td>
<td>Prerequisites: 6-8 credits in urban studies core plus quantitative methods. Urban research methods applied to specific urban research area. Comprehensive paper required.</td>
</tr>
<tr>
<td>691</td>
<td>MASTER’S COLLOQUIUM</td>
<td>1 credit</td>
<td>This course is required for masters students on assistantships. The course reviews programmatic research, and curricular issues in the masters program.</td>
</tr>
<tr>
<td>695</td>
<td>INTERNSHIP</td>
<td>1-3 credits</td>
<td>Faculty-supervised work experience for “pre-service” students participating in policy planning and administration in public and nonprofit organizations.</td>
</tr>
<tr>
<td>697</td>
<td>INDIVIDUAL STUDIES</td>
<td>1-3 credits</td>
<td>Prerequisite: permission. (May be repeated for a total of six credits) Directed individual readings or research on specific area or topic.</td>
</tr>
</tbody>
</table>
699 MASTER'S THESIS
Prerequisite: permission. Supervised thesis writing. (May be repeated for a total of nine credits; however, only six credits are applicable toward degree. Replaces two courses in specialization.)

700 ADVANCED RESEARCH METHODS I
Prerequisite: Master's level statistics or permission. Introduction to statistical techniques and methodologies in doctoral and postdoctoral research. Emphasis on understanding and mathematical relationships.

701 ADVANCED RESEARCH METHODS II
Prerequisite: 700 or equivalent. Continuation of 700. Emphasis placed upon conceptual and mathematical interrelations of multivariate statistical measures as well as application of these techniques through computer analysis of urban data sets.

702 URBAN THEORY I
Prerequisite: Permission. Review of major theoretical tradition examining urban problems; for entering students in the doctoral program in urban studies (first year in two-course sequence).

703 URBAN THEORY II
Prerequisite: 702. Review of major professional disciplines dealing with urban problems; for entering students in the doctoral program in urban studies (second year in two-course sequence).

704 PUBLIC BUREAUCRACY
Prerequisite: permission. Analysis of bureaucratic operations in the implementation of public policy, including special attributes of human service organizations and the democratic theory debate.

705 ECONOMICS OF URBAN POLICY
Prerequisite: master's level knowledge of macroeconomics and microeconomics or special permission. Use of research tools of economic analysis in seminar format to examine options available to urban policy makers in operation of public services and economic development of cities.

706 PROGRAM EVALUATION
Prerequisite: permission. Advanced treatment of topics in program evaluation.

707 URBAN PLANNING AND MANAGEMENT STRATEGIES
Prerequisite: permission. Analysis of urban planning policy issues and strategies for implementation in public policy formulation. Emphasis on use of planning process as integrative mechanism.

708 URBAN POLICY: THE HISTORICAL PERSPECTIVE
Prerequisite: permission. Critical examination of major ideas about the city from Aristotle to the 20th Century and of the impact on urbanization on society and public policy.

709 SYSTEMS AND PROCESSES OF POLICY ANALYSIS
Prerequisite: permission. Analysis of administrative processes within public organizations, federal, state and local in the United States; emphasis on urban community.

710 QUALITATIVE RESEARCH METHODS
Prerequisite: 706 and 707. Theoretical examination of Social Research: methodology and such content analysis. Open-ended survey techniques and other means of creating non-statistically generated data.

711 SEMINAR IN PUBLIC ADMINISTRATION
Prerequisite: permission. In depth review and critique of major intellectual traditions, concepts and theories underlying public administration in the United States.

714 SEMINAR IN POLICY ANALYSIS AND EVALUATION
Prerequisite: permission. In depth review and critique of major intellectual traditions, concepts and theories underlying policy analysis and evaluation in the United States.

715 SEMINAR IN URBAN AND REGIONAL PLANNING
Prerequisite: permission. In depth review and critique of major intellectual traditions, concepts and theories underlying urban and regional planning in the United States.

720 COMPARATIVE PLANNING STRATEGIES
Prerequisite: 716 or permission. Review and analysis of alternative planning theories, institutions and implementation strategies in a variety of national settings.

725 ETHICS IN GOVERNMENT
Prerequisite: Permission. The differences between private and public morality and the nexus between democratic and moral development.

732 GOVERNANCE AND ADMINISTRATION
Prerequisite: Governance and administration are interrelated activities, yet have been taught as distinct subjects. This course explores the connections and interrelatedness of the concepts.

733 THEORIES OF PUBLIC SECTOR HUMAN RESOURCE MANAGEMENT
Prerequisite: permission. Examination of the organizational behavior and administrative theories that support modern public personnel systems.

734 CONCEPTUAL AND LEGAL FOUNDATIONS OF PUBLIC ADMINISTRATION
Prerequisite: permission. Theoretical examination of how constitutional and administrative law influence public sector administrative planning.

735 COMPARATIVE ADMINISTRATION
Prerequisite: permission. Examination of the various political and administrative frameworks within which public administrators function.

736 LEADING PUBLIC ORGANIZATIONS
Prerequisite: permission. Examination of the various theories of organizational leadership and their application in public organizations.

740 SURVEY/RESEARCH METHODS IN THE PUBLIC SECTOR
Prerequisite: permission. Examination of the techniques and methods used by public organizations to enhance civic involvement. Critiques of methodologies based upon information needs and citizens surveyed.

780 PH. D. COLLOQUIUM
1 credit
This course introduces new doctoral students to the perspectives and practices of doctoral study. This is a credit/non-credit course.

783 URBAN POLICY STUDIES
(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 to a U.A degree either as a required or an elective course.

795 PRO-SEMINAR
Prerequisite: successfully pass all comprehensive examinations. Seminar to discuss approaches to the writing and writing the dissertation. Discussion of alternative methodologies, styles and perspectives. Credit/Noncredit.

799 URBAN TUTORIAL
Prerequisite: permission. Intensive study of a particular approved field within urban studies and public affairs under supervision of tutor. (May be repeated once.)

899 DOCTORAL DISSERTATION
1-15 credits
Prerequisite: Advancement to Candidacy and 795. Open to properly qualified student accepted as candidate for Doctor of Philosophy degree. Student must register for at least one credit each semester until dissertation is accepted. Minimum of 12 credits required. (May be repeated.) Credit/Noncredit.

600 CURRICULUM PRACTICAL TRAINING
3 credits
Prerequisite: Student must have completed at least one academic year in the program. Exposure to engineering research practice in industry or federal labs. Credits equivalent to preliminary research, master research, master thesis project. Engineering dean approval.

697 ENGINEERING MANAGEMENT REPORT
2 credits
Prerequisite: permission of advisor. A relevant problem in engineering management is studied in depth. Final report must be approved by advisor and advisory committee.

CHEMICAL ENGINEERING

521 FUNDAMENTALS OF MULTIPLE TRANSPORT PHENOMENA
3 credits
Prerequisite: 321 or equivalent and permission. Major topics to be covered include intraintraphase and interparticulate transport phenomena, transport phenomena multiphase fluids, transport in porous media, transport in gasliquid pipe flows, computational fluid dynamics of multiphase systems, and case studies.

535 PROCESS ANALYSIS AND CONTROL
2 credits
Prerequisite: 300, 352. 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
3 credits
Prerequisite: 300, 351, 353. Application of chemical engineering fundamentals to the design of a multi-unit process. Emphasis on use of process simulators. Advanced equipment design, oral, written communication skills, teamwork.

561 SOLIDS PROCESSING
3 credits
Prerequisite: 320 and 353 or permission. Comprehensive problems in sedimentation, fluidization, drying and other operations involving mechanical particulate solids in liquid and gas continua.

563 POLLUTION CONTROL
3 credits
Prerequisite: 353 or permission. Air and water pollution sources and problems. Environmental aspects and methodology.

566 DIGITIZED DATA AND SIMULATION
3 credits
Prerequisite: permission. Data acquisition and analysis by digital devices, digital control applications and design.

570 ELECTROCHEMICAL ENGINEERING
3 credits
Prerequisite: 322, 330. Comprehensive engineering principles as applied to the study of electrolyte processes and to the design of electrochemical reactors. Topics include electrochemical thermodynamics, cell polarizations, Faraday’s laws, electrode kinetics, transport processes in electrochemical systems, current distributions, reactor design, experimental methods, commercial processes, and batteries and fuel cells.

572 SEPARATION PROCESSES IN BIOCHEMICAL ENGINEERING
3 credits
Prerequisite: 353. Introduction to the separation and purification techniques pertinent to bio-processes, with emphasis on the engineering considerations for large-scale operations.

600 TRANSPORT PHENOMENA
3 credits
Prerequisite: 222 or permission. Systematic presentation of conservation of momentum, energy and mass at microscopic and macroscopic levels in conjunction with illustrative examples and analogies.

605 CHEMICAL REACTION ENGINEERING
3 credits
Prerequisite: 225. Discussion of laws of thermodynamics and their application. Predication and correlation of thermodynamic data, phase and reaction equilibria.

621 SURFACE SCIENCE IN CHEMICAL ENGINEERING
3 credits
Prerequisite: permission of instructor. This course emphasizes the basics of surface science (surface energy, wetting, adhesion); surface characterization techniques (contact angle, ellipsometry, XPS); and surface engineering methods (SAMA, soft-lithography).

622 BIOCHEMICAL ENGINEERING
3 credits
Application of chemical engineering principles to biological processes which produce desirable substances. Application of mathematical methods to analyze dynamic processes for production of desired or destroy unwanted or hazardous substances.

625 PHYSICAL PROPERTIES OF STRUCTURAL BIOPOLYMERS
3 credits
Prerequisite: permission of instructor. Examination of the physical properties of biological materials 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
Prerequisite: 322, 225, 330. Mathematical analysis of problems in transport processes, chemical kinetics and control systems. For students with special interests and problems in these areas and practical significance.

632 NONLINEAR DYNAMICS AND CHAOS
3 credits
Prerequisite: 349C200. Description 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, interparticle forces, surface tension, interfacial thermodynamics, colloid applications, biomaterials applications and characterization techniques.

634 APPLIED SURFACE SCIENCE
3 credits
Prerequisites: 510, 610. The basics of surface science, the chemical engineering application of surfactants including use in polymerization media, separations, emulsion, micromulsion, and a theory modifier.

635 ADVANCED POLYMER ENGINEERING
3 credits
Prerequisite: 322 or 600 or permission. Reactors for polymerization, polymer characterization, polymer processing, polymer rheology.

640 ADVANCED PLANT DESIGN
2 credits
Prerequisite: permission. Topical treatment of process and equipment design, scale-up, optimization, process syntheses, process economics. Case problems.

674 RENEWABLE RESOURCES FOR ENVIRONMENTALLY BENIGN CHE PRODUCTION
3 credits
Prerequisite: permission of instructor. Focus is on chemical and biochemical processing technologies for the preparation of fuels, polymeric materials, and specialty chemicals from renewable resources.
### Graduate Courses

**518 SOIL AND ROCK EXPLORATION**  
3 credits  
Prerequisite: 314 or permission. Site exploration criteria and planning. Conventional boring, sampling, and testing of soils and rocks of engineering interest. Laboratory and computer-aided methods, and remote sensing applications. 

**523 CHEMISTRY FOR ENVIRONMENTAL ENGINEERS**  
3 credits (2 lecture - 1 lab)  
Prerequisite: One year of college chemistry. General, physical, organic, biochemistry, and collid chemistry concepts applied to environmental engineering. Concepts are used in water and wastewater treatment. 

**526 ENVIRONMENTAL ENGINEERING DESIGN**  
3 credits  
Prerequisite: 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  
Prerequisite: 323. Analysis and simulation of the physical, chemical and biochemical processes affecting stream quality. Development of management strategies based upon the application of water quality modeling techniques to environmental systems. 

**528 HAZARDOUS AND SOLID WASTES**  
3 credits  
Prerequisite: senior standing or permission of instructor. Hazardous and solid waste quantities, properties and sources are presented. Handling, processing, storage and disposal methods are discussed with non-technical constraints outlined. 

**543 APPLIED HYDRAULICS**  
3 credits  
Prerequisite: 316. Review of design principles; urban hydraulics, steam channel mechanics, sedimentation, coastal engineering. 

**551 COMPUTER METHODS OF STRUCTURAL ANALYSIS**  
3 credits  
Structures: applications of finite element software, interactive graphics; beam stiffness concepts and matrix formulation; simple and complex structural systems modeling; vibration analysis. 

**553 OPTIMUM STRUCTURAL DESIGN**  
3 credits  
Prerequisite: 306. Basic concepts in structural optimization. Mathematical programming methods including unconstrained minimization, multidimensional minimization and constrained optimization. 

**554 ADVANCED MECHANICS OF MATERIALS**  
3 credits  
Prerequisite: 202 or equivalent. Three-dimensional state of stress and strain analysis. Symmetry and curvilinear and curved bars with beam bending. 

**563 TRANSPORTATION PLANNING**  
3 credits  
Prerequisite: 381. Theory and techniques for development, analysis and evaluation of transportation system plans. Emphasis on understanding and using tools and professional methods available to solve transportation planning problems, especially in urban areas. 

**564 HIGHWAY DESIGN**  
3 credits  
Prerequisite: 381. Study of modern design of geometrical and pavement features of highways. Design problems and computer use. Graduate students will produce a more complete design. 

**565 PAVEMENT ENGINEERING**  
3 credits  
Prerequisite: 381. Theories of elasticity, of viscoelasticity and of layered systems as applied to pavements. Pavement materials characterization; pavement design; pavement restoration for rigid and flexible pavements. 

**566 TRAFFIC ENGINEERING**  
3 credits  
Prerequisite: 381. Vehicle and urban travel characteristics, traffic flow theory; traffic statistics, accidents and safety, traffic signs and marking, traffic signal planning, traffic control and transport administration. 

**567 ADVANCED HIGHWAY DESIGN**  
3 credits  
Prerequisite: 564, Autocad, or permission. Computer-aided design techniques of highway design including survey data input, digital terrain modeling, cross-section templates, horizontal and vertical roadway design, earthwork computations, and advanced topics. 

**568 HIGHWAY MATERIALS**  
3 credits  
Prerequisites: 381, 380 or permission. Properties of aggregates, manufacture and properties of pavement concrete, properties of asphaltic materials, design and testing of hot mix asphalt pavement mixes and of surface treatments. Laboratory preparation of specimens and determination of properties. Graduate student requirement: Graduate students will be required to perform an additional eight-hour asphalt laboratory (including recovery of asphalt from solution) and to prepare a paper on a highway materials topic. 

**574 UNDERGROUND CONSTRUCTION**  
2 credits  
Prerequisite: 394. Description of practices and techniques of underground construction. Selection of proper method for individual job. Design of underground openings, support systems and lining. 

**564 DYNAMICS OF STRUCTURES**  
3 credits  

**575 STRUCTURAL STABILITY**  
3 credits  

**606 ENERGY METHODS AND ELASTICITY**  
3 credits  

**607 PRESTRESSED CONCRETE**  
3 credits  
Prerequisite: 404. Basic concepts. Design of double-tie roof girder; shear; development length; column; piers; design of highway bridge girder; pretensioned, post-tensioned; continuous and segmental concrete bridges; footings. 

**610 COMPOSITE MATERIALS IN CIVIL INFRASTRUCTURE**  
3 credits  
Prerequisite: 554 or equivalent. Constituent materials; manufacturing processes; panel properties by micro/macromechanical modeling; honeycomb, bead, foam, and paper; and applications to highway bridges; composites in concrete and wood structures. 

**611 FUNDAMENTALS OF SOIL BEHAVIOR**  
2 credits  
Prerequisite: 349. In-depth examination of structure and fundamental physical-chemical and mechanical properties of engineering soils viewed as particulate matter.
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### 4400: ELECTRICAL ENGINEERING

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**Graduate Courses**

**Prerequisites:**
- 643 Analysis, interpretation and summarizing of engineering data through application of statistical and probability methods.
- 644 Introduction to imaging systems, analysis, design, and evaluation of imaging systems, processing techniques, and applications.
- 645 Information theory and coding.
- 646 Signal processing.
- 647 Principles of optical network architecture, analysis, design, control, and fault management.
- 648 Statistical communication theory.
- 649 Electromagnetic theory I.
- 650 Electromagnetic theory II.
- 651 Digital signal processing.
- 652 Computational electromagnetics.
- 653 Advanced antenna theory and design.
- 654 Design of digital systems.
- 655 Topics in electronics.
- 656 Integrated circuit devices.
- 657 Simulation of nanoscale and molecular-scale systems.
- 658 Discrete control systems.
- 659 Nonlinear control.
- 660 Random process analysis.
- 661 Dynamic systems analysis.
- 662 Power system analysis.
- 663 Economics of power systems.
- 664 Protective relaying.
- 665 Surge protection.
- 666 Dynamics of electric machines.
- 667 Power electronics II.
- 668 Control of electric machines.
- 669 Power semiconductor devices.
- 670 Special problems.
- 671 Master’s research.
- 672 Functional analytic methods in system theory.
- 673 Topics in electromagnetics.
- 674 Introduction to advanced techniques in fields.
3 credits
512 FUNDAMENTALS OF FLIGHT
Prerequisite: 311. Introduction to basic aerodynamics, airplane performance, stability and control.

3 credits
513 INTRODUCTION TO AERODYNAMICS
Prerequisite: 311. Introduction of aerodynamic concepts, conformal transformations, theory of thin airfoils, 2-dimensional airfoil theory, wings of finite span, lifting line theories, lumped-vortex flow, development of control surfaces, stall, and various applications.

3 credits
514 INTRODUCTION TO AEROSPACE PROPULSION
Prerequisite: 311. Introduction to propulsion systems currently used in aerospace fields; propulsion principles for turbomachines, combustion, and rocket propulsion.

3 credits
515 ENERGY CONVERSION
Prerequisite: 301 or permission. Corequisite: 315 or permission. Topics from fields of internal combustion engines, cycle analysis, and modern electric power generation.

2 credits
516 HEAT TRANSFER PROCESSES
Prerequisite: 315 or permission. Analysis, design of extended surfaces. Natural convection and forced convection, condensation, and effects of heat transfer with phase changes.

2 credits
522 EXPERIMENTAL STRESS ANALYSIS I
Prerequisite: 336 or permission. Experimental methods of determining stress or strain; brittle fracture, strain gauges, photoelasticity, full field thermal techniques.

2 credits
530 MACROECONOMIC DYNAMICS
Prerequisite: 321 or permission. Static and dynamic forces in machines, problems of inertia, dynamic equivalence, flywheels. Balancing of rotating masses, reciprocating cyclic motion. Computation of transient mechanical dynamic systems, other topics in advanced dynamics.

2 credits
531 FUNDAMENTALS OF MECHANICAL VIBRATIONS
Prerequisite: 203 or permission and 3450:305 or permission. Undamped and forced vibrations of systems having one or two degrees of freedom.

2 credits
532 VEHICLE DYNAMICS
Prerequisites: 3450:305 or permission and 3450:306 or permission. Application of dynamic systems analysis techniques to road vehicle systems. Elements of road and terrain, computer simulation of transient mechanism dynamics, other topics in advanced dynamics.

5 credits
541 ADVANCED THERMAL SYSTEM COMPONENTS
Prerequisite: 570. Introduction to the components of heat exchangers, burners, furnaces, process heaters.

3 credits
542 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. Case studies on control applications from industry, e.g. boilers, furnaces, process heaters.

2 credits
543 OPTIMIZATION METHODS IN MECHANICAL ENGINEERING
Prerequisites: 3450:300 or permission and 3450:301 or permission. Method of solution of optimization problems in mechanical engineering. The use of dynamic programming and operational research methods for optimization including computer utilization and applications.

2 credits
544 ROBOT DESIGN, CONTROL AND APPLICATION
Prerequisites: 321 or permission and 441 or permission. Robot design and control. Kinematic transformations, velocities and accelerations, path trajectories and dynamics, control and sensing in robotics. The automated factory with robot applications.

2 credits
550 INTRODUCTION TO COMPUTATIONAL FLUID FLOW AND CONVECTION
Prerequisites: 315 or permission and 3450:300 or permission. Numerical modeling of fluid thermal systems, numerical solution of the momentum and thermal boundary layer equations, flow simulation using advanced heat transfer/fluid/graphics packages.

2 credits
562 PRESSURE VESSEL DESIGN
Prerequisite: 336 or permission. Introduction to modern pressure vessel technology. Topics include basic structural considerations, materials and their environment and design-construction features.

2 credits
564 COMPUTER-AIDED DESIGN AND MANUFACTURING
Prerequisites: 380 or permission, 165 or permission. The use of computer systems to assist in the creation, modification, analysis, or optimization of engineering designs, and to plan, manage, and control manufacturing plants.

2 credits
600 GAS DYNAMICS

2 credits
607 THERMODYNAMICS
Prerequisite: 3450:310 or equivalent. Extension and generalization of basic laws of thermodynamics with application to a variety of physical and biological systems. Introduction to irreversible thermodynamics, the third and statistical thermodynamics.

2 credits
608 ELEMENTARY ANALYSIS I
Prerequisite: 622. Introductory development of finite element method as applied to various topics in continuum mechanics. Areas covered include plane; axisymmetric and 3D stress analysis; general structural problems; fluid mechanics; transient problems and geometric and material nonlinearity.

2 credits
610 DYNAMICS OF VISCOUS FLOW I
Prerequisites: 303, 310 or equivalent. Derivation and solution of equations governing laminar viscous flow. Applications include unsteady flows, slow viscous flows, parallel flows, lubrication theory and laminar boundary layers.

2 credits
611 COMPUTATIONAL FLUID DYNAMICS I
Prerequisite: 310 or permission. Introduction to the basics of computational fluid dynamics. Topics include basic structural considerations, practice and design of computational fluid flow algorithms.

2 credits
612 HEAT TRANSFER AND TWO-PHASE FLOW
Prerequisites: 303, 310 or equivalent. Current techniques to determine heat transfer and pressure drop in components such as boilers, heat exchangers, and steam generators, with boiling. Boiling mechanism, slip ratio, critical heat flux and instabilities in boiling flow systems.
620 EXPERIMENTAL STRESS ANALYSIS II 2 credits
Prerequisite: 422/522. Dynamic strain gage methods, transducer design. Moire fringe tech-

621 INTRODUCTION TO TIRE MECHANICS 3 credits
Prerequisite: permission. Topics include tire as vehicle component, tire traction and wear, lami-
inated structures, tire stress and strains and advanced tire models.

622 CONTINUUM MECHANICS 3 credits
Prerequisite: 236 or permission. Analysis of stress and deformation at a point. Derivation of fundamental field equations of fluid and solid mechanics by applying basic laws of dynamics, kinematics, the laws of mass and energy. Development of constitutive laws.

623 APPLIED STRESS ANALYSIS I 3 credits
Prerequisite: 622. Continuation of 622 with specific application to solid mechanics. Develop-

625 ANALYSIS OF MECHANICAL COMPONENTS 3 credits
Prerequisite: 623 or equivalent. Theory of failure and plastic flow. Fatigue, creep and analysis and introduction to fracture mechanics.

626 FATIGUE OF ENGINEERING MATERIALS 3 credits
Prerequisite: 624 or permission. Fatigue and cyclic behavior; dislocation networks and their interactions; correlation of dislocation-microstructure interactions; crack initiation; crack propagation; short crack closure; embedded cracks.

627 ADVANCED MATERIALS AND MANUFACTURING PROCESSES 3 credits
Prerequisite: 380. Manufacturing processes for advanced materials; classification; technologi-
cal aspects of bulk deformation, casting, joining, forming, machining, molding, powder metal-
urgy, rapid solidification; rapid prototypes; technical aspects; technical activity.

628 MECHANICAL BEHAVIOR OF MATERIALS 3 credits
Prerequisite: 380 or permission. Mechanical behavior of engineering materials; metallurgy of deformation; dislocation effects and deformation; strengthening mechanisms; thermome-
chanical processing; mechanical testing.

629 NONLINEAR ENGINEERING PROBLEMS 3 credits
Prerequisite: 622. Study of nonlinear ordinary and partial differential equations governing non-
onechanics of materials. Analysis of phase space trajectories, singularities and stability. Devel-
opment of approximate analytical methods.

630 VIBRATIONS OF DISC SYSTEMS 3 credits
Prerequisite: 431/531 or equivalent. Study of vibrations of multidegree of freedom systems including free and forced vibrations, damped and transient response, normal mode vibrations and matrix iteration techniques. Application to seismic design and shock design.

631 KINEMATIC DESIGN 3 credits
Prerequisites: 321 and permission of instructor. The geometry of constrained motion. Analy-
ysis of relative plane motion using vectors and the digital computer. Curvature theory. Synthe-
sis of linkages and gearing. Introduction to computer-aided design.

632 RELIABILITY IN DESIGN 3 credits
Prerequisite: 351 or equivalent and 3470 461/468. The reliability determination of mechanical components and systems and its use in design. Distribution, reliability determination, normal and log-normal theories. Weibull theory, life spectrum analysis, renewal theory and confidence limits.

633 COMPUTERIZED MODEL ANALYSIS OF STRUCTURES 3 credits
Prerequisite: 630 or equivalent. Modal analysis theory and measurement techniques, digital sig-
nal 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
Prerequisites: 430/530 or equivalent. Dynamic modelling and simulation of complex rotordynam-
ics systems. Steady state, transient and stability analysis with inertia, gyroscopic, imbalance, fault-induced and impulsor interaction effects.

635 STRESS WAVES IN SOLIDS AND FLUIDS 3 credits

637 SYSTEM ANALYSIS AND CONTROL DESIGN 3 credits
Prerequisite: 440 or equivalent. Uniform methods of modeling and response analysis, control-
ability, observability, stability theory and analysis of linear and nonlinear systems. Design of feedback control for optimum performance for multivariable real-time control systems.

638 DISTRIBUTED PROCESS CONTROL DESIGN AND APPLICATIONS 3 credits
Prerequisite: 440 or equivalent. Digital and continuous control algorithms. Process control function implementation. Self-learning, diagnostics, intelligent control systems. Case studies and experiments from various engineering disciplines.

640 PROCESS IDENTIFICATION AND COMPUTER CONTROL 3 credits
Prerequisites: 440 or equivalent. Identification of modal models of process. Methods of identification. Methods of digital control design. Case studies on computer control of selected processes.

641 EXPERIMENTAL METHODS IN CONTROLS AND MANUFACTURING 3 credits
Prerequisite: 440/540 or equivalent. Understanding system methodologies for process control, computer integrated flexible manufacturing and robotics.

642 NEURAL AND FUZZY CONTROL SYSTEMS 3 credits
Prerequisite: permission of instructor. Analysis and design of intelligent control systems. Neural networks and fuzzy sets for process identification and control design. Appli-
cations and case studies in industry.

650 TRIBOLOGY 3 credits
Prerequisites: 440/540 or equivalent. Fundamentals of friction lubrication and wear treatment; includes basic theory, advanced topics, applications to bearings, seals, gears, cams. Specific topics include adhesive and abrasive friction, boundary lubrication, fluid film lubrication and bearings, rolling element bearings, bearing dynamics.

660 ENGINEERING ANALYSIS 3 credits
Prerequisite: B.S. in engineering. Study of analysis techniques as applied to specific engi-
neering problems. Applications include beam deflections, acoustics, heat conduction and hydrodynamic stability.

661 FAILURE ANALYSIS OF MECHANICAL SYSTEMS 3 credits
Prerequisite: 625 or permission. This course emphasizes engineering techniques for predict-
ing, yielding, buckling, fatigue and fracture of mechanical systems. Students will be taught how to link theory with practice by examining case studies of structural and mechanical fail-
ures and will obtain practical experience in modeling real complex systems in an end-of-term project.

662 MICROSCALE HEAT AND MASS TRANSFER 3 credits
Prerequisites: 608 and 615 or permission. Kinetics theory, classical and quantum statistics, structures of solids, phononics, free electrons in crystals, Boltzmann transport theory, hyperbolic heat conduction, thermal conductivity of thin films, laser materials processing.

663 WEB-BASED SOLID MODELING AND E-MANUFACTURING 3 credits
Prerequisites: 460/560 or equivalent. Permission. Team-based collaborative design with a web-based solid modeling library, feature-based manufacturing analysis, and process planning using crossplatform interoperable tools including JAVA, VRML for optimized product realiza-

664 FUNDAMENTALS OF CRYSTALLIZATION AND SOLIDIFICATION 3 credits
Prerequisites: 380 or equivalent. 608 or equivalent, or permission. Fundamental theories of crystal nucleation and growth; crystal habit, crystal morphology, pattern formation, and microsegregation. Applications in casting, welding, laser processing, and single crys-
tal growth.

665 CORD MECHANICS 3 credits
Prerequisite: 622. Elastic and viscoelastic theory of wire rope is derived from thin rod theory. Applications are discussed with respect to tire mechanics, bioengineering and laminate com-
posite constructions.

670 INTEGRATED FLEXIBLE CELLULAR MANUFACTURING SYSTEMS ANALYSIS AND DESIGN 3 credits
Prerequisite: 460/560 or equivalent or by permission of instructor. The analysis of integrated computer-aided manufacturing systems design, automation of manufacturing processes and flexible systems of manufacturing systems.

683 MEASUREMENTS METHODS AND EXPERIMENTAL ERROR IN THERMOMICROFLUID SCIENCES 3 credits
Prerequisites: viscous flow, conduction heat transfer. Construction heat transfer. The course will incorporate elements of experimental error analysis, optics, and optical ray tracing, princi-
ples of testing, methods and devices for fluid flow quantization and temperature measure-
ments. Laboratory work with hands-on experience.

696 SPECIAL TOPICS IN MECHANICAL ENGINEERING 1-4 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. For qualified candidate for graduate degree. Supervised research in a specific area of mechanical engineering.

704 FINITE ELEMENT ANALYSIS II 3 credits

705 FINITE ELEMENT ANALYSIS III 3 credits
Prerequisite: 704. Static and dynamic contact problems. Tire mechanics. Fracture mechanics. Plasticity problems involving small and large deformations. Shake down analysis. General con-
stitutive models for composite media, thermoviscoelasticity, fluid turbulence. Fluid-solid inter-
action analysis.

710 DYNAMICS OF VISCOUS FLOW II 3 credits
Prerequisite: 610. Introduction to turbulence. Turbulence modeling and turbulent boundary lay-

711 COMPUTERIZED FLUID DYNAMICS II 3 credits
Prerequisite: 611 or permission of instructor. Development of advanced computational tech-
niques for convection-dominated flows. Higher order explicit and implicit schemes including oscillatory flow-front capturing methods applied to benchmark problems.

712 HYDRODYNAMIC STABILITY 3 credits
Prerequisites: 660, 620 or permission. Stability concepts. Stability of Benard convection, Rayleigh-Taylor flow, parallel flow, boundary layers, asymptotic solution of Orr-Sommer-
fell, nonparallel stability.

719 ADVANCED HEAT TRANSFER 3 credits
Prerequisites: 618, 619. Topics include nonhomogeneous or nonlinear boundary value prob-
lem of heat conduction, heat transfer with melting, solidification and ablation, heat transfer in porous systems and hydrodynamically and thermally unsteady convection.

723 APPLIED STRESS ANALYSIS II 3 credits
Prerequisite: 623. Continuation of 623. Development of approximate solution techniques including finite elements, methods of weighted residuals (Rayleigh-Ritz, Galerkin, Trefftz, colo-
nisation, least squares, 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 thermoviscoelas-
ticity and plasticity, electroelasticity and micropolar theories.

730 VIBRATIONS OF CONTINUOUS SYSTEMS 3 credits
Prerequisite: 615. Continuation of 630. Analysis of continuous vibrating systems, using separa-
tion of variables, energy methods, Rayleigh-Ritz and other approximation techniques. Con-
cepts and solutions of integral equations as applied to continuous systems.

733 RANDOM VIBRATIONS 3 credits
Prerequisite: 630 or equivalent. Stationary random processes and their transmission through linear time-invariant discrete and continuous vibrating systems. Analysis of random data and interaction between mechanical and electrical failure.

735 ADVANCED MODAL ANALYSIS OF STRUCTURES 3 credits
Prerequisite: 635 or equivalent. Structural excitation techniques. Modal parameter estimation. System modification; mass/stiffness/damping matrices substructuring. Prediction and evalu-
ation of structural modified dynamic characteristics.

741 OPTIMIZATION THEORY AND APPLICATIONS 3 credits
Prerequisites: permission. Theory of optimization in engineering systems, development and method of solution optimization. Theoretical and practical aspects. Use of dynamic programming, operational research methods of system optimization, control.

750 ADVANCED METHODS IN ENGINEERING ANALYSIS 3 credits
Prerequisites: 635/535 or equivalent. Advanced finite difference and finite element meth-
ods, variational methods, integral methods and similarity transforms to engineering problems in heat transfer, fluid mechanics and vibrations.
3 credits
Prerequisites: 3100:200, 3500:292, 4400:343, or by permission of the instructor. Principles of medical imaging, image performance parameters and image assessment techniques of medical imaging systems, with emphasis on digital radiography, tomographic imaging, ultrasound and magnetic resonance.

537 PHYSICS OF MEDICAL IMAGING
3 credits
Prerequisites: 3100:200, 3500:292, 4400:343, 4800:305. Physical principles of medical imaging modalities with emphasis on the properties, general mechanisms and interaction of radiation with matter, physics of image formation and optimization.

560 EXPERIMENTAL TECHNIQUES IN BIOMEDICINE
4 credits
Prerequisites: 3160:153, 3450:235, 3850:292, 4600:203 or by permission. Principles of testing and measuring devices commonly used for both and biodosimetry. Laboratories for demonstration and hands-on experience.

600 BIOMEDICAL ENGINEERING COLLOQUIUM
1 credit
(May be repeated for a maximum of 18 credits) The Biomedical Engineering Colloquium is a seminar series designed to introduce students to current topics in biomedical engineering research, design, and business.

601 BIOMEDICAL INSTRUMENTATION I
4 credits
Prerequisites: 3900:561, 562, and 4400:202 or 4400:320. Clinical instrumentation to measure and display physiologic and anatomic parameters. Basic concepts of instrumentation including design criteria and operational analysis. Practical experience gained through the use of instrumented mammalian models.

611 BIOMETRY
3 credits
Statistics and experimental design topics for the biomedical and biomedical engineering disciplines including: distributions, hypothesis testing and estimation, ANOVA, probit analysis and experimental design statistics.

620 NEURAL NETWORKS
3 credits
Examination of highly parallel, distributed architectures for computing that are, to varying degrees, derived from structures observed in biological nervous systems. After an overview of how real neurons operate, the course will examine both lassoal and modern neural computing architectures. Companions will be made with traditional serial machines and applications of neural networks where most promising will be examined.

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 nonlinear systems analysis are applied to aspects of vision, hearing, touch, and position sensing in humans. Comparisons are made with artificial emulation of these senses.

623 APPLICATION OF BIOMEDICAL SIGNALS
3 credits
Prerequisites: graduate standing in the College of Engineering and 611 or equivalent. Concepts for the analysis of biological continuous signals and joint processes including discriminant and pattern recognition analysis, histograms, correlograms and data displays.

624 IMAGE PROCESSING FOR BIOMEDICAL DATA
3 credits
Image sampling, quantization, and transforms. Enhancements including smoothing and sharpening. Restoration using noise and Wiener filters. Edge detection and thresholding with region growing for segmentation.

630 BIOMEDICAL COMPUTING
3 credits
Prerequisite: 4400:206 or equivalent. Computer applications in health care, clinical laboratories, AHMD, medical records, direct order entry, A0, D0 conversion, patient monitoring, peripherals and interfaces, diagnostic algorithms, automated EEG, ECG systems.

632 DIAGNOSTIC IMAGING TECHNIQUES
3 credits
Prerequisites: Advanced Diagnostic Imaging techniques as applied to Digital Radiography, Computed Tomography (CT), nuclear medicine, ultrasound imaging, magnetic resonance imaging (MRI), microwaves and optical confocal microscopy.

635 BIOMEDICAL OPTICS
3 credits
Application of lightwave principles and optical fibers on the engineering design and development of, instrumentation, techniques, and applications for medical diagnostic imaging, and treatment of disease.

636 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.

635 BIOMEDICAL NANOTECHNOLOGY
3 credits
Prerequisites: permission of instructor. Engineering principles of nanotechnology as applied to the design of biomedical devices, systems, and techniques, aimed to exploit biomolecules and biodevices at the molecular level, at a billion of a meter.

640 SPINE MECHANICS
3 credits
Prerequisites: 3900:561 or equivalent; 4300:406 or equivalent; or permission. Physical properties and design issues in the spine. Kinematics and kinetostatics of the spine. Spinal mechanics of scoliosis, trauma, instability, pain, and orthoses. Mechanics and design of surgical implants.

641 SOFT CONNECTIVE TISSUE BIOMECHANICS
3 credits
Prerequisites: 3910:561 or equivalent; 4300:470 or equivalent; or permission. Physical properties and design issues in the soft connective tissues and joints of the body. Mechanics of inflammation and repair.

642 HARD CONNECTIVE TISSUE BIOMECHANICS
3 credits
Prerequisites: 3900:561 or equivalent; 4300:407 or equivalent; or permission. Physical properties and design issues in the hard connective tissues and joints of the body. 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 optimization as applied to musculoskeletal forces, along with muscle and physiology.

645 MECHANICS IN PHYSIOLOGY AND MEDICINE
3 credits
Prerequisites: 4600:310 and 4300:202 or equivalent. Blood rheology, mechanics of microcirculation, finite deformation theories, tissue mechanics, mechanics of blood and lymph circulation, kinetics and kinematics of orthopedic joints. Clinical applications.

647 KINEMATICS OF THE HUMAN BODY
3 credits
Prerequisites: 4600:321 or equivalent, graduate standing in the College of Engineering or by permission. Analytical mechanics. Body fixed coordinate systems 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: 3910:561, 562, or equivalent; 4600:320; 4300:202 or equivalent. Analysis of blood pumping action, pressure/flow waveform transmission and blood rheology factors. Use of modeling and direct measurement techniques. Clinical implications of disease.

651 CARDIOVASCULAR DIAGNOSTIC TECHNIQUES
3 credits
Prerequisites: 3910:561, 562 or equivalent. Cardiovascular disease conditions, instrumentation techniques and approaches for use in diagnosis. Direct interaction with active clinical laboratories.

652 CARDIOVASCULAR THERAPEUTIC PROCEDURES
3 credits
Prerequisites: 3910:561, Cardiovascular diagnostic procedures and devices for correction of congenital defects, valve failure, heart and arterial bypass grafting and less-invasive catheter-based procedures.

653 TRANSPORT PHENOMENA IN BIOLOGY AND MEDICINE
3 credits
Prerequisites: 4200:321, 522 or 4600:305, 315 or equivalent. Basic definitions, cardiovascular mass and momentum transport, compartment modeling, mass transfer in physiological systems and artificial kidney and lung devices. Design optimization. Analysis of human thermal system.

655 REHABILITATION ENGINEERING
3 credits
Prerequisite: graduate standing in engineering, mathematics, or science, or permission of the instructor. Devices for rehabilitation, interfacing the motor and/or sensory impaired, quantitative assessment techniques, prosthesis and orthotics, bedside mechanics, emerging technologies.

660 BIOMATERIALS AND LABORATORY
3 credits
Prerequisites: Biomedical Materials Laboratory. Material uses in biological applications. Effect of physical and environmental conditions on materials. Controlled and uncontrolled degradation. Effect of materials on soft tissue, hard tissue and blood. Laboratory experiments using materials designed for biomedical use and demonstrations of biomaterials interactions.

663 ARTIFICIAL ORGANS
3 credits
Prerequisites: graduate standing in the College of Engineering or permission of instructor. Study of the rationale for the engineering and clinical aspects required for the design and variety of artificial organs, with emphasis on the artificial heart and artificial kidney.

670 MATHEMATICAL MODELING IN BIOLOGY AND MEDICINE
3 credits
Prerequisites: 3910:561, or permission of instructor. Modeling of pharmacokinetic, cardiovascular, neuromuscular, and immune system, and artificial organ interactions. Deterministic and stochastic approaches.

685 MEDICAL DEVICES AND ARTIFICIAL ORGANS
3 credits
Prerequisites: graduate standing in engineering, mathematics, or science; or permission of instructor. Design of medical devices and artificial organs, requirements, safety considerations, constraints, government regulations, and legal liability.

697 SPECIAL TOPICS IN BIOMEDICAL ENGINEERING
1-15 credits
(May be repeated) Specialized areas of study as defined by the instructor.

698 MASTER’S RESEARCH
14 credits
Prerequisite: Permission of advisor. (May be repeated.) Research on a suitable topic in biomedical engineering culminating in a master’s thesis.

699 MASTER’S THESIS
14 credits
Prerequisite: permission of advisor. (May be repeated) Supervised research in the specific area of biomedical engineering.

730 FABRICATION AND DESIGN OF MICROSENSORS
3 credits
Sensing principles, fabrication, and microfabrication design of microsensors for diagnostic, monitoring, and analytical biomedical applications.

735 IMAGE DETECTORS AND SENSORS
3 credits
An introductory course designed to develop a deep knowledge of detector and sensing systems for Medical Imaging and Diagnostic Applications.

898 PRELIMINARY RESEARCH
1-15 credits
May be repeated) Prerequisite: Approval of the dissertation director. Preliminary investigations leading to submission of a dissertation proposal to the Interdisciplinary Doctoral Committee.

899 DOCTORAL DISSERTATION
1-15 credits
Prerequisite: acceptance of research proposal by the Interdisciplinary Doctoral Committee and approval of the dissertation director. (May be repeated) Original research by the doctoral student.

106 The University of Akron 2005-2006
520 INTRODUCTION TO INSTRUCTIONAL COMPUTING 3 credits
Prepares the student in the use of instructional technologies in educational and business settings. Segments of the course are offered in an online format.

590,1.2 WORKSHOP 1/3 credits
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

600 PHILOSOPHIES OF EDUCATION 3 credits
Examination of basic philosophical problems underlying broad educational questions that confront society. Provides foundation for understanding of questions of modern society and education.

602 COMPARATIVE AND INTERNATIONAL EDUCATION 3 credits
Comparative study of selected national schools with reference to forces that shape their characteristics. Different theoretical approaches used in study of comparative education are investigated.

604 TOPICAL SEMINAR IN THE CULTURAL FOUNDATIONS OF EDUCATION 3 credits
(May be repeated for a total of six credits) Issues and subjects related to study of education in the light of historical, cultural, and religious theories and ideas. Different topics will be offered from section to section.

614 PLANNING FOR TECHNOLOGY 3 credits
Emphasizes the process of planning for the use of technology in the school. Includes plans for faculty support and alternative arrangements of computer set ups.

625 PSYCHOLOGY OF INSTRUCTION FOR TEACHING AND LEARNING 3 credits
Prerequisite: 210/211 or equivalent. Current theories and research in the areas of cognition and learning, development, and motivation that underlay approaches to teaching in any context.

626 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.

629 FUNDAMENTAL IN E-LEARNING 1 credit
The nature, purpose, history and philosophy of e-learning will be explored through examination of associated trends and issues. Establishment of a learning community will be addressed in the face-to-face course component. E-learning course/scaffold/overview will be discussed.

630 TOPICAL SEMINAR IN COMPUTER-BASED EDUCATION 3 credits
(May be repeated for a total of six credits) Prerequisite: 425/520. Advanced topics related to development, implementation, research and evaluation in C.B.E. Student involvement emphasized required. Knowledge of programming language recommended.

631 INSTRUCTIONAL DESIGN 3 credits
The theory and practice of Instructional Design (ID) involves a systematic approach to the design, analysis, development, evaluation, and implementation of effective instruction.

632 WEB-BASED LEARNING SYSTEMS 3 credits
The purpose of this course is to help students become proficient in the design and development of web-based learning systems for training and education.

633 HYPERMEDIA 3 credits
The purpose of this course is to introduce students to a variety of Hypermedia tools (both web-based and CD-ROM). Students will also be introduced to a variety of authoring paradigms.

636 VISUAL LITERACY 3 credits
This course will combine a basic understanding of design principles and concepts with research findings on the use of visuals in the learning process.

637 PHILOSOPHIES OF EDUCATIONAL TECHNOLOGY 3 credits
To introduce students to the many philosophies of educational technologies and the manner in which information technology especially influences our pedagogy.

638 INTEGRATING AND IMPLEMENTING TECHNOLOGY 3 credits
This course is designed to equip teachers with tools, resources, and strategies to support the integration and implementation of effective use of technology in the classroom.

639 STRATEGIES FOR ON-LINE LEARNING 3 credits
This course will prepare instructors to make the transition from teaching in a physical classroom to facilitating learning in an increasingly virtual classroom.

640 TECHNOLOGIES OF RESEARCH 3 credits
Research methods and techniques commonly used in education and behavioral sciences; preparation of research reports. Includes library, historical, survey and 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 extended competence with contemporary research and teaching methods.

646 MULTICULTURAL COUNSELING 3 credits
Examination of basic philosophical problems underlying broad educational questions that confront society. Provides foundation for understanding of questions of modern society and education.

647 INDIVIDUAL AND FAMILY DEVELOPMENT ACROSS THE LIFESPAN 3 credits
Analysis of roles of individual and family development. Emphasis will be placed on understanding the relationship between the individual and his/her family.

655 FIELD EXPERIENCE: MASTER’S 1/3 credits
Prerequisite: permission of department chair and instructor. Area determined in accordance with student’s program and professional goals.

656 MASTER’S TECHNOLOGY PROJECT 2/3 credits
Prerequisite: permission of advisor. Prepare and test a technology learning package that includes any combination of text, graphics, sound, color, motion, and the provision for interaction by the target student.

657 INDEPENDENT STUDY 1/3 credits
(May be repeated for a total of six credits) Prerequisites: permission of department chair and instructor. Specific area of study determined in accordance with student’s program and professional goals.

658 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.

699 MASTER’S THESIS 4-6 credits
Prerequisites: permission of department chair and instructor. In-depth study of research problems. Segments of the course are offered in an online format.

701 HISTORY OF EDUCATION IN AMERICAN SOCIETY 3 credits
Historical development of education in American social order, with special emphasis on social, political and economic setting.

703 SEMINAR: HISTORY AND PHILOSOPHY OF HIGHER EDUCATION 3 credits
Prerequisite: 600 or equivalent. History and philosophy related to genesis and development of higher education in the Western world, with special emphasis given to higher education’s development in the United States.

705 SEMINAR: SOCIO-PHILOSOPHICAL FOUNDATIONS OF EDUCATION 3 credits
(May be repeated for a total of six credits) Prerequisite: 600 or equivalent. Inquiry into selected ideological, economic and philosophical factors affecting educational development in United States and other countries.

710 ADULT LEARNING, DEVELOPMENT, AND MOTIVATION 3 credits
Emerging theories of intelligence, theories of adult learning, stage theories of adult cognitive, conceptual and moral development, life cycle development, adult life transitions.

711 LEARNING PROCESSES 3 credits
Study of principles underlying classroom learning processes with particular emphasis on teaching as means of modifying pupil behavior, cognitive, motor, social and affective.

713 TEACHER BEHAVIOR AND INSTRUCTION 3 credits
Prerequisite: 600. Intensive survey of theoretical and empirical literature involving teacher and conceptions of instruction. A student reports on theory, empirical research and applications in areas of individual interests.

740 RESEARCH DESIGN 3 credits
Topics include problem statement, research questions, literature review, choosing a sample selecting an appropriate research design and data collection method, and ethical and legal issues.

741 DATA COLLECTION METHODS 3 credits
Prerequisite: 740. Emphasis on selecting, developing, and administering common data collection methods in education and social science research including standardized tests, inventories, questionnaires, focus groups and, content analysis.

742 STATISTICS IN EDUCATION 3 credits
Statistical methods and techniques used in educational measurement and in educational research. Emphasis on hypothesis testing.

743 ADVANCED EDUCATIONAL STATISTICS 3 credits
Prerequisite: 741. Emphasis on interpreting advanced statistics in education and the social sciences.

744 QUALITATIVE METHODS I 3 credits
Provides an overview of theory about and hands-on experience with methods of qualitative research. Techniques of participant observation, interviewing, and document collection will be covered.

745 QUALITATIVE METHODS II 3 credits
Prerequisite: 744. Provides more advanced experience with theory and methods of qualitative research. Data collection and analysis will focus on students’ research interests and possible dissertation topics.

798 RESEARCH PROJECT IN SPECIAL AREAS 1-3 credits
Prerequisite: permission of department chair and instructor. Critical and in-depth study of specific problem in educational foundations.

801 RESEARCH SEMINAR 3 credits
Prerequisites: 640 and 741; permission of department chair and instructor. Intensive study of research methods applicable to education. Emphasis on developing a dissertation proposal.

897 INDEPENDENT STUDY 1-4 credits
Prerequisite: permission of department chair and instructor. Specific area of inquiry within humanistic and behavioral foundations of education determined in advance by student and faculty advisor.

GENERAL ADMINISTRATION 5170:

590 WORKSHOP 1-3 credits
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

591,3 WORKSHOP 1-3 credits
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

601 ORGANIZATIONAL LEADERSHIP 3 credits
Prerequisite: 5100/640. A perspective of educational leadership and the context in which it operates, with emphasis on the processes, tasks, roles and relationships involved. Field-based research required.

602 MANAGEMENT OF PHYSICAL RESOURCES 3 credits
A comprehensive view of the principles, practices, and new dimensions involved in the planning and management of educational facilities.

603 MANAGEMENT OF HUMAN RESOURCES 3 credits
An orientation to the major dimensions of the personnel function.

604 SCHOOL COMMUNITY RELATIONS 3 credits
Prerequisites: 601 and 5100/640. An analysis of the principles, practices, and materials that facilitate the interaction between the school’s internal and external publics. Field-based research required.

605 EVALUATION IN EDUCATIONAL ORGANIZATIONS 3 credits
Prerequisites: 601 and 5100/640. An examination of the general concepts, models, practical applications and considerations involved in the evaluation of educational organizations.

607 SCHOOL LAW 3 credits
Prerequisites: 601 and 5100/640. 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 school systems, including taxes, other sources of revenue, expenditures, budgeting and effects of economic factors.

609 PRINCIPLES OF CURRICULUM DEVELOPMENT 3 credits
Prerequisites: 600 or equivalent. Inquiry into selected ideological, economic and philosophical factors affecting educational development in United States and other countries.

610 SUPERVISION OF INSTRUCTION 3 credits
Prerequisites: 601 and 5100/640. An introduction to the school function that improves instruction through direct assistance, curriculum, staff and group development and action research.

611 WORKSHOP 1-3 credits
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.
613 STUDENT SERVICES AND INTERAGENCY COLLABORATION 3 credits
Prerequisites: 601 and 5001:640. Overview of pupil services including analysis of the nature and development of each component and program and discussion of current issues and trends. Field based research required.

615 DISABILITY LAW 3 credits
The course examines the law of special education and the legal requirements obligating school districts to protect the affirmative rights of persons with disabilities. Emphasis is placed on knowing and applying the law to school practices.

620 SCHOOL CULTURE AND GOVERNANCE 3 credits
An overview of leadership as relates to the development and maintenance of a school climate and culture conducive to teaching and learning.

695,6 PRINCIPAL INTERNSHIP 3 credits each
Students are required to successfully complete a two-semester internship in a school district chosen by the student and his/her advisor.

697 INDEPENDENT STUDY 1-3 credits
Prerequisites: permission of advisor and supervisor of the independent study. Area of study determined by student's needs. (May be repeated for a total of six credits.)

704 ADVANCED ORGANIZATIONAL LEADERSHIP 3 credits
Study of organizations and strengths and weaknesses of common methods of administering them. Practical means by which overcoming bureaucratic weaknesses of bureaucracies and offset or lessened by educational institutions discussed.

705 DECISION MAKING IN EDUCATIONAL ADMINISTRATION 3 credits
Decision making is portrayed as a central function of the educational administrator with a unitized presentation of the theory, research and practice of decision making.

707 THE SUPERINTENDENCY 3 credits
An orientation to the superintendent's role and an examination of the strategies for dealing with the major relational and functional aspects of the superintendency.

709 ECONOMICS IN EDUCATION 3 credits
Issues related to the changing marketplace of public, private school and higher education institutions as they relate to an urban environment.

709,7 ADVANCED PRINCIPLES OF CURRICULUM DEVELOPMENT 3 credits
A second course in curriculum development with an emphasis on the performance competencies needed to engage in curriculum planning and decision making.

710 ADVANCED SCHOOL LAW 3 credits
An in-depth study of the law as it pertains to the function and role of the administrator as institute or community leader; agendas, building, facilities, and auxiliary services manager.

716 ADVANCED EVALUATION OF EDUCATIONAL ORGANIZATIONS 3 credits
An evaluation course to help educational leaders plan and assess educational priorities and outcomes.

720 TOPICAL SEMINAR: EDUCATIONAL ADMINISTRATION 1-3 credits
(May be repeated.) Prerequisite: permission of instructor. Topical studies in selected areas of concern to students, practicing administrators in public, private educational institutions, organizations.

730 RESIDENCY SEMINAR 3 credits
Focus on recent research in administration and educational administration theory.

731 RESIDENCY SEMINAR 3 credits
Prerequisite: 601. Focus on recent research in administration and educational administration theory.

732 PUBLIC AND MEDIA RELATIONS IN EDUCATIONAL ORGANIZATIONS 3 credits
A course in educational/public relations intended to help educational leaders facilitate the development of common perceptions about school issues with multiple constituencies.

735 THEORIES OF EDUCATIONAL SUPERVISION 3 credits
Extends 601, including supervisory models, staff development, and the organizational environment's impact on the climate for effective supervision.

735,7 SEMINAR: URBAN EDUCATIONAL ISSUES 3 credits
A study of the linkages between educational organizations and their social contexts, particularly as they relate to educational change. Research project required.

746 POLITICS OF EDUCATION 3 credits
Emphasis given to recent efforts to bring about reform at all levels of the educational enterprise; the role of national foundations.

795,6 INTERNSHIP IN EDUCATIONAL ADMINISTRATION 1-6 credits
Students are required to successfully complete a two-semester internship in a school district chosen by the student and his/her advisor.

897 RESEARCH STUDY 1-3 credits
Prerequisites: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in education. (May be repeated for a total of six credits.)

899 DOCTORAL DISSERTATION 1-20 credits
Prerequisite: permission of advisor. Specific research problem that requires student to apply research skills and techniques to the problem being studied.

530 HIGHER EDUCATION CURRICULUM AND PROGRAM PLANNING 3 credits
Study of curriculum planning at the college and university level, factors influencing curriculum design, theories and practices of curricular change and innovation are also explored.

590 WORKSHOP 3 credits
(May be repeated for a total of six credits.) Emphasizing the development and demonstration of leader behavior appropriate to the college or university setting.

590 ADVANCED ADMINISTRATIVE COLLOQUIUM IN HIGHER EDUCATION 3 credits
(May be repeated.) Prerequisite: permission of contemporary and future perspectives and issues related to the administration of Higher Education Institutions, including those that pose particular concern to students.

601 INTERNSHIP IN HIGHER EDUCATION 1-3 credits
(May be repeated for a total of six credits) Prerequisite: permission; corequisite: 602. Intensive work experience in operations of an institution of higher education, related to student's own program of studies and professional goals.

602 INTERNSHIP IN HIGHER EDUCATION SEMINAR 1 credit
Prerequisite: 601 for a total of three credits Prerequisite: permission; corequisite: 601. To be taken in conjunction with internship for synthesis of problems encountered in internship experience and to provide the opportunity to share ideas and experiences from various areas of higher education internship placement.

620 FINANCE AND HIGHER EDUCATION 3 credits
Facilitates student's understanding of how American Higher Education is financed, identifies the methodologies used, and political and economic impacts and processes involved.

626 ORGANIZATION AND POLICY DEVELOPMENT IN HIGHER EDUCATION 3 credits
Familiarizes student with the policymaking process as it related to higher education. Theoretic and practical issues explored, internal and external policy actors identified, and implementation issues examined.

635 INSTRUCTIONAL STRATEGIES AND TECHNIQUES FOR THE COLLEGE INSTRUCTOR 2 credits
Selected topics in instructional theory, techniques and strategies which are appropriate to both instructional planning and development of college-level courses.

645 INDEPENDENT STUDY IN HIGHER EDUCATION 1-3 credits
Selected areas of independent investigation in an area of higher education as determined by the advisor and student in relation to student's academic needs and career goals.

650 POSTSECONDARY TECHNICAL EDUCATION 5400:

500 POSTSECONDARY LEARNER 3 credits
Prerequisite: 501 or permission. Describes characteristics of the postsecondary learner; studies issues, factors, and strategies pertinent to successful facilitation of learning in a variety of postsecondary learning environments. Delivered in web-based format.

501 LEARNING WITH TECHNOLOGY 1 credit
An overview of informational learning and research technologies used and applied in workforce education and training by practitioners/learners for learning, research, and evaluation. Delivered in web-based format.

505 WORKPLACE EDUCATION FOR YOUTH AND ADULTS 3 credits
Prerequisite: 501 or permission of instructor. History and operations of current workforce education for youth and adults. Implications of social, economic, and political influences that stimulate growth and expansion of workforce education.

515 TRAINING IN BUSINESS AND INDUSTRY 3 credits
Prerequisite: 501 or permission of instructor. Examine the role and mission of the training function in the modern industrial setting. Foundation for students interested in industrial training or training supervision positions.

520 POSTSECONDARY INSTRUCTIONAL TECHNOLOGY 3 credits
Experiences in using, developing, and evaluating instructional technology and media used in postsecondary learning environments. Delivered in web-based format.

530 SYSTEMATIC CURRICULUM DESIGN FOR POSTSECONDARY INSTRUCTION 3 credits

535 SYSTEMATIC INSTRUCTIONAL DESIGN IN POSTSECONDARY EDUCATION 2 credits
Prerequisites: 501, 530, 5101:520, admission to program, or permission of instructor. Best practices in instructional strategies appropriate for postsecondary instructors. Emphasis on instructional design and learner outcome assessments. Delivered in web-based format.

541 EDUCATIONAL GERONTOLOGY SEMINAR 3 credits
Designed for person practicing in field of gerontology or preparing for a specialization in educational gerontology, including person responsible for development and implementation of courses, seminars, occupational training programs and workshops for older people.

580 SPECIAL TOPICS: WORKFORCE EDUCATION/TRAINING 1-3 credits
(May be repeated for a maximum of 6 credits hours with a change in topic.) Prerequisite: permission of the instructor. Group study of special topics of critical, contemporary concern in workforce education/training.

590,1 WORKSHOP 3 credits each
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

594 EDUCATIONAL INSTITUTES 1-4 credits
Special courses designed as in-service upgrading programs, frequently provided with the support of national foundations.

600 SURVEY OF POSTSECONDARY INSTITUTIONS 3 credits
Prerequisite: 501 or permission. Introduces students to the nature, purpose, and philosophy of postsecondary institutions. Includes an examination of two-year colleges, technical schools, proprietary schools, and other higher education institutions offering courses at the postsecondary level. Delivered in web-based format.

605 ADVANCED SYSTEM DESIGN: NEEDS ASSESSMENT AND EVALUATION 2 credits
Prerequisites: 501, 530, 531, and 5001:520. An examination of the instructional design in workforce education and training and supporting research in effective performance based program needs, assessment, and evaluation processes.

620 POSTSECONDARY TEACHER LEADERSHIP 3 credits
Prerequisites: 501, 530, 5101:520 or permission of instructor. An examination of the role of supervisory of postsecondary instruction, facilitation and evaluation of postsecondary instructors, professional development, as well as related leadership and management issues.

660 POSTSECONDARY DISTANCE LEARNING 3 credits
Prerequisite: 501 or permission of instructor. Introduction of the nature, purpose, and philosophy of distance learning, examination of current scope, history, theory, institutions, and programs of distance learning.
CURRICULAR AND INSTRUCTIONAL STUDIES 5500:

522 CONTENT AREA LITERACY 3 credits
Examines instructional strategies for constructing meaning in content subjects (e.g., science, social studies, mathematics) using print and electronic texts.

524 TEACHING READING TO CULTURALLY DIVERSE LEARNERS 3 credits
Knowledge, skills and attitudes to employ effective methods of teaching reading to diverse populations and/or learners whose language patterns are nonstandard.

540 PRINCIPLES OF BILINGUAL/MULTICULTURAL EDUCATION 3 credits
An introduction to the theoretical, cultural, sociocultural, bases of bilingual/multicultural education. Legislation, court decisions, program implementation included.

541 TEACHING LANGUAGE LITERACY TO SECOND LANGUAGE LEARNERS 4 credits
Employs methodologies for teaching language and literacy 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
Prerequisites: elementary education majors, 5500:333, 338, 33B; secondary education majors, 5600:353, social, social studies in the bilingual/multicultural classroom. Course applies methodologies for teaching mathematics, science, social studies in the bilingual/multicultural classroom. The bilingual student's native language stressed.

543 TECHNIQUES FOR TEACHING ENGLISH AS A SECOND LANGUAGE IN THE BILINGUAL CLASSROOM 4 credits
Course includes teaching language skills to Limited English Proficient students in grades K-12, analysis of language assessment tests, selection and evaluation of materials.

550 NATURE, HISTORY, AND PHILOSOPHY OF SCIENCE 3 credits
May be repeated with a change of topic. Provides opportunities to examine the historical and philosophical perspectives of science in an online medium and the impact of science and technology on society.

565 VOCATIONAL BUSINESS EDUCATION 3 credits
Prerequisite: senior status or permission. Principles of program construction, organization, implementation, evaluation, improvement, and development of program guides for both intensive and cooperative vocational business education.

570 MULTICULTURAL EDUCATION IN THE UNITED STATES 3 credits
In-depth to multicultural dimensions of American education. Comparisons of urban, suburban, and rural educational settings with reference to socioeconomic differences.

571 CHARACTERS OF CULTURALLY DIVERSE POPULATIONS 3 credits
Course explores the characteristics of culturally diverse populations. Focus on youth in low-income, low-achieving, and special education populations. Emphasis on cultural, social, economic and educational considerations and their implications.

572 PREPARATION FOR TEACHING CULTURALLY DIVERSE POPULATIONS 3 credits
Gains knowledge of informational, instructional, motivational, and management techniques, and prepares/adapts instructional materials for diverse populations.

575 INSTRUCTIONAL TECHNOLOGY APPLICATIONS 3 credits
Prerequisites: 5100:342 or instructor permission. Focus on developing learner competencies in the use of instructional technologies to enhance both the instructor's personal and professional productivity.

590,1 WORKSHOP 1-2 credits
Workshop for educators to improve teaching skills in a specific area of the curriculum. (May be repeated for a maximum of 6 credits.)

594 EDUCATIONAL INSTITUTES 1-4 credits
Special courses designed as in-service upgrading programs. Frequently provided with support of national foundations.

600 CONCEPTS OF CURRICULUM AND INSTRUCTION 3 credits
An examination of the underlying research and theory of curriculum and instruction with special attention to educational decision in the metropolitan setting.

605 SEMINAR IN TRENDS AND ISSUES IN CURRICULUM AND INSTRUCTION 3 credits
A study of current research and curriculum and instruction with special attention to applications to educational decision making.

610 EDUCATION AND THE YOUNG CHILD 3 credits
Content centered on educational settings of young children from birth through five years.

615 PHILOSOPHY AND ORGANIZATION OF MIDDLE SCHOOLS 3 credits
Philosophy, theory, research, and exemplary organizational, assessment, and evaluation components of middle level education.

616 MIDDLE SCHOOL CURRICULUM AND INSTRUCTION 3 credits
Theories, research, and exemplary practices focusing on middle school curriculum and instruction.

617 ELEMENTARY AND SECONDARY LICENSURE SEMINAR 3 credits
Focus on the issues that should be taught at the beginning of the Master's with License program as an introduction to curriculum and the pragmatics of teaching.

618 ADVANCED INSTRUCTIONAL TECHNIQUES 3 credits
Methods of teaching a particular topic of the middle and secondary school curriculum for students in the Master's with Licensure program.

619 INSTRUCTIONAL AND MANAGEMENT PRACTICES 3 credits
Students learn to use teaching models and management strategies to become effective in instructional environments. Also included are educational issues that relate to effective management and instruction.

621 ADVANCED INSTRUCTIONAL TECHNIQUES: MODERN LANGUAGES P 8 credits
Prerequisite: 617P for permission of instructor. Focus is on theories of language acquisition, modi- fied instruction suited to teaching foreign languages and cultures in the elementary school (P-8), and strategies that promote appropriate levels of language competence and proficiency for young learners.

622 CHILDREN'S LITERATURE IN THE CURRICULUM 3 credits
Examination of literature genre with emphasis on methods and techniques for presenting litera- ture to children in preschool, elementary, and secondary grades.

624 CONTEMPORARY ISSUES IN LITERACY INSTRUCTION AND PHONICS 3 credits
Survey course explores current research in reading and writing as constructive processes of meaning making.

625 SPECIAL TOPICS IN LITERACY EDUCATION 3 credits
May be repeated for a maximum of nine credits. In-depth examination of current critical research on issues of literacy education.

628 LITERARY ASSESSMENT PRACTICUM 3 credits
Laboratory experience within classroom, small groups and individuals. A student diagnostic, implements procedures, and follows prescribed reading improvement. (May be repeated for a maximum of 6 credits.)

629 READING PROGRAMS IN SECONDARY SCHOOLS 3 credits
For all subject teachers both with and without previous study in the teaching of reading. Materia- les, class organization and procedures for developing reading improvement programs, for all secondary school and college students.

630 ASSESSMENT OF READING DIFFICULTIES 3 credits
Prerequisite: 620P. Examines formal and informal assessments and intervention strategies for children with reading difficulties.

635 SEMINAR IN TEACHING FOREIGN LANGUAGES 3 credits
May be repeated for a total of six credits. Issues and subjects related to research in foreign language education and language learning theories. Different topics will be offered from sec- tion to section.

637 TOPICAL SEMINAR IN RESEARCH AND THEORY IN FOREIGN LANGUAGE EDUCATION 3 credits
May be repeated for a total of six credits. Issues and subjects related to research in foreign language education and language learning theories. Different topics will be offered from sec- tion to section.

645 THEORY AND PRACTICE IN ELEMENTARY SCHOOL MATHEMATICS 3 credits

650 ELEMENTARY SCIENCE CURRICULUM AND INSTRUCTION 3 credits
A critical analysis of contemporary science curriculum and instructional methods for the young learner with particular attention to elementary standards.

651 SECONDARY SCIENCE CURRICULUM AND INSTRUCTION 3 credits
A critical analysis of the theory and practice of curriculum and instructional methods for science for elementary, middle, and high school learners.

692 FIELD EXPERIENCE: COLLOQUIUM 1 credit
Prerequisite: admission to student teaching, corequisite: 694. Instructional experience in the 7-12 classroom to apply theory and research to practice.

693 FIELD EXPERIENCE: MASTER'S WITH LICENSURE 1-3 credits
Prerequisite: admission to student teaching. In-depth experience in the 7-12 classroom to apply theory and research to practice. (May be repeated for a maximum of 6 credits.)

694 FIELD EXPERIENCE: CLASSROOM INSTRUCTION 1-6 credits
Prerequisite: admission to student teaching corequisite: 692. Planned teaching experience in schools selected and supervised by Office of Extended Education Programs.

695 FIELD EXPERIENCE: MASTER'S 1-6 credits
Prerequisites: permission of advisor and department chair. Experience in an educational setting to apply educational theory and research to practice.

696 MASTER'S PROJECTS 1-6 credits
In-depth investigation of specific problem pertinent to student's area of concentration in education.

697 INDEPENDENT STUDY 1-3 credits
Selected areas of independent investigation as determined by advisor and related to student's academic needs.

699 MASTER'S THESIS 4-6 credits
In-depth study of research problem in education. Student must be able to demonstrate neces- sary competencies to deal with research problem in education.

750 CURRENT RESEARCH AND THEORY IN SCIENCE EDUCATION 3 credits
Intensive examination of contemporary theory and research literature in science teaching and learning for preservice and inservice high school teachers.

780 SEMINAR IN CURRICULAR AND INSTRUCTIONAL STUDIES 1-3 credits
May be repeated for a maximum of a particular area of curriculum and instruction.

800 PROFESSIONAL SEMINAR IN CURRICULAR AND INSTRUCTIONAL STUDIES 3 credits
Prerequisite: admission to either the Ph.D. in Elementary Education or the Ph.D. in Secondary Education program. Learners will develop individualized programs of study and plan their doc- toral studies. An overview of process and procedures for development of individual study.

802 ADVANCED STUDY AND RESEARCH IN READING INSTRUCTION 3 credits
Survey of research, comparison and evaluation of programs, design and development of pro- grams in reading, and the role of research in educational reform.

803 DOCTORAL SEMINAR IN CURRICULAR AND INSTRUCTIONAL STUDIES 3 credits
Prerequisite: admission to the Ph.D. program in either Elementary Education or Secondary Education. Intensive examination of a particular area of teacher education. May be repeated with change of topic and for a total of 9 credits.

805 DOCTORAL FIELD EXPERIENCE 1-4 credits each
May be repeated for a total of 6 hours. Intensive job-related experience pertinent to student's needs. Student must be able to demonstrate skills and leadership abilities in an on-the-job sit- uation.

898 INDEPENDENT STUDY 1-6 credits
May be repeated for a total of 6 hours. Area of study determined by student's needs.

899 DOCTORAL DISSERTATION 1-20 credits
Study and in-depth analysis of a research problem in curriculum and instruction.
PHYSICAL EDUCATION 5550:

500 MUSCULOSKELETAL ANATOMY I: UPPER EXTREMITY 3 credits
Prerequisites: 3100:200, 201, 202, 203 and 5560:201. Designed to develop a comprehensive understanding of the musculoskeletal system in applied detail. Includes articulations, syles, histology, and neurological integration with lab and practical experiences.

501 MUSCULOSKELETAL ANATOMY II: LOWER EXTREMITY 3 credits
Prerequisites: 3100:200, 201, 202, 203 and 5560:201. Designed to develop a comprehensive understanding of the musculoskeletal system in applied detail. Includes articulations, syles, histology, and neurological integration with lab and practical experiences.

510 INTRODUCTION TO SPORT SOCIOLOGY 3 credits
Provides an introduction to sociological aspects of sport. The course content educates students about gender and sport, race and sport, economics in sport, media and sport, children and sport, and intercollegiate athletics.

522 SPORTS PLANNING/PROMOTION 3 credits
Analysis of marketing/promotions from a sport manager's perspective. Emphasis on marketing strategy, tactics, and development in sport delivery services.

524 SPORT LEADERSHIP 3 credits
This course has been designed to introduce the students to current issues related to leadership, management, and supervision. Course also will examine current sport leadership research as well as the fundamental governance structure of amateur and professional sport organizations.

536 FOUNDATIONS AND ELEMENTS OF ADAPTED PHYSICAL EDUCATION 3 credits
Principles, components, and strategies necessary in providing motor activities for handicapped students via application of a neuro-developmental model and alternative methods. Three hour lecture.

540 INJURY MANAGEMENT FOR TEACHERS AND COACHES 2 credits
This course challenges the graduate student to understand ways to provide care for the safety of individuals they teach.

541 ADVANCED ATHLETIC INJURY MANAGEMENT: UPPER EXTREMITY 4 credits
Prerequisites: 3100:200, 201, 202, 203 and 5550:201. This course is designed to continue the research, evaluation, and rehabilitation of upper extremity injuries as well as general medical and psychological influences on the upper extremity.

542 THERAPEUTIC MODALITIES AND PHARMACOLOGY 3 credits
Prerequisites: 3100:200, 201, 202, 203, and 5560:240. This course is designed to develop techniques and skills of Sports Medicine personnel in the selection and implementation of therapeutic modalities and drugs.

551 ASSESSMENT AND EVALUATION IN ADAPTED PHYSICAL EDUCATION 3 credits (20 clinical hrs)
Prerequisites: Permission of advisor. Investigation and analysis of alternative assessment instruments, as well as methodology for determining instructional objectives and activities for handicapped students. Three hour lecture.

553 PRINCIPLES OF COACHING 3 credits
Basics for becoming a successful coach. Discussion of principles applying to most sports, players, and coaches. Ten (10) clinical hours required.

562 LEGAL ISSUES IN PHYSICAL AND LEISURE ACTIVITIES 2 credits
Legal and contemporary issues of greatest concern to those interested in physical and leisure activities: risk management, playground safety, blood-borne pathogens, ethics.

565 PSYCHOLOGY OF INJURY REHABILITATION 2 credits
Prerequisites: 3100:200, 201, 202, and 203. This course will address the cognitive and affective aspects of injury and rehabilitation of injury. Specifically the stages of rehabilitation and techniques to aid in the rehabilitation process.

570 ORTHOPEDIC INJURY AND PATHOLOGY 3 credits
Prerequisites: 3100:200, 201, 202, and 203. This course will discuss musculoskeletal pathology and surgical procedures associated with a physically active population.

590, 1,2 WORKSHOP 3 credits
Practical, intensive, and concentrated involvement with current curricular practices in areas related to physical education.

600 BIOMECHANICS APPLIED TO SPORT AND PHYSICAL ACTIVITY 4 credits
Training future professionals in an integrated approach to qualitative diagnosis of motor skills for a variety of professional settings. Required clinical hours.

601 SPORTS ADMINISTRATION AND SUPERVISION 3 credits
Organizational and administrative efficiency in implementing sports programs (event management, budgeting, public relations); objective and effective procedures for evaluation/selection of personnel; periodic program review.

602 MOTOR BEHAVIOR APPLIED TO SPORTS 3 credits
Coaching education principles related to motor development and motor skill learning. Focus on effective practices for learning and advanced skills teaching for coaches.

603 TACTICS AND STRATEGIES IN THE SCIENCE OF COACHING 3 credits
Course focuses on coaching and teaching the skills, tactics, and strategies in individual and team sports.

604 CURRENT ISSUES IN PHYSICAL EDUCATION 3 credits
This course represents a planned experience in interpretation and articulation of information within the context of selected areas of current issues in sport.

605 PHYSIOLOGY OF MUSCULAR ACTIVITY AND EXERCISE 3 credits
Functions of body systems and physiological effects of exercise. Laboratory experiences, lectures, discussions.

606 STATISTICS: QUANTITATIVE AND QUALITATIVE METHODS 3 credits
Prerequisite: 3100:200. Rationale: emphasis on understanding the use of computer and appropriate software as they relate to various disciplines in the area of physical activity.

607 MOTIVATIONAL ASPECTS OF PHYSICAL ACTIVITY 3 credits
Analysis of factors influencing motivation of motor performance with emphasis on competition, audience effects, aggression.

608 MASTERING TEACHING AND COACHING 3 credits
To learn about becoming master teachers and coaches, students will apply effective teaching skills, focus on context, and reflect on the teaching/coaching process. Additional 10 clinical/field hours required.

611 RESEARCH AND ANALYSIS OF EFFECTIVE TEACHING IN PHYSICAL EDUCATION 3 credits
For the new professional, this course concentrates on research and analysis of skills and professional competencies needed to become an effective teacher of physical education.

680 SPECIAL TOPICS IN HEALTH AND PHYSICAL EDUCATION 2-4 credits
May be repeated. Prerequisite: permission of instructor. Group study of special topics in health and physical education and sports medicine.

OUTDOOR EDUCATION 5560:

550 APPLICATION OF OUTDOOR EDUCATION TO THE SCHOOL CURRICULUM 4 credits
Provides knowledge, skills and techniques useful in application of outdoor education to school curriculum.

552 RESOURCES AND RESOURCE MANAGEMENT FOR THE TEACHING OF OUTDOOR EDUCATION 4 credits
Resources and instructional techniques which are applicable to outdoor education and in-depth study of methods and designs, unique to the process of teaching.

554 RESIDENT OUTDOOR EDUCATION 2 credits
Focus on helping physical education teachers use critical thinking to review programming/organizational techniques relevant to outdoor education programs. Extended experience in outdoor settings required.

556 OUTDOOR PURSUITS 4 credits
Investigation and participation in practical experiences in outdoor pursuits.

590 WORKSHOP: OUTDOOR EDUCATION 1-3 credits
Practical application of contemporary idea, methodologies, knowledge relevant to outdoor education. Emphasis on participant involvement in educational practices, utilizing the natural environment.

594 EDUCATIONAL INSTITUTES: OUTDOOR EDUCATION 1-4 credits
Prerequisite: 550 or 552. Practical experience with current research or curricular practices involving expert persons in outdoor education.

600 OUTDOOR EDUCATION: RURAL INFLUENCES 3 credits
Prerequisite: 550 or 552. Utilization of resources of rural area as a learning/environment in the study of current public health problems. Organization and administration of various agencies and their roles in the solution of community health problems.

605 OUTDOOR EDUCATION: SPECIAL TOPICS 2-4 credits
May be repeated with change in topic. Prerequisite: permission of instructor. Group and individual study of special topics of contemporary concern in outdoor education.

690 PRACTICUM IN OUTDOOR EDUCATION 2-4 credits (60-120 field hours)
Prerequisites: 550, 552 and permission of advisor. Supervised practical experience with existing outdoor education programs. In conjunction with practical work student meets regularly with advisor.

695 FIELD EXPERIENCE: MASTER’S 2-6 credits (60-180 field hours)
Prerequisite: permission of advisor. Participation and documentation of practical professional experience related to outdoor education.

697 INDEPENDENT STUDY 1-3 credits (70-90 field hours)
Prerequisite: permission of advisor. Individually designed independent study program related to outdoor education. Documentation of study required.

698 MASTER’S PROBLEM 2-4 credits
Prerequisite: permission of advisor. Intensive research study related to a problem in outdoor education or related discipline.

699 MASTER’S THESIS 4-6 credits
Prerequisite: permission of advisor. The study of a related discipline with documentation of study required.

HEALTH EDUCATION 5570:

520 COMMUNITY HEALTH 2 credits
Study of current public health problems. Organization and administration of various agencies and their roles in the solution of community health problems.

521 COMPREHENSIVE SCHOOL HEALTH 4 credits
Prerequisite: admission to Graduate School. This course explains and presents comprehensive school health curricula for K-12. The three components of a comprehensive school health program are presented: instruction, services, and the environment.

523 METHODS AND MATERIALS OF HEALTH EDUCATION 3 credits
Prerequisite: permission of instructor. Planning, organization, use of instructional resources and delivery of health education content and teaching processes (pre K-12).

560 PRACTICUM IN HEALTH EDUCATION 2-6 credits
Prerequisite: permission of instructor. The practicum in Health Education is an on-site participation in a community health organization, agency, or resource.

EDUCATIONAL GUIDANCE AND COUNSELING 5600:

550 COUNSELING PROBLEMS RELATED TO LIFE-THREATENING ILLNESS AND DEATH 3 credits
Prerequisite: permission. Consideration of the global issues, current research, coping behavior, support systems and family and individual needs in regard to life-threatening situations.

590 WORKSHOP 1-3 credits
Special instruction designed as in-service and upgrading individuals on current issues and practices in counseling.

600 SEMINAR IN COUNSELING 1-3 credits
Prerequisite: counseling majors must elect 600 prior to electing 651 and/or within the first 10 credits of 5600 course work. Structured group experience designed to help a student assess selection of counseling as a profession.

610 COUNSELING SKILLS FOR TEACHERS 3 credits
Prerequisite: 631 or 633 or permission. The study and practice of selected counseling techniques that can be applied by teachers in working with students, parents and colleagues.
620 ISSUES IN SEXUALITY FOR COUNSELORS
A seminar covering, in addition to changing current topics, sexuality across the lifespan, diversity and sexual orientation, and assessment. 3 credits

621 COUNSELING YOUTH AT RISK
This course is designed to prepare counselors and other helping professionals to work with at-risk children and adolescents in school and community settings. 3 credits

622 INTRODUCTION TO PLAY THERAPY
Prerequisites: enrollment in a master's or doctoral program in counseling or related field, or special nondegree students (i.e., professional counselors). This course is designed to give students an overview of play therapy from a child-centered perspective. Students will develop competencies in child-centered play therapy. 3 credits

623 MARRIAGE AND FAMILY COUNSELING/THERAPY ETHICS AND PROFESSIONAL IDENTITY
This course is designed to help students learn about marriage and family counseling/therapy as a distinct profession and about its corresponding ethical codes. 3 credits

631 ELEMENTARY/SECONDARY SCHOOL COUNSELING
Introductory class; examine elementary and secondary school counseling practices. 3 credits

635 COMMUNITY COUNSELING
Overview of community and college counseling services; their evaluation, philosophy, organization, and administration. 3 credits

640 COUNSELING ADOLESCENTS
Prerequisite: graduate student in counseling or related field. The examination of the physical, cognitive, emotional, and social developmental processes of the adolescent as these affect learning performance in a diverse population will be addressed. 3 credits

643 COUNSELING THEORY AND PHILOSOPHY
An overview of the major counseling systems including client-centered, behavioral and existential theories. Philosophical and theoretical dimension stressed. 3 credits

645 TESTS AND APPRAISAL IN COUNSELING
Prerequisites: 300:540, 300:560. Study of the nature of tests and appraisal in counseling including reliability, validity, test construction and selection, administration, scoring, and basic interpretation of selected measures. 4 credits

646 MULTICULTURAL COUNSELING
Prerequisite: 643 or permission of instructor. An examination of multicultural counseling theory and research necessary to work with culturally diverse people. 3 credits

647 CAREER DEVELOPMENT AND COUNSELING ACROSS THE LIFE-SPAN
Prerequisite: 5106:511. Examination of career development and choice over the lifespan, personal, family, and societal characteristics that affect choice, career choice, and implementation are discussed. 3 credits

648 INDEPENDENT AND FAMILY DEVELOPMENT ACROSS THE LIFE-SPAN
Prerequisites: 643 and permission. An exploration of individual and family development, human behavior, and theories of learning and personality. Emphasis will be placed on understanding the relationship between the individual and his/her family. 3 credits

650 FILIAL THERAPY
Prerequisites: 590 or 622 and graduate student in counseling or related field. This course is designed to train students how to teach parents specific child-centered play therapy skills to use with their children. 3 credits

651 TECHNIQUES OF COUNSELING
Prerequisite: 643 or permission. Study and practice of selected counseling techniques and skills with emphasis on structuring, listening, leading and establishing a counseling relationship. 4 credits

653 GROUP COUNSELING
Prerequisites: 643 or 710, and 651. Knowledge and understanding of theory, research, and techniques necessary for conducting group counseling sessions. An experimental component is included. 3 credits

655 MARRIAGE AND FAMILY THEOR Y: THEORY AND TECHNIQUES
An overview of the theory and techniques of marital and family therapy, including exposure to the history, terminology and contributions of significant persons in the field. 3 credits

657 CONSULTANT COUNSELING
Prerequisites: 631, 651 or permission. Examination of consultation models with focus on process and product. 3 credits

659 ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES
Prerequisite: 631 or 633 or permission. Development of a comprehensive articulated guidance and counseling program. 3 credits

660 COUNSELING CHILDREN
Prerequisite: graduate student in counseling or related field. This course is designed as an entry-level course for counselors, school counselors, school psychologists, or other professionals preparing to engage in therapeutic work with children. It is not a class in diagnosis of childhood disorders. 3 credits

661 DEVELOPMENTAL GUIDANCE AND EMOTIONAL EDUCATION
An experimental seminar designed for school counselors/teachers to learn developmental guidance strategies for affective education, classroom guidance, deliberate psychological education and developmental counseling. 3 credits

667 MARRITAL THERAPY
Prerequisite: 655. In-depth study of theories and interventions which focus on the nature and quality of marital relationships. 3 credits

669 SYSTEMS THEORY IN FAMILY THERAPY
Prerequisite: 655. In-depth exploration of systems theory in family therapy. Major assumptions of systems theory will be examined and the implications for interventions will be explored. 3 credits

675 PRACTICUM IN COUNSELING
Prerequisite: 620, 643, 645, 646, 651, 653, 720 (DSM IV). Supervised counseling experience specific to program which includes, groups, couples, or families. 5 credits

680 INTERNSHIP
Prerequisite: 675. Must be repeated for a minimum of 6 credit hours over two semesters. May be repeated for a maximum of 12 credit hours. Paid or unpaid supervised clinical experience taken at least two consecutive semesters immediately following completion of 675. Credit/noncredit. 3 credits

697 FIELD EXPERIENCE: MASTER'S
Prerequisites: permission of advisor or department chair. Placement in selected setting for purpose of acquiring experiences and/or demonstrating skills related to student's counseling program. 1-3 credits

697 INDEPENDENT STUDY
(Prerequisite: permission of advisor and department chair. Specific area of investigation determined in accordance with student needs. 1-3 credits

697 AUTONOMOUS PRACTICUM
(Prerequisite: permission of advisor or department chair. Specific area of investigation determined in accordance with student needs. 1-3 credits

707 SUPERVISION IN COUNSELING PSYCHOLOGY I, II
Prerequisites: permission of advisor or department chair. 4 credits each

710 INTRODUCTION TO COUNSELING PSYCHOLOGY
Prerequisites: graduate standing in the Collaborative Program in Counseling Psychology. Introduction to historical foundations of and recent developments in counseling psychology, with an emphasis on contemporary research literature in the field. 2 credits

710 THEORIES OF COUNSELING AND PSYCHOTHERAPY
Prerequisites: 370:680 or departmental permission. Major systems of individual psychotrauma and group counseling. Major theories include major theories on vocational behavior, empirical research on these theories, applied work in vocational counseling and applied research. 4 credits

712 PRINCIPLES AND PRACTICES OF INDIVIDUAL AND GROUP INTERVENTION TESTING
Prerequisites: 630 or graduate standing in school psychology and instructor's permission. History, principles and methodology of intelligence testing, supervised practice in administration, scoring and interpretation of individual intelligence tests for children and adults. 4 credits

713 PROFESSIONAL, ETHICAL AND LEGAL ISSUES IN COUNSELING PSYCHOLOGY
Prerequisites: doctoral residency or permission. Examination of major issues in the field such as the counselor as a professional and as a person, and issues, problems and trends in counseling. 3 credits

715 OBJECTIVE PERSONALITY EVALUATION
Prerequisites: completion of 370:640/650, 370:642/652, and 370:650 or 660:645/645 per- mission. Study of the development, administration, and interpretation of objective instruments for personality assessment (MMPI, CPI, MBTI, B-PF and selected additional inventories. 4 credits

716 RESEARCH DESIGN IN COUNSELING I
Prerequisites: doctoral residency or permission. Study of research designs, evaluation proce- dures and review of current research. 3 credits

717 RESEARCH DESIGN IN COUNSELING II
Prerequisites: doctoral residency or permission. This course is designed for doctoral students utilizing the qualitative approach for conducting research. Theory, methods, and design of qual- itative inquiry are reviewed. 3 credits

717 ISSUES OF DIVERSITY IN COUNSELING PSYCHOLOGY
Prerequisites: 370:630; one semester of practicum work. Critical examination and application of research and theory in counseling psychology with an emphasis on race/ethnicity, gender, sexual orientation, age, disability, and spirituality. 4 credits

717 HISTORY AND SYSTEMS IN PSYCHOLOGY
Prerequisites: 370:630. Philosophical and scientific antecedents of psychology and details of the development of systematic viewpoints in the 19th and 20th centuries. 2 credits

720 TOPICAL SEMINAR: GUIDANCE AND COUNSELING
1-4 credits

721 III INTRODUCTION TO PLAY THERAPY
Prerequisites: enrollment in a master's or doctoral program in counseling or related field, or special nondegree students (i.e., professional counselors). This course is designed to give students an introduction to play therapy from a child-centered perspective. Students will develop competencies in child-centered play therapy. 3 credits

724 PROFESSIONAL AND LEGAL ISSUES IN COUNSELOR EDUCATION
Prerequisites: Admission into the Guidance and Counseling Doctoral Program. To be taken the first Fall term upon admission. Professional and ethical issues in the counseling field and doc- toral identity development. 3 credits

728 USE OF ASSESSMENT DATA
Prerequisites: doctoral level status. Study of the methods and materials used to assess indi- viduals and the effective use of the data obtained leading to professional decisions regarding the diagnosis of individuals present condition, and recommendations for appropriate treat- ment/intervention. 4 credits

730 ADDICTION COUNSELING I: THEORY AND ASSESSMENT
Prerequisite: 660:675, 670:680/AI. This course will provide a foundation for the diagnosis of addictions and other problems. 3 credits

731 ADDITION COUNSELING II: TREATMENT PLANNING AND INTERVENTION STRATEGIES
Prerequisite: 660:670 or 670:680. This course is designed to teach graduate-level students the process of treatment planning and range of treatment interventions used with addiction disorders. 3 credits

731 ASSESSMENT METHODS AND TREATMENT ISSUES IN MARRIAGE AND FAMILY THERAPY
Prerequisites: 473:600/602. This course provides advanced counseling students with the knowledge and skills in assessment meth- ods, techniques and instruments relevant to the practice of marriage and family therapy. 3 credits

733 OUTCOME RESEARCH IN MARRIAGE AND FAMILY THERAPY
Prerequisites: 660:670/675, 670:741. This course will provide an in-depth examination of marriage and family therapy outcome research. 3 credits

735 COUNSELING CHILDREN
Prerequisites: graduate student in counseling or related field. This course is designed an introduction to counseling children, counseling school counselors, school psychologists, or other professionals preparing to engage in therapeutic work with children. It is not a class in diagnosis of childhood disorders. 3 credits

735 DOCTORAL INTERNSHIP
(May be repeated for a total of 9 credit hours.) Prerequisites: passing grades on written and oral comprehensive examinations. Supervised experience in clinical settings, teaching, and supervision. A minimum of 60 clock hours must be completed in a minimum of two consecutives semesters immediately following passing of comprehensive examinations. Credit/noncredit. 3 credits

735 COUNSELING PSYCHOLOGY PRACTICUM
(May be repeated for a total of 12 credits) Advanced counseling psychology students will have supervised training with clients in a variety of settings and will focus on supervised develop- ment of specialized theoretical applications. Credit/noncredit. 4 credits

737 INDEPENDENT READING AND/OR RESEARCH IN COUNSELING PSYCHOLOGY
Prerequisite: permission of instructor. Independent readings and research in an area of counseling psychology under the direction of a faculty member. 1-4 credits

737 FIELD EXPERIENCE: DOCTORAL
Prerequisites: permission of faculty advisor. Placement in selected settings for purpose of acquiring experiences and/or developing skills related to student's doctoral program. 1-4 credits

Graduate Courses

## SPECIAL EDUCATION: 5610:

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<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>540 INDIVIDUALS WITH EXCEPTIONALITIES: EDUCATIONAL AND SOCIetal ISSUES</td>
<td>3</td>
</tr>
<tr>
<td>A survey course covering the identification, developmental characteristics, and intervention strategies for exceptional children and youth across educational and community settings.</td>
<td></td>
</tr>
<tr>
<td>544 DEVELOPMENTAL CHARACTERISTICS OF INTELLECTUALLY GIFTED INDIVIDUALS</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: 440/540. Survey of etiology, diagnosis, and classification of developmental characteristics of intellectually gifted individuals.</td>
<td></td>
</tr>
<tr>
<td>547 INDIVIDUALS WITH MODERATE/INTENSIVE EDUCATIONAL NEEDS: CHARACTERISTICS AND IMPLICATIONS</td>
<td>4</td>
</tr>
<tr>
<td>Survey of the etiology, classification, developmental characteristics of and intervention strategies for individuals with moderate/intensive educational needs.</td>
<td></td>
</tr>
<tr>
<td>548 INDIVIDUALS WITH MODERATE/INTENSIVE EDUCATIONAL NEEDS: DEVELOPMENTAL PATTERNS OF YOUNG CHILDREN</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: 540. Survey of the etiology, classification, and developmental characteristics of individuals with moderate/intensive educational needs.</td>
<td></td>
</tr>
<tr>
<td>550 SPECIAL EDUCATION PROGRAMMING: EARLY CHILDHOOD</td>
<td>3</td>
</tr>
<tr>
<td>Developmental patterns of young children with disabilities and developmentally/exceptionality appropriate practices with respect to programming and adaptations.</td>
<td></td>
</tr>
<tr>
<td>551 SPECIAL EDUCATION PROGRAMMING: MILD/MODERATE I</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: 440/540 or 447/547. Educational implications regarding assessment, teaching strategies, and adaptations which support the inclusion of students with disabilities in the development and implementation of educational interventions and curricula.</td>
<td></td>
</tr>
<tr>
<td>552 SPECIAL EDUCATION PROGRAMMING: SECONDARY/TRANSITION</td>
<td>3</td>
</tr>
<tr>
<td>Study of diagnostic and service delivery systems designed to accommodate developmental patterns of secondary level students with exceptionalities.</td>
<td></td>
</tr>
<tr>
<td>553 SPECIAL EDUCATION PROGRAMMING: MODERATE/INTENSIVE I</td>
<td>4</td>
</tr>
<tr>
<td>Prerequisite: 448. Development of the programming strategies including assessment, intervention, and classroom management, and family involvement, FSPD 501, development, instructional practices based upon logistical principles and educational plan.</td>
<td></td>
</tr>
<tr>
<td>554 SPECIAL EDUCATION PROGRAMMING: MODERATE/INTENSIVE II</td>
<td>4</td>
</tr>
<tr>
<td>Advanced program for providing educational planning and intervention for individuals with moderate to intensive educational needs. Focus is on developing a comprehensive educational program which will facilitate optimum functioning and development.</td>
<td></td>
</tr>
<tr>
<td>557 SPECIAL EDUCATION PROGRAMMING: MILD/MODERATE II</td>
<td>3</td>
</tr>
<tr>
<td>Special educational implications regarding assessment, teaching strategies, and adaptive materials necessary to meet the needs of school age students with moderate/intensive educational needs.</td>
<td></td>
</tr>
<tr>
<td>559 COLLABORATION AND CONSULTATION IN SCHOOLS AND COMMUNITY</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: 440/540 or 447/547. Collaboration and consultation with special educators/interventionists with skills in collaboration and consultation for working with parents of exceptional children and other professionals within schools/community situations.</td>
<td></td>
</tr>
<tr>
<td>560 FAMILY DYNAMICS AND COMMUNICATION IN THE EDUCATIONAL PROCESS</td>
<td>3</td>
</tr>
<tr>
<td>A study of family theory and structure along with beginning techniques for working with families of students with exceptionalities, in educational and community settings.</td>
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</tr>
<tr>
<td>561 SPECIAL EDUCATION PROGRAMMING: EARLY CHILDHOOD MODERATE/INTENSIVE II</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: 440/540 or 447/547. Developmental patterns of young children with moderate/intensive needs ages (3-8) and developmentally appropriate practices in programming and adaptations.</td>
<td></td>
</tr>
<tr>
<td>563 ASSESSMENT IN SPECIAL EDUCATION</td>
<td>3</td>
</tr>
<tr>
<td>Prepares student to select, administer and interpret formal and informal assessment procedures and use results data to planning educational programs for exceptional children.</td>
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</tr>
<tr>
<td>564 ASSESSMENT AND EVALUATION IN EARLY CHILDHOOD SPECIAL EDUCATION</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: 440/540 or 447/547. The assessment of children (three to eight) and their environment who are at risk for disabilities or currently in special education.</td>
<td></td>
</tr>
<tr>
<td>567 MANAGEMENT STRATEGIES IN SPECIAL EDUCATION</td>
<td>3</td>
</tr>
<tr>
<td>Content emphasizing the development of application strategies with a variety of behavior management models for management of behaviors with exceptional children.</td>
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</tr>
<tr>
<td>568 ADVANCED BEHAVIOR MANAGEMENT</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: 467/567. Advanced techniques for remedying problematic behavior, establishing effective repertoire, and evaluating relevant research on classroom management will be covered. Behavioral theory will be stressed.</td>
<td></td>
</tr>
<tr>
<td>570 CLINICAL PRACTICUM IN SPECIAL EDUCATION</td>
<td>3</td>
</tr>
<tr>
<td>Provides students with learning experiences in the areas of assessment, planning, instructional planning and presentation, classroom management, adaptations, and collaboration with parents and other educational professionals.</td>
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</tr>
<tr>
<td>579 SEMINAR: INVITATIONAL STUDIES IN SPECIAL EDUCATION</td>
<td>3</td>
</tr>
<tr>
<td>(May be repeated for a total of four credits). Topical seminar for students with a varied array of disciplinary input. Staffing will be invited members of allied and contributing professions active in management of exceptional children.</td>
<td></td>
</tr>
<tr>
<td>601 SEMINAR SPECIAL EDUCATION CURRICULUM PLANNING</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: certification in an area of special education. Study of curriculum planning practices involving the design of special education classes and services. Assign specific educational goals for selected areas of curriculum planning and presentation.</td>
<td></td>
</tr>
<tr>
<td>602 SUPERVISION OF INSTRUCTION</td>
<td>3</td>
</tr>
<tr>
<td>Study of administration supervisory practices unique to special education classes and services.</td>
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</tr>
<tr>
<td>604 COLLABORATION AND CONSULTATION SKILLS FOR SPECIAL EDUCATORS</td>
<td>3</td>
</tr>
<tr>
<td>Advanced consideration of the roles and responsibilities of parents, professionals and individuals with disabilities in the development and implementation of educational interventions and related issues.</td>
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</tr>
<tr>
<td>605 INCLUSION MODELS AND STRATEGIES</td>
<td>3</td>
</tr>
<tr>
<td>Historical, philosophical, legislative mandates, models, strategies, curriculum modifications, methods/materials adaptations which support the inclusion of students with disabilities. Emphasis on collaboration and learning.</td>
<td></td>
</tr>
<tr>
<td>606 RESEARCH APPLICATIONS IN SPECIAL EDUCATION</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: admission to graduate program in special education and 5000:640. Examination of quantitative and qualitative methodology and its application to the field of special education. Applied research is an essential component of the course.</td>
<td></td>
</tr>
<tr>
<td>611 SEMINAR: LEGAL ISSUES IN SPECIAL EDUCATION</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: admission to graduate program in special education and 5170:720 or permission of instructor. A culminating seminar for graduate students in special education designed to study, examine and reflect upon the legal aspects of historical and current trends, issues and practices.</td>
<td></td>
</tr>
<tr>
<td>612 SEMINAR: SOCIAL/ETHICAL ISSUES IN SPECIAL EDUCATION</td>
<td>3</td>
</tr>
<tr>
<td>A culminating seminar for graduate students in special education designed to study, examine and reflect upon the social and ethical aspects of historical and current trends, issues and practices.</td>
<td></td>
</tr>
<tr>
<td>613 STUDENT TEACHING SEMINAR</td>
<td>1</td>
</tr>
<tr>
<td>Taken concurrently with student teaching. Review and discussion of issues raised during teaching experience.</td>
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</tr>
<tr>
<td>614 STUDENT TEACHING: SCHOOL AUDIOLOGY</td>
<td>6</td>
</tr>
<tr>
<td>Directed teaching under supervision of a special teacher and a University supervisor.</td>
<td></td>
</tr>
<tr>
<td>615 STUDENT TEACHING: SPEECH LANGUAGE PATHOLOGY</td>
<td>6</td>
</tr>
<tr>
<td>Directed teaching under supervision of a special teacher and a University supervisor.</td>
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</tr>
<tr>
<td>616 RESEARCH PROJECT IN SPECIAL AREA (SCHOLARLY PAPER)</td>
<td>3</td>
</tr>
<tr>
<td>An in-depth study of an identified topic in a scholarly paper.</td>
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</tr>
<tr>
<td>617 FIELD EXPERIENCE: MASTER’S</td>
<td>1-4</td>
</tr>
<tr>
<td>(May be repeated for a total of eight credits) Designed to provide on-the-job experience in a special education program on an individual basis.</td>
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</tr>
<tr>
<td>618 INDEPENDENT STUDY</td>
<td>1-3</td>
</tr>
<tr>
<td>(May be repeated for a total of nine credits) Specific area of investigation determined in accordance with student’s needs.</td>
<td></td>
</tr>
<tr>
<td>619 MASTER’S PROBLEM</td>
<td>2-4</td>
</tr>
<tr>
<td>Individual study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in special education.</td>
<td></td>
</tr>
<tr>
<td>620 MASTER’S THESIS</td>
<td>4-6</td>
</tr>
<tr>
<td>Through in-depth analysis and in-depth study in an educational program, field projects in special areas; synthesis of existing knowledge in relationship to a specific topic.</td>
<td></td>
</tr>
</tbody>
</table>

## SCHOOL PSYCHOLOGY: 5620:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>600 SEMINAR: ROLE AND FUNCTION OF THE SCHOOL PSYCHOLOGIST</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: permission of instructor. Seminar on role and function of school psychologist. The course, tailored to meet individual needs of trainees, is a consideration of professional standards of school psychology practice.</td>
<td></td>
</tr>
<tr>
<td>601 COGNITIVE FUNCTION MODELS FOR PRESCRIPTIVE EDUCATIONAL PLANNING</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: permission of instructor. Consideration of cognitive development theories and their application for educational programming.</td>
<td></td>
</tr>
<tr>
<td>602 BEHAVIORAL ASSESSMENT</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: permission of instructor. Overview of behavioral theory and its application focusing upon the role of the school psychologist as an agent of behavior change.</td>
<td></td>
</tr>
<tr>
<td>603 CONSULTATION STRATEGIES IN SCHOOL PSYCHOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: permission of instructor. Consideration of consultative roles in the practice of school psychology as related to consultative process and with school and agency personnel, parents, and children.</td>
<td></td>
</tr>
<tr>
<td>610 EDUCATIONAL DIAGNOSIS FOR SCHOOL PSYCHOLOGISTS</td>
<td>4</td>
</tr>
<tr>
<td>Prerequisites: permission of instructor. Clinical study and application of current assessment approaches applicable in assessment of children’s learning problems.</td>
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</tr>
<tr>
<td>611 PRACTICUM IN SCHOOL PSYCHOLOGY</td>
<td>4</td>
</tr>
<tr>
<td>Prerequisite: permission of instructor. Laboratory experience in psycho-educational study of individuals who have developmental disabilities in school. (Repeat requirement).</td>
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</tr>
<tr>
<td>630, 1 INTERNSHIP IN SCHOOL PSYCHOLOGY: FALL/SPRING</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: permission of instructor. Full-time paid work assignment under supervision of a qualified school psychologist for an academic year structured according to provisions of State Department of Education. Additional readings required.</td>
<td></td>
</tr>
<tr>
<td>640 FIELD SEMINAR I: CURRENT PROFESSIONAL TOPICS/ISSUES IN SCHOOL PSYCHOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: permission of instructor. Consideration of pertinent topics/issues in practice of school psychology with emphasis upon field-based concerns of a practicing school psychologist.</td>
<td></td>
</tr>
<tr>
<td>641 FIELD SEMINAR II: LOW INCIDENCE/RELATED INQUIRIES</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: permission of instructor. Consideration of pertinent topics/issues in practice of school psychology with emphasis on field-based concerns of a practicing school psychologist.</td>
<td></td>
</tr>
<tr>
<td>642 RESEARCH PROJECT IN SPECIAL AREAS</td>
<td>1-3</td>
</tr>
<tr>
<td>Prerequisite: permission of educator. Study, analysis and reporting of school psychology problem.</td>
<td></td>
</tr>
<tr>
<td>657 FIELD EXPERIENCE: MASTER’S</td>
<td>1-3</td>
</tr>
<tr>
<td>Prerequisite: permission of instructor. Practical school psychology-related experience in school setting.</td>
<td></td>
</tr>
<tr>
<td>669 INDEPENDENT STUDY</td>
<td>1-4</td>
</tr>
<tr>
<td>Prerequisites: permission of advisor and supervisor of the independent study. Documentation of specific area of investigation. Nature of the inquiry to be determined by student-supervisor agreement.</td>
<td></td>
</tr>
<tr>
<td>689 MASTER’S PROBLEM</td>
<td>2-4</td>
</tr>
<tr>
<td>Prerequisite: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in school psychology.</td>
<td></td>
</tr>
<tr>
<td>691 MASTER’S THESIS</td>
<td>4-6</td>
</tr>
<tr>
<td>Prerequisite: permission of instructor. Thorough study, analysis and reporting in-depth study of an educational problem; field projects in special areas; synthesis of existing knowledge in relationship to a specific topic.</td>
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</tbody>
</table>

## SPECIAL EDUCATIONAL PROGRAMS: 5800:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>590 WORKSHOP IN ECONOMIC EDUCATION OR IN SOCIAL STUDIES</td>
<td>1-3</td>
</tr>
<tr>
<td>Individual work under staff of a special teacher and learning specialists in community resources; planning of curriculum units.</td>
<td></td>
</tr>
<tr>
<td>591 WORKSHOP IN ARITHMETIC OR IN PHYSICAL SCIENCE</td>
<td>1-3</td>
</tr>
<tr>
<td>Individual work under staff of a special teacher and learning specialists in curriculum resources; planning of curriculum units.</td>
<td></td>
</tr>
</tbody>
</table>
ACCOUNTANCY 6200:

520 ADVANCED ACCOUNTING I 3 credits
Prerequisites: 6200:321 and 322. Examination of accounting theory emphasizing accounting for business combinations, partnerships, foreign operations, nonprofit entities and consolidated statements.

530 TAXATION I 3 credits
Prerequisite: 320 or 621. Federal tax law related to individuals. Master of Taxation students will not be able to take this course to satisfy tax electives in the Master of Taxation program.

531 TAXATION II 3 credits
Prerequisite: 430/530 or permission. Federal income tax law related to partnerships, corporations, trusts and estates; also includes an overview of federal estate and gift tax law.

540 AUDITING 3 credits
Prerequisites: 320 and 321, 430, 454 and 6500:221 must be taken prior to or concurrently, or permission of instructor. Examines auditing standards and procedures used by independent auditors in determining whether a firm has fairly presented its financial position.

570 GOVERNMENTAL AND INSTITUTIONAL ACCOUNTING 3 credits
Prerequisite: 320 or 621. Theory and procedures involved in application of fund accounting, budget control, appropriations and various accounting systems to governmental units, educational, medical and other nonprofit institutions.

590 SPECIAL TOPICS IN ACCOUNTING 1-3 credits
Prerequisite: Permission of instructor. Opportunity to study special topics and current issues in accounting. May be repeated with a change of subject but not to exceed 6 credits.

601 FINANCIAL ACCOUNTING 3 credits
Introductory course for student with no accounting background. Examines accounting principles as applied to financial problems of firm.

603 BUSINESS SYSTEMS WITH PROCESSING APPLICATIONS 3 credits
Prerequisite: 604. Introduction to basic concepts in concepts in computer technology, business system development and logic of designing accounting systems by using a business-orientated language or related software.

604 ACCOUNTING DEVS FOR FINANCIAL SYSTEMS 3 credits
Prerequisites: 801 and 6000:606. Analysis, design and development of financial and control applications, using object oriented languages, integrated development environments (IDE), and object analysis and design methodology.

607 FINANCIAL DATA COMMUNICATIONS AND ENTERPRISE INTEGRATION 3 credits
Prerequisites: 6200:601 and 6500:601. In-depth study of contemporary methodologies, technologies, and standards used to integrate business processes and systems, including XML and XBRL.

610 PROCESS ANALYSIS AND COST MANAGEMENT 3 credits
Prerequisite: 600:606 or 6000:601, or placement. Investigates management accounting and control systems and the use of accounting information in cost management, risk assessment, planning, decision making, and performance evaluation.

615 ENTERPRISE RESOURCE PLANNING AND FINANCIAL SYSTEMS 3 credits
Prerequisite: 601. Detailed examination of issues related to acquisition, implementation and use of financial modules in enterprise resource planning applications, with emphasis on risk assessment and mitigation.

621 CORPORATE ACCOUNTING AND FINANCIAL REPORTING I 3 credits
Prerequisite: 601. An examination of generally accepted accounting principles in theory and application, as well as financial statement preparation.

622 CORPORATE ACCOUNTING AND FINANCIAL REPORTING II 3 credits
Prerequisite: 621. A continuation of 6200:621 which examines generally accepted accounting principles in theory and practice, as well as financial statement preparation.

627 SURVEY OF FEDERAL TAXATION 3 credits
Prerequisite: 601 or equivalent. Introduction to federal taxation for students who have not yet completed more than one undergraduate or graduate tax course. Examines individual federal taxation. Completion of this course will not count toward fulfilling the requirements of the Master of Taxation degree.

628 BASIC TAX RESEARCH 3 credits
Prerequisites: 530, 601, 610, 621, 622, and 623. Designed to develop basic research competence involving federal income, estate, and gift tax law.

631 CORPORATE TAXATION I 3 credits
Prerequisite: completion of M.Tax foundation courses. Detailed examination of tax problems of corporations and their shareholders. Formation, distribution, redemption, liquidation and penalty taxes covered.

632 TAXATION OF TRANSACTIONS IN PROPERTY 3 credits
Prerequisite: completion of M.Tax foundation courses. Explores federal tax implications of gains and losses derived from sales, exchanges and other dispositions of property.

633 ESTATE AND GIFT TAXATION 3 credits
Prerequisite: completion of M.Tax foundation courses. Analyzes provisions of federal estate and gift tax laws and tax consequences of testamentary and lifetime transfers.

637 ADVANCED ACCOUNTING THEORY 3 credits
Prerequisite: 600:621 and 622 or equivalent. Examination of accounting concepts and standards through critical analysis of articles on current trends in profession. Discussion and out-of-class assignments stressed.

640 ADVANCED AUDITING 3 credits
Prerequisite: 440/540. Conceptual foundations and current research on professional and internal auditing. Includes government regulation and litigation, statistics, computer systems as well as current and prospective developments in auditing.

641 TAXATION OF PARTNERSHIPS 3 credits
Prerequisite: completion of M.Tax foundation courses. Examines intensively provisions of subchapter K and of Internal Revenue Code and uses of partnerships for tax planning.

642 CORPORATE TAXATION II 3 credits
Prerequisite: 601. Continuation of 631. Concludes study of subchapter C on Internal Revenue Code with major focus on corporate reorganization.

643 TAX ACCOUNTING 2 credits
Prerequisite: completion of M.Tax foundation courses. Attention focused on timing of income taxes for individuals by use of deferrals and deferral planning.

644 INCOME TAXATION OF DECEEDENTS, ESTATES AND TRUSTS 2 credits
Prerequisite: 633. An in-depth examination of the decedent’s last income tax return along with the analysis of income taxation of trusts and estates and their creators, fiduciaries and beneficiaries.

645 ADVANCED INDIVIDUAL TAXATION 3 credits
Prerequisite: 430/530. In-depth study of some of the more involved areas of individual income taxation.

646 CONSOLIDATED TAX RETURNS 2 credits
Prerequisite: completion of M.Tax foundation courses. Intensive study of tax provisions concerning consolidated tax returns.

647 QUALIFIED PENSIONS AND PROFIT SHARING 3 credits
Prerequisite: completion of M.Tax foundation courses. Nature, purpose and operation of various forms of deferred compensation examined with much emphasis on pension and profit-sharing plans.

648 TAX PRACTICE AND PROCEDURE 2 credits
Prerequisite: completion of M.Tax foundation courses. In-depth study of administration and procedures of Internal Revenue Service and responsibilities of tax practitioners.

649 STATE AND LOCAL TAXATION 3 credits
Prerequisite: 631. Examines common types of taxes imposed by state and local governments and the tax consequences of state and local income taxation.

650 ESTATE PLANNING 2 credits
Prerequisite: 633. Considers entire process of planning the estate with due regard for dispositions of property, tax minimization, liquidity requirements and administrative costs.

651 UNITED STATES TAXATION OF TRANSATIONAL OPERATIONS 3 credits
Prerequisite: completion of M.Tax foundation courses. Examines United States taxation of foreign income of domestic corporations, citizens and residents, as well as United States income of nonresident aliens and foreign corporations.

652 TAX-EXEMPT ORGANIZATIONS 2 credits
Prerequisite: completion of M.Tax foundation courses. Analysis of tax aspect of tax-exempt organizations, including nature of limitations and its exemption.

654 INDEPENDENT STUDY IN TAXATION 1-3 credits
Prerequisite: permission of instructor. Intensive study of particular topic or limited number of topics not otherwise offered in curriculum. (May be repeated for a total of six credits.)

655 ADVANCED INFORMATION SYSTEMS 3 credits
Prerequisite: 603 or equivalent. Advanced study of accounting information system theory, elements, principles, design and implementation. Practical data processing and networking to control flow of information.

658 ENTERPRISE RISK ASSESSMENT AND ASSURANCES 3 credits
Prerequisite: 601 or equivalent and 610 or equivalent. An examination of the unique risks, concepts and controls associated with assurance from and related to the e-business environment.

659 ASSURANCE SERVICES WITH DATA WAREHOUSING AND DATA MINING 3 credits
Prerequisite: 658. Application of data warehousing, data mining, and intelligent agent concepts and tools to designing and developing systems for assurance services, fraud and error detection, and risk mitigation.

660 INFORMATION SYSTEMS AUDIT AND CONTROL PROJECT 3 credits
Prerequisites: 640 and instructor approval. Comprehensive, hands-on information systems audit and control project approved by the instructor.

670 CORPORATE PERFORMANCE EVALUATION AND CONTROL SYSTEMS 3 credits
Prerequisite: 601. Investigation of the role of financial information systems in developing strategy, planning, measuring results, and motivating managers to define and pursue organizational goals and objectives.

800 INTERNATIONAL ACCOUNTING 3 credits
Prerequisite: 601. Examination of accounting theory and practice from international perspective with emphasis on multinational investment, business and auditing activities and reporting problems.

893 SELECTED TOPICS IN TAXATION 1-3 credits
May be repeated for a total of six credits. May be repeated for a total of six credits. Focus on special topics of study and research in accounting on an independent basis.

ENTREPRENEURSHIP 6300:

640 FINANCING THE ENTREPRENEURIAL VENTURE 3 credits
Prerequisites: 6500:508. Exploration of financing, legal, taxation, and insurance issues involved with entrepreneurial ventures.

670 MANAGING ENTREPRENEURIAL GROWTH 3 credits
Prerequisites: 6500:508 and 6500:540. Interdisciplinary capstone course focusing on problems and opportunities associated with the management of entrepreneurial growth in existing entrepreneurial ventures. Includes a field project.

FINANCE 6400:

538 INTERNATIONAL BANKING 3 credits
Prerequisite: 311 or 602. Examination of recent trends in the expansion of international banking activities and associated revenue maximizing strategies.

620 MANAGERIAL FINANCE 3 credits
Prerequisite: 6200:601 or equivalent. 6400:602 may be taken concurrently with 6200:601. Emphasis on financial decision-making related to goal of firm; specifically, the investment decision, the financial decision and the dividend decision.

623 LEGAL ASPECTS OF BUSINESS TRANSACTIONS 3 credits
(Not open to students with six credits of undergraduate business law) Advanced legal analysis of contracts, UCC, debtor-creditor relationships, business organizations, property, and government regulation.

631 FINANCIAL MARKETS AND INSTITUTIONS 3 credits
Prerequisite: 601 or equivalent. A study of major financial markets and financial institutions with an emphasis on the decision-making processes within a rapidly changing, but regulated operating environment.

645 INVESTMENT ANALYSIS 3 credits
Prerequisite: 601 or equivalent. Study of the economic and market forces that influence security prices. Techniques of analysis used in evaluating limited income and equity securities.

650 TECHNIQUES OF FINANCIAL MODELING 3 credits
Prerequisites: 6200:601 and 6400:602. Current techniques and methods of financial analysis are examined, including the use of financial models for short and long run profitability decisions.
3 credits
655 GOVERNMENT AND BUSINESS
Public policy with regard to business institutions and issues are considered from an econom- istic, legal, ethical, political framework.

3 credits
674 STRATEGIC FINANCIAL DECISION MAKING
Prerequisite: 602. Examines the role of financial decision makers as strategic consultants to other business units/functions with integrative risk management as a unifying theme.

3 credits
678 CAPITAL BUDGETING
Prerequisite: 602 or equivalent. Attempt to integrate various theories of capital budgeting into comprehensive conceptual scheme. Theoretical concepts and practical applications blended together, so that students might be better understood and more likely to be practical.

3 credits
681 MULTINATIONAL CORPORATE FINANCE
Prerequisite: 602 or equivalent. Financial policies and practices of companies involved in multi- national operations. Comprehensive management of working capital and permanent assets, return on investment and capital budgeting for the global firm.

3 credits
685 E-BUSINESS: LEGAL ISSUES
Studies the application of law to emerging e-commerce form of business with concentration on emerging law and policy.

3 credits
686 E-BUSINESS: STRATEGICAL PLANNING AND FINANCING
Prerequisite: minimum of six credits of E-Business foundational courses. Study of financial issues relating to analysis, evaluation, planning, long and short term financing, and management of E-Business projects.

3 credits
690 SELECTED TOPICS IN FINANCE
(May be repeated for a total of six credits) Prerequisite: 602 or equivalent. Provides study of contemporary issues and areas not covered in current finance graduate courses.

3 credits
691 INTERNATIONAL MARKETS AND INVESTMENTS
Prerequisite: 602 or equivalent. A study of international financial markets with an emphasis on international investments and risks in a rapidly changing global economy.

3 credits
699 INDEPENDENT STUDY IN FINANCE
(May be repeated for a total of six credits) Focus on special topics of study and research in finance on an independent basis.

3 credits
700 INDEPENDENT STUDY: BUSINESS LAW
(May be repeated for a total of six credits) Focus on special topics of study and research in the legal aspects of business administration.

MANAGEMENT 6500:

3 credits
571 MANAGEMENT PROJECT
Prerequisite: 670. Students develop skills in field-based management problem solving, project management, and requirement analysis under conditions of uncertainty in a collaborative interdisciplinary team environment.

3 credits
580 INTRODUCTION TO HEALTH-CARE MANAGEMENT
Prerequisite: upper-class or graduate standing (Students who are required to take 680 or 601 or have completed 301 or 601 or equivalent are ineligible to take this course for credit). Introduction to the public health and health care professions covering principles and concepts of management applied to health services organizations. For those registered for graduate credit, a major research paper is required.

3 credits
582 HEALTH SERVICES OPERATIONS MANAGEMENT
Prerequisite: 580 or 602 or equivalent or permission of Instructor. Application of operations and systems analysis to health services organizations.

3 credits
585 SPECIAL TOPICS IN HEALTH SERVICES ADMINISTRATION
Prerequisite: permission of instructor. Special topics in health services administration (e.g., management) focusing on historical and/or contemporary managerial organizational and/or policy/strategy issues as related to health-care organizations and health-care settings. Separate topics may be repeated for a maximum of six credits. For those registered for graduate credit, a major research paper project is required.

3 credits
600 MANAGEMENT AND ORGANIZATIONAL BEHAVIOR
Prerequisite: Examines management principles, concepts, functions, and process, as well as human behavior in organizations.

3 credits
601 QUANTITATIVE DECISION MAKING
Applying quantitative techniques to business decision making. Topics covered include proba- bility estimation and hypothesis testing, simple and multiple regression and correlation analy- sis, analysis of variance and nonparametric statistics.

3 credits
602 COMPUTER TECHNIQUES FOR MANAGEMENT
Prerequisites: undergraduate or graduate standing or 301 or 601 or equivalent. Students develop new products and work with entrepreneurial businesses in the development of business plans that are presented to investors and entrepreneurs in local and international business plan competitions.

3 credits
606 BUSINESS APPLICATIONS DEVELOPMENT
Prerequisite: Understanding of the foundation of Electronic Business focusing on business and application issues.

3 credits
612 E-BUSINESS TECHNOLOGIES
Prerequisite: 602 or equivalent. Course provides a foundation in internet related technologies for successfully managing an e-business. Students will be required to design and implement a functional e-business prototype.

3 credits
625 E-BUSINESS PROJECT
A capstone course that integrates the foundation and functional courses. Student teams will apply project management methods as they design and develop an e-business project.

3 credits
640 MANAGEMENT INFORMATION SYSTEMS
Prerequisite: 602 or equivalent. Examines issues, strategies, and tactics for managers to manage information systems within organizations, including IS architecture, databases, development, outsourcing, emerging technologies, and enabling business strategy.

3 credits
641 BUSINESS DATABASE SYSTEMS
Prerequisite: 602. Introduction to issues underlying the analysis, design, implementation, and maintenance of business databases.

3 credits
642 SYSTEMS SIMULATION
Prerequisites: 661, 602. Manufacturing or service sector systems are analyzed and modeled on a computer. Experimental designs, statistical significance of results, model verification and validation, and response surface techniques.

3 credits
643 ANALYSIS AND DESIGN OF BUSINESS SYSTEMS
Prerequisite: 620 or 6200.3. A hands-on treatment of the methods used to develop different- types of business information systems.

3 credits
644 KNOWLEDGE MANAGEMENT AND BUSINESS INTELLIGENCE
Explores the technologies of Business Intelligence (data warehouses, data mining, portals) and how organizations successfully manage the creation, sharing, transfer, and exploitation of knowledge.

3 credits
645 ADVANCED MANAGEMENT INFORMATION SYSTEMS
Prerequisites: 640. Examines management challenges for difficult and cross-cultural IS prob- lems such as business-technology alignment, metrics, margins, legacy systems, ERP IS project failure, global sourcing, and international e-business.

3 credits
646 PROCESS REDESIGN WITH ENTERPRISE RESOURCE PLANNING
Prerequisite: 620. An investigation of cross functional redesign and integration of business processes and the use and influence of Enterprise Resource Planning software in this effort.

3 credits
648 MANAGEMENT OF TELECOMMUNICATIONS
Prerequisite: 602 or 6200:5. Focus on the use and management of telecommuni- cations resources to support the activities of the organization.

3 credits
650 HUMAN RESOURCE SYSTEMS FOR MANAGERS
Prerequisite: 600 or equivalent. A broad survey of the fundamental principles, research find- ings and practices related to the acquisition, development, maintenance and effective utiliza- tion of a business firm’s human resources.

3 credits
651 MANAGEMENT OF ORGANIZATIONAL TRANSFORMATION
Prerequisites: 600 or equivalent. Study of innovative and organizational designs designed to increase human satisfaction and productivity through changes in man- agement.

3 credits
652 ORGANIZATIONAL BEHAVIOR
Prerequisite: 600 or equivalent. Study of factors which influence human behavior in business organizations. Emphasis on theories of individual and group behavior, motivation, leadership and communication in organizations.

3 credits
653 ORGANIZATIONAL THEORY
Prerequisite: 600. Examines the structure, design and overall effectiveness of a business organi- zation from a macro-perspective.

3 credits
654 MANAGEMENT OF EMPLOYEE AND LABOR RELATIONS
Prerequisite: 600 or equivalent. Study of rights, responsibilities, and policies of management and labor organizations in union and nonunion workplaces.

3 credits
655 COMPENSATION AND PERFORMANCE MANAGEMENT
Prerequisite: 600 or equivalent. The development and analysis of systems of performance and rewards in business organizations with special attention placed on performance evaluation methods and productivity enhancement.

3 credits
656 MANAGEMENT OF INTERNATIONAL OPERATIONS
Prerequisite: 600 or equivalent. Deals with institutional environment of international business; parameters of international business system which hold the system together and which indi- vidual business people cannot materially alter.

3 credits
657 THE LEADERSHIP ROLE IN ORGANIZATIONS
Prerequisite: 600. Analysis and development of leadership theory and thought. Identification of leaders in both formal and informal organizations. Training and development methods of leaders evaluated. Individual and small group field assignment.

3 credits
658 STRATEGIC AND GLOBAL HUMAN RESOURCES MANAGEMENT
Prerequisites: 600 or equivalent. The formulation, design and implementation of human resource practices designed to generate competitive cost advantages for business firms operating in domestic and/or international markets.

3 credits
659 INTERNATIONAL HUMAN RESOURCE MANAGEMENT
Prerequisite: 600. A survey course focused on the identification, analysis, and resolution of human resource problems in business firms with global operations.

3 credits
660 STAFFING AND EMPLOYMENT REGULATION
Prerequisite: 600 or equivalent. Design and implementation of staffing practices and systems for businesses with an emphasis on the implications of federal regulations on the staffing function.

3 credits
662 APPLIED OPERATIONS RESEARCH
Prerequisite: 600 or equivalent. Survey of basic techniques of operations research. Stresses application to functional area of business.

3 credits
663 DATA ANALYSIS FOR MANAGERS
Prerequisite: 601 or equivalent. Data analysis and evaluation and interpretation of research in business and organizations. Integrates quantitative and behavioral concepts and processes encoun- tered in conducting such research, including ethical issues.

3 credits
664 ENGINEERING INDUSTRIAL STATISTICS
Prerequisite: 601 or equivalent. Applications of multiple regression including determining “best” set of independent variables, correlation models, analysis of variance models including multiple-factors models. Experimental designs including randomized block and Latin square designs.

3 credits
665 MANAGEMENT OF TECHNOLOGY
Prerequisite: Fundamental principles and recent practices of technology driven organizations are dis- cussed with concepts, models and case studies for managers of technology intensive opera- tions.

3 credits
669 POLYMORPH MANAGEMENT DECISIONS
Introduces major polymer concepts, production processes, and uses of polymeric materials in an easy-to-comprehend interdisciplinary instructional way. Industrial case studies help inte- grate enterprise-wide innovation and technology management related decisions.

3 credits
670 MANAGEMENT OF OPERATIONS
Prerequisites: 600, 601, 602; or equivalent. An overview of the issues directly related to the management of operations at the tactical, and operational levels of the organization.

3 credits
673 QUALITY AND PRODUCTIVITY TECHNIQUES
Prerequisite: 601. Introduction to techniques for improving productivity and quality, including statistical process control (SPC) material requirements planning (MRP), just-in-time (JIT) inventory control and management of the program.

3 credits
675 SUPPLY CHAIN MANAGEMENT
Prerequisite: 600. Focus on the integration of activities and information/material flows across multiple organizations that comprise the supply chain, and the relationships among those organizations.

3 credits
676 MANAGEMENT OF PRODUCTION AND OPERATIONS
Prerequisites: 600, 602, 602. An introduction to management of resources required to transform inputs into products or services. Addresses issues related to services, materials, people and methods, and design characteristics.

3 credits
681 PROJECT MANAGEMENT
Prerequisite: 600, 601, 602. Provides working knowledge of tools and methods available to project managers including computerized analysis of network models to aid in the planning and control functions.

3 credits
683 HEALTH SERVICES SYSTEMS MANAGEMENT
Prerequisite: 560 or 600 or equivalent or permission of Instructor. Study of health services organizations, comparative delivery systems, the roles of third-party payers and government policy in health care. Seminar format: major research paper required.
115

Graduate Courses

INTERNATIONAL BUSINESS 6800:

605 INTERNATIONAL BUSINESS ENVIRONMENTS 3 credits
Prerequisites: all MBA foundation courses. This course is intended to develop an understand-
ing of the global business environment and the integrated functions of the multina-
tional corporation.

630 INTERNATIONAL MARKETING POLICIES 3 credits
Explores the problems of formulating and implementing marketing strategies and tactics with-
in complex and changing multinational organizations and international markets. A planning
framework is emphasized.

655 MULTINATIONAL CORPORATIONS 3 credits
A course designed to develop an understanding of global businesses, their functions, struc-
tures, and strategic operations.

690 SEMINAR IN INTERNATIONAL BUSINESS 3 credits
A course covering major issues in international business.

697 INDEPENDENT STUDY IN INTERNATIONAL BUSINESS 1-3 credits
May be repeated for a total of six credits. Prerequisites: Graduate standing and permission
of instructor. Focus on special topics of study and research in international business on an inde-
dependent basis.

MARKETING 6600:

540 PRODUCT AND BRAND MANAGEMENT 3 credits
Prerequisite: 600. Applied investigation into the management of new product development,
product life cycle management, products mix strategies, brand positioning, brand image,
and brand equity.

575 BUSINESS NEGOTIATIONS 3 credits
Examines business negotiation principles and practices and builds skills in the process of
negotiating business agreements within a global environment.

580 SALES MANAGEMENT 3 credits
Prerequisite: 600. Devices analytical and managerial skills through case studies and other
learning activities relating to the organization, selection, training, motivation, and control of
direct or of global sales force. (Graduate credit requires additional research paper)

600 MARKETING CONCEPTS 3 credits
Introductory course examining buyer behavior, environmental influences, target market,
product development, distribution, promotion, and pricing for business firms and nonprofit
organizations within a global context.

620 STRATEGIC MARKETING MANAGEMENT 3 credits
Prerequisite: 600 or equivalent. Managerial assessments of opportunities, threats are explored as
are the development and management of appropriate strategic marketing plans and their
tactical implementation.

630 MARKETING SERVICES 3 credits
Prerequisite: 600 or permission of instructor. Examines marketing strategies within the service
industry. Focuses on both profit (e.g., transportation, financial) and nonprofit (e.g., educational,
social) organizations. Product support services are also considered.

635 E-BUSINESS: ELECTRONIC MARKETING STRATEGIES AND TACTICS 3 credits
Prerequisites: 600 and 6500:620. Covers the impact of electronic technology on marketing
strategy and tactics. Investigations include: vendor/dealer relations, website traffic designs,
database applications, and web appraisal metrics.

640 BUSINESS RESEARCH METHODS 3 credits
Prerequisites: 6500:603 and 602. Covers the scientific methods as well as the gathering and analysis
of information to identify opportunities and solve problems within a business organiza-
tion.

650 INNOVATIVE MARKETING STRATEGIES 3 credits
Prerequisite 600. A review of innovative marketing practices. Simulations, cases, and field projects support structured class dialogues
on emerging strategic business and marketing themes.

655 MARKETING COMMUNICATIONS 3 credits
Prerequisite: 600. The total range of marketing communication tools are examined individual-
ly and in the context of planning, developing, and implementing a systematic and integrated
communications program.

670 COMPETITIVE BUSINESS STRATEGY 3 credits
Prerequisite: 600. Investigation of competitive business strategy from an industry perspective. The course presents a framework which can be used to understand and develop competitive
strategies.

697 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.

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: 101 or permission. A lecture course focusing on a particular movement, period, artist,
or medium. (May be repeated when a different subject or level of investigation is selected)

520 AESTHETICS 3 credits
Lecture course dealing with museum science, including museum history, staff structures, art han-
dling, storage and presentation, and exhibition preparation.

505 HISTORY OF ART SYMPOSIUM 3 credits
May be repeated for credit when a different subject or level of investigation is indicated. Prere-
supposed: 600; 500, 510; or a different course beyond 101 or permission of instructor. Lecture, individual research and evaluation, group discussion related to a specific time period or to an artistic problem.

510 METHODS OF TEACHING ELEMENTARY ART 3 credits
Prerequisite: admission to Teacher Education Program Art P-12. A lecture course presenting the necessary skills and knowledge to successfully implement, plan, instruct, and assess a diverse, art-based curriculum for the elementary school. No credit as elective courses for art majors.

511 METHODS OF TEACHING SECONDARY ART 3 credits
Prerequisite: admission to Teacher Education Program Art P-12. A lecture course providing the knowledge, skills, and experience necessary for the development of curriculum, instruction and assessment appropriate for application at the high school level. No credit as an elective for art majors.

512 STUDENT TEACHING COLLOQUIUM 1 credit
Prerequisites: senior status, successful completion of field experience, and permission. Corequisite: 6500:694. Lecture course providing the skills and knowledge necessary for art education licensure. Student will gain knowledge in resume building, licensure requirements, and practical pedagogical techniques.

589 SPECIAL TOPICS IN STUDIO ART 3 credits
(May be repeated for credit when a different subject or level of investigation is indicated). Prere-
supposed: 101; 600; 511; or 512; or a different course beyond 101 or permission of instructor. Group investigation of a particular phase of art not offered by other courses in curriculum.

590 WORKSHOP IN ART 1-4 credits
(May be repeated for credit when a different subject or level of investigation is indicated) Prere-
supposed: 101; 600; 511; or 512; or a different course beyond 101 or permission of instructor. Lecture, and/or studio course, in a variety of art media. (May be repeated when a different subject or level of investigation is indicated.) Prerequisites: 101; 12 credits of art history to maximum of eight credits; 590 to maximum of 12 credits Prerequisite: advanced standing in art or permission of instructor. Group investigation of a particular phase of art not offered by other courses in curriculum.

591 ARCHITECTURAL PRESENTATIONS I 3 credits
Prerequisites: Junior level or permission. Studio practice in architectural design and presenta-
tion methods in residential and commercial interiors.

592 ARCHITECTURAL PRESENTATIONS II 3 credits
Prerequisites: 499/599. Continuation of concepts covered in Architectural Presentations I with additional work in color rendering techniques. Emphasis on a variety of rendering techniques.

597 INDEPENDENT STUDIES 1-3 credits
(May be repeated) Prerequisites for art majors: advanced standing in area chosen and permis-
sion of instructor. Prerequisite for non-art majors: permission of instructor. Investigation in depth of aesthetic and technical problems within a studio-selected area of specialization. Stu-
dent must present in writing a proposed study plan and time schedule for instructor approval.

598 MATERIAL PROBLEMS IN HISTORY OF ART 3 credits
(May be repeated for credit when a different subject or level of investigation is indicated) Prere-
supposed: 14 credits in art history and permission of instructor. Individual research in art his-
tory concerned around limited topic, such as specific time period, history of specific techniques, a single artist or movement in art history. No more than 10 credits will be counted toward major.

FAMILY AND CONSUMER SCIENCES 7400:

500 NUTRITION COMMUNICATION AND EDUCATION SKILLS 4 credits
Prerequisites: 125 or 216. Theory and development of communication and education skills
essential to dietetics practice; interpersonal communication; interviewing; nutrition counsel-
ing; education techniques, media, and current technology.

501 AMERICAN FAMILIES IN POVERTY 3 credits
Overview of the issues, trends, and social policies affecting American families living in pover-
ty.
504 MIDDLE CHILDHOOD AND ADOLESCENCE  2 credits
Prerequisites: 201, 265 or permission of instructor. The influences of middle childhood and ado-
lescence on an individual's future; the influences of the family environment on middle child-
hood and adolescent development.

506 FAMILY FINANCIAL MANAGEMENT  3 credits
Analysis of the family as a financial unit including financial problems and their resolution, deci-
sion making patterns and financial practices behavior. Cases, exercises, problems and com-
puter analysis.

507 FCS OCCUPATIONAL EMPLOYMENT EXPERIENCE  4 credits
Provides students with knowledge and skills necessary for current business and industrial practices at a
level minimal for employability. Employment experience in a variety of settings.

518 HISTORY OF INTERIOR DESIGN I  4 credits
The study of furnishings, interiors, and architecture from the eighteenth century to the present,
with emphasis on the socio-cultural influences shaping their development.

520 EXPERIMENTAL FOODS  3 credits
Prerequisites: 246 and 350/350. Theory and methods used in the experimental study of foods.
Analytical procedures in sensory and instrumental evaluation of food quality. Individual
research emphasized. Lecture/Laboratory.

523 PROFESSIONAL IMAGE ANALYSIS  3 credits
Prerequisites: Senior status. Comparison of theories associated with projecting and maximiz-
ing an appropriate professional image consistent with career goals and objectives.

524 NUTRITION IN THE LIFE CYCLE  3 credits
Prerequisite: 317. Study of the physiological basis for nutritional requirements; interrelating fac-
tors which affect growth, development, maturation and nutritional status from conception through
the elderly years.

525 ADVANCED TEXTILES  3 credits
Prerequisite: 121. Study of the design, development, and production of textiles. Emphasis on
weaves and knitting structures to determine suitability for desired end uses.

526 GLOBAL ISSUES IN TEXTILES AND APPAREL  3 credits
Prerequisite: 139. Examines the global structure and scope of the textile and apparel indus-
tries emphasizing an economic perspective.

531 PROFESSIONAL PRESENTATION SKILLS IN FAMILY & CONSUMER SCIENCES  3 credits
Prerequisite: 141 or 250. Emphasis on development of abilities and strengths in coordination of
exhibit, audiovisual materials, manner of speech, presentation style and delivery relating to education
and industry in Family and Consumer Sciences.

536 TEXTILE CONSERVATION  3 credits
Prerequisites: 121, 123, 317. Principles and practices of textile conservation with emphasis on
procedures appropriate for collectors and small historical agencies.

537 HISTORIC COSTUME  3 credits
Study of western costume and textiles from antiquity to 1830, with emphasis on socio-cul-
tural influences on materials and design.

538 HISTORY OF FASHION  3 credits
Prerequisite: 207. Study of western fashion, textiles, and designers from the nineteenth cen-
tury to present, with emphasis on socio-cultural influences.

540 FAMILY CRISES  3 credits
Study of family stress and crisis including internal and external variables and their influence on
degree of disorganization, coping and recovery. Includes theory, research and application
dimensions.

542 HUMAN SEXUALITY  3 credits
Prerequisite: 201 or permission of instructor. Introduction to problems and values. Emphasis is
on the role of values in intimate relationships, the diverse dimensions of sexual responsibili-
ty.

546 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.

548 BEFORE AND AFTER SCHOOL CHILD CARE  2 credits
Study of the development, implementation and evaluation of school-age child care programs
for toddlers and after school and vacation periods.

549 FLAT PATTERN DESIGN  3 credits
Prerequisite: 123 or equivalent. Theory and experience in clothing design using flat pattern
methods.

551 CHILD IN THE HOME  4 credits
Prerequisite: 265, comparable course or permission of instructor. Seminar dealing with spe-
cial needs and problems of hospitalized child and family. Literature related to effects, sepa-
rated, illness and stress. Examination of strategies for coping.

555 PRACTICUM EXPERIENCE IN A CHILD LIFE PROGRAM  3 credits
Prerequisite: 45/555. Field experience in a child life program and classroom activities including
critical analysis of a currently functioning program and program administration.

560 ORGANIZATION AND SUPERVISION OF CHILD-CARE CENTERS  3 credits
Theory, principles and procedures involved in establishing and operating centers for infants,
young children and school aged children.

561 CASE MANAGEMENT FOR CHILDREN AND FAMILIES I  3 credits
Provides an overview of case management principles and practices. Emphasis on process and
functions, assessment, cross-systems planning and coordination, advocacy and cultural diversity.

562 CASE MANAGEMENT FOR CHILDREN AND FAMILIES II  3 credits
Prerequisite: 461/561. Provides in-depth exploration of the theories, models and principles of
case management as applied to children and families. Includes review of strategies, ethics, and
supervision by the on-site director.

565 CHILD IN THE HOME  4 credits
Prerequisite: 265, comparable course or permission of instructor. Seminar dealing with spe-
cial needs and problems of hospitalized child and family. Literature related to effects, sepa-
rated, illness and stress. Examination of strategies for coping.

571 COMMUNITY NUTRITION I  3 credits
Prerequisite: 246. Advanced study of the chemistry and physics of food components, affecting
metabolism and tissue function and their application to the study of food and nutrition.

573 COMMUNITY NUTRITION II-LECTURE  3 credits
Corequisite: 481/581. CP student only. Community nutrition in their specific cultures, emphasis
on socio-cultural aspects of community assessment, program implementation and evaluation, and
rational for nutrition services.

575 COMMUNITY NUTRITION II-CLINICAL  1 credit
Prerequisite: CP students only 481, 581. Field placement in agencies offering nutrition services.
Study of the agency's goals, organization, and philosophy of nutrition services. Credit/no credit.

576 DEVELOPMENTS IN FOOD SCIENCE  2 credits
Prerequisite: 241, Advanced study of the chemistry and physics of food components, affecting
metabolism and tissue function and their application to the study of food and nutrition.

584 HOSPITAL SETTINGS, CHILDREN, AND FAMILIES  3 credits
Prerequisite: 265, comparable course or permission of instructor. Focuses on hospital as a
marketplace, includes review of strategies, ethics, and supervision by the on-site director.

585 SEMINAR IN FAMILY AND CONSUMER SCIENCES  1/3 credits
Prerequisite: permission of instructor. Exploration and evaluation of current developments in
selected areas.

587 SPORTS NUTRITION  3 credits
Prerequisites: 133, 350/350. Focus on energy metabolism and utilization before, during, and after exercise. Factors affecting nutrient needs and peak performance of different athletic populations are emphasized.

588 PRACTICUM IN DIETETICS  1/3 credits
Prerequisite: open to those dietetics students in the Didactic Program or Graduate program
who wish to apply for a Dietetic Internship. Historical aspects of dietetics and where the foci-
son is going. Specialties of dietetic practice are explored. Students prepare the applic-
ation for dietetic internship.

590 WORKSHOP IN FAMILY AND CONSUMER SCIENCES  1/3 credits
Prerequisite: at least junior standing. Literature review on current issue or topic in selected areas
of family and consumer sciences. May be on-campus course or off-campus course.

591 CAREER-TECHNICAL FCS INSTRUCTIONAL STRATEGIES  3 credits
Prerequisite: senior standing or permission. Examination of principles of teaching and learn-
ing in Family and Consumer Sciences programs in public schools grades 4-12. Emphasis on strategies, relationship with state career-technical directives, student organizations, and program planning.

593 PRACTICUM IN PARENT AND FAMILY EDUCATION  2 credits
Prerequisites: 596, 600. Provides on-site opportunities to apply parent and family education
skills. Includes a review of strategies, ethical considerations, and supervision by the on-site
director.

595 CHILD LIFE INTERNSHIP  2 credits
Prerequisite: Acceptance into the program. Field experience in a child life program at an
approved pediatric facility under the supervision of Certified Child Life Specialists.

PARENT EDUCATION  3 credits
Prerequisites: 265, comparable course or permission. Practical application that reviews and
analyzes various parenting techniques with major emphasis on the evaluation of parent edu-
ation programs.

597 STUDENT TEACHING SEMINAR  1 credit
Corequisite: 550/550. Seminar for students currently enrolled in Family and Consumer Sci-
ences student teaching. Emphasis on block and lesson plan development, licensure, portfolio
development, PRAXIS III, professional development, and student teaching reflection.

602 FAMILY IN LIFE-SPAN PERCEPTION  3 credits
Study of individual and family development across life span. Emphasis on adjustment patterns
and interpersonal competence. Implications for education theory research and social policy.

603 FAMILY RELATIONSHIPS IN MIDDLE AND LATER YEARS  2 credits
Study of family patterns and problems during middle and later years of life with emphasis on
psychological and biological changes and economic and social adequacy. Research and trends
in gerontology.

605 DEVELOPMENTAL PARENT-CHILD INTERACTIONS  3 credits
Prerequisite: 265 or permission. Study of reciprocal interactions between parent and child
from birth to adulthood. Consideration of cross-cultural studies, historical and societal influ-
ences, and various family characteristics and structures. Online course.

607 FAMILY DYNAMICS  3 credits
Develops family systems thinking in family and consumer sciences programs utilizing critical
theory, exchange theory and systems theory as understood through the study of the family across
the life cycle.

610 CHILD DEVELOPMENT THEORIES  2 credits
A comparative study of developmental theories of the child within the family context. Appli-
cation of the theories to child rearing in the family will be emphasized.

613 ADVANCED HUMAN NUTRITION I  2 credits
Prerequisites: undergraduate or grade level courses in nutrition and biochemistry. In-depth
study of human nutrition emphasizing metabolisms, physiological functions, and interrela-
tionships. Emphasis on strategies, pathology and principles of human energy requirements.

615 ADVANCED HUMAN NUTRITION II  3 credits
Prerequisite: 624 or equivalent. In-depth study of human nutrition with an emphasis on the uti-
лизation, physiological functions and relationships of vitamins and minerals.

631 PROBLEMS IN DESIGN  3 credits
(May be repeated, but no more than 6 credits will apply to M.A.). Prerequisite: written pro-
posal approved by faculty advisor. Individual solution of a specific design problem within the
student's area of clothing, textiles and interior specialization.
Graduate Courses

632 ADVANCED FOOD THEORY AND APPLICATIONS 3 credits
Prerequisite: 420/620 or permission. Advanced study of the chemistry and physics of food components, emphasizing the characteristics of foods. Critical evaluation of current basic and applied research emphasized.

634 MATERIAL CULTURE STUDIES 3 credits
Methods of studying clothing, textiles, and interiors from a cultural and historical perspective.

639 TECHNIQUE OF FASHION 3 credits
In-depth analysis of the theories underlying fashion and evaluation of current research related to the study of fashion.

640 NUTRITION IN DIMINISHED HEALTH 3 credits
Prerequisite: 628 or permission. Study of examination of concepts related to nutritional intervention, associated with selected pathophysiological and debilitating conditions throughout the life cycle. Emphasis on current nutrition literature.

651 FAMILY AND CONSUMER LAW 3 credits
Study of laws which control and protect individuals within family. Emphasis on current trends, literature, and course taught by attorney.

652 PROFESSIONAL PRESENTATION IN FAMILY AND CONSUMER SCIENCES 3 credits
Developing effective family and consumer sciences professional presentations. Emphasis on visuals, display, demonstrations, public relations materials, user manuals, conference man- 

665 DEVELOPMENT IN INFANCY AND EARLY CHILDHOOD 3 credits
Analysis of research and theoretical frameworks regarding infant and child development from conception through age five. Implications for guidance and education.

677 SOCIAL PSYCHOLOGY OF DRESS AND THE NEAR ENVIRONMENT 3 credits
Study of dress and the near environment as they relate to human behavior at the micro and macro level.

680 HISTORICAL AND CONCEPTUAL BASES OF FAMILY AND CONSUMER SCIENCES 3 credits
History and development of family and consumer sciences with emphasis on the leaders and the conceptual basis of the field.

686 RESEARCH METHODS IN FAMILY AND CONSUMER SCIENCES 3 credits
A study of family and consumer sciences research methods emphasizing concept and theo- 
dy, measurement, policy application and ethical considerations.

688 PRACTICUM IN FAMILY AND CONSUMER SCIENCES 3 credits
Prerequisite: permission of advisor/instructor. A minimum of 150 hours of supervised experi- 
cence in an approved community setting to acquire skills related to area of specialization.

690 RESEARCH/READING 3 credits
Prerequisite: permission of thesis advisor. Supervised reading and research related to advanced thesis topic. May be repeated once.

694 MASTER’S PROJECT 3 credits
Prerequisite: permission of advisor. The development, implementation, and evaluation of a community-based supervised project which makes a significant contribution to the field and may lead to publication.

695 INTERNSHIP: ADVANCED PROGRAMMING IN CHILD LIFE 5 credits
Prerequisite: 595. Field experience in a specialized area in a child life program in an approved program under the supervision of a certified child life specialist.

696 INDIVIDUAL INVESTIGATION IN FAMILY AND CONSUMER SCIENCES 12 credits
Prerequisite: permission of advisor. Individual investigation and analysis of a specific topic in student’s area of specialization of interest under direction of a faculty advisor.

697 INDIVIDUAL INVESTIGATION IN FAMILY DEVELOPMENT 12 credits
Prerequisite: permission of graduate advisor only. Individual pursuit and analysis in specific area of student’s interest and design under direction of faculty advisor.

698 INDIVIDUAL INVESTIGATION IN CHILD DEVELOPMENT 12 credits
Prerequisite: permission of graduate advisor only. Individual pursuit and analysis in specific area of student’s interest and design under direction of faculty advisor.

699 MASTER’S THESIS 12 credits
Prerequisite: permission of advisor. Supervised research in a specialized area of family and consumer sciences which makes a contribution to the field and may lead to publication.

MUSIC

525 MUSIC TEACHING METHODOLOGIES FOR GRADUATE STUDENTS 2 credits
Basic pedagogic techniques related to the teaching of undergraduate music courses, includ- ing preparation of syllabi, methods of evaluation, and instruction on class preparation and pre- 

526 GRADUATE MUSIC THEORY REVIEW 2 credits
Prerequisite: Undergraduate music theory equivalent to four semesters. Review of basic music theory concepts. Coverage includes the chromatic harmony vocabulary of the 19th and 20th centuries.

527 GRADUATE MUSIC HISTORY REVIEW 2 credits
Prerequisite: Undergraduate music history equivalent to four semesters of music history or lit- erature study, review of basic music history for graduate students. Coverage extends from antiquity to the present. Both reading and listening assignments will be required.

531 MUSIC AND LITERATURE; PERCUSSION INSTRUMENTS 2 credits
To train undergraduate and graduate percussion students in techniques of percussion educa- 

551 INTRODUCTION TO MUSICOLOGY 2 credits
Prerequisite: 452. Comparative musicology; acoustics; psychology and physiology of music; aesthetics; theory of music history; historical musicology.

553 MUSIC SOFTWARE SURVEY AND USE 2 credits
Prerequisite: 512 or permission of instructor. A survey and evaluation of available software in the technical terms of musical instruction. Students will design a course suitable for submission to a programmer.

555 ADVANCED Conducting: Instrumental 2 credits (30 clinical hours)
Prerequisites: 361 and 442 or permission. Baton techniques and problems relating to practice, reading and preparation of scores, organization of ensembles, programming, conducting large instrumental ensembles. One hour lab required.

556 ADVANCED Conducting: Choral 2 credits
Prerequisites: 361 or equivalent. Conducting techniques to the choral ensemble, including ; choral direction, error detection, tonal development, stylistic accuracy and analysis. One hour lab required.

562 REPERTOIRE 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 literature.

563 REPERTOIRE AND PEDAGOGY: STRING INSTRUMENTS 3 credits
Prerequisite: permission of instructor. Study in depth of the four bowed string instruments, their history and close relationship. Despite obvious difference in physical application of cells and bass from violin and viola, methods of bowing, sound production and coloring are close- ly related. Application of the instruments to solo, chamber and orchestral playing.

567 GUITAR PEDAGOGY 2 credits
Prerequisite: permission of instructor. A systematic analysis of prevailing schools of guitar pedag- ogy. sound production psychology, method books and special problems in teaching addressed.

568 GUITAR ARRANGING 2 credits
Prerequisite: permission of instructor. After comparative analyses of selected examples, stu- 

569 HISTORY AND LITERATURE OF THE GUITAR AND LUTE 2 credits
Prerequisite: permission of instructor. Study of plucked, fretted, string instruments from the 15th Century to the present. Topics include tuning, notation, literature and performance practices. Modern editions and recordings evaluated.

570 STUDIES IN CHORAL LITERATURE I: MEDIEVAL-RENAISSANCE 2 credits
A study of choral repertoire in terms of general structure, character, voicing, notation, pitch, omer- 

573 STUDIES IN CHORAL LITERATURE II: BAROQUE 2 credits
A study of the repertoire in terms of general structure, character, voicing, notation, pitch, orma- 

572 STUDIES IN CHORAL LITERATURE III: CLASSIC-ROMANTIC 2 credits
A study of the repertoire in terms of general structure, character, voicing, notation, pitch, orma- 

615 MUSICAL STYLES AND ANALYSIS I 2 credits
Prerequisite: permission of instructor. After comparative analyses of selected examples, stu- 

616 MUSICAL STYLES AND ANALYSIS II 2 credits
Prerequisite: permission of instructor. In-depth exploration of innovative practices and trends in music education. Finding of research and practice related to prevailing situations in pub- lic/local school programs.

617 INSTRUCTIONAL PROGRAMMING IN MUSIC FOR THE MICROCOMPUTER 3 credits
Prerequisite: 452/653 Introduction to programming languages for the microcomputer includ- ing BASIC, Pascal and Assembly. Programming will be directed towards music educational concepts.

618 MEASUREMENT AND EVALUATION IN MUSIC 3 credits
Prerequisite: permission of instructor. Study and application of principles of music aptitude, music achievement and content evaluation; and research as a function of evaluation.

620 MUSICAL STYLES AND ANALYSIS I 3 credits
Prerequisite: permission of instructor. Detailed study of compositional techniques and stylis- tic traits observed in Western music from period of Gregorian chant through music of Palestrina and others of late Renaissance.

621 MUSICAL STYLES AND ANALYSIS II 3 credits
Prerequisite: permission of instructor. Detailed study of compositional techniques and stylis- tic traits observed in Western music in 20th Century.

622 THEORY AND PEDAGOGY 2 credits
Prerequisite: permission of instructor. Methodology of theory teaching in 20th Century. Focus on differing philosophies of instruction and evaluation of instruction as noted from tests on subject. Recent innovations and techniques of teaching, such as programmed material, computer- assisted instruction studied.

624 COMPUTER ANALYSIS IN MUSIC 2 credits
Prerequisite: a minimum of one course in the 619/638 series. A systematic study of analytic techniques in music which make use of the computer. Hands-on experiences with music encoding, card manipulation, concrete, systems and program writing as related to music analysis.

625 MUSIC HISTORY SURVEY: MIDDLE AGES AND RENAISSANCE 2 credits
Prerequisite: permission of instructor. Survey of music literature under the choral and instrumental styles in the Middle Ages and Renaissance. Research and writing in areas of special interest.
622 MUSIC HISTORY SURVEY: BAROQUE
Prerequisite: permission of instructor. Historical and stylistic analysis of Baroque music; study in depth of specific examples from 1600 to 1750; study of synthesis and approaches normal to study of music history; selected readings related to each student's particular field of interest; project papers.

623 MUSIC HISTORY SURVEY: CLASSIC AND ROMANTIC
Prerequisite: permission of instructor. Historical and stylistic analysis of classic and romantic music; study in depth of specific examples, through recordings, scores and live performances; disconnection and synthesis of approaches normal to study of music history; selected readings related to each student's particular field of interest; project papers.

624 MUSIC HISTORY SURVEY: MUSIC SINCE 1900
Prerequisite: permission of instructor. Historical and stylistic analysis of music since 1900; study in depth of specific examples through recordings and live performances, continuation and synthesis of approaches normal to study of music history; selected readings and project papers.

625 GRADUATE BIBLIOGRAPHY AND RESEARCH IN MUSIC
Prerequisite: Undergraduate music degree of equivalent. Examination of all types of published music materials; research methods for thesis preparation and professional publishing; field trips to music libraries, computerized music research.

627 COMPUTER STUDIO DESIGN
The design and maintenance of a computer lab. Emphasis on hardware and software setup to maximize function and minimize maintenance.

630 TEACHING AND LITERATURE: BRASS INSTRUMENTS
Prerequisite: permission of instructor. Research in current trends and issues in brass teaching techniques and appropriate literature.

631 TEACHING AND LITERATURE: WOODWIND INSTRUMENTS
Prerequisite: permission of instructor. To delineate and clarify contemporary techniques of woodwind pedagogy and to develop a comprehensive understanding of woodwind woodwind literature.

632 TEACHING AND LITERATURE: PIANO AND HARPISCHORD
Prerequisite: permission of instructor. The examination of piano and harpsichord literature in historically and chronologically ordered with special attention to its pedagogical value and stylistic differences.

634 TEACHING AND LITERATURE: STRING INSTRUMENTS
Prerequisite: permission of instructor. Research in current trends and issues in string teaching techniques and appropriate literature.

640,1,2,3 ADVANCED ACCOMPANYING I, II, III, IV
Prerequisite: Graduate standing in keyboard performance and/or accompanying or the permission of the instructor. An in-depth study of principles of accompanying, sight reading, standard repertoire, and transposition.

653 ELECTRONIC MUSIC

657 STUDENT RECITAL
Required of all music majors. Forum for student and faculty providing lectures, recitals, and opportunity to practice skills for successful music performance.

665 VOCAL PEDAGOGY
Prerequisite: permission. In-depth study of subjects dealing with teaching of voice: phonology of vocal instrument, principles governing vocal production and application of vocal pedagogy.

666 ADVANCED SONG LITERATURE
Prerequisite: permission of instructor. Systematic study of song literature presented chronologically according to national schools of composition. Stylistic, compositional characteristics and representative works of all major composers of solo song literature.

675 SEMINAR IN MUSIC EDUCATION
(May be repeated for a total of 6 credits) Intensive examination of special topics in the field of music education.

676 WORKSHOP IN CHORAL MUSIC EDUCATION
(May be repeated for a total of 6 credits) A seminar dealing with the selection of choral repertoire for multiple choir programs at all levels. Approaches to score preparation, programming, rehearsal, and vocal techniques will be studied.

687 ADVANCED PROBLEMS IN MUSIC
(May be repeated for a total of 8 credits) Prerequisite: permission of graduate advisor. Studies or research projects related to problems in music.

688 GRADUATE RECITAL
Prerequisite: permission of graduate advisor. Recital prepared and presented as a requirement for any appropriate degree option. If recital document is to be written in conjunction with the recital, add 698 for the additional credit. Once passed, may not be repeated for credit.

699 MASTER'S THESIS/PROJECT
Prerequisite: permission of graduate advisor. Research related to the completion of the master's thesis, project, or recital document written in conjunction with the graduate recital, depending on the student's degree option.

MUSICAL ORGANIZATIONS 7510:

652 AKRON SYMPHONY CHORUS
Open to University and community members by audition. Prospective members should contact School of Music two weeks before semester begins. Performs with Akron Symphony Orchestra.

653 UNIVERSITY SYMPOPHY ORCHESTRA
Membership by audition. Organization devoted to study of orchestral literature. Full-length concerts as well as special University appearances. Major conducted ensemble.

654 SYMPHONIC BAND
Membership by audition. The University Symphonic Band is the most select band at the University and performs the most demanding and challenging music available.

655 VOCAL CHAMBER ENSEMBLE
Membership open to those enrolled in applied voice study. Coaching and rehearsal of solo and ensemble literature for voices from operatic, oratorio and lieder repertoires.

656 BRASS ENSEMBLE
Membership open to those enrolled in applied voice study. Coaching and rehearsal of solo and ensemble literature for voices from operatic, oratorio and lieder repertoires.

657 STRING ENSEMBLE
Membership by audition. In-depth study and performance of chamber music literature with special emphasis on string quartet and piano trio.

658 OPERA WORKSHOP
Membership by audition. Musical and dramatic group study of excerpts from operatic repertoire. Includes annual production of standard opera and/or contemporary chamber work with staging, costumes and scenery.

609 PERCUSSION ENSEMBLE
Membership by audition. Study and performance of literature for various percussion groups; semester-long study and performance of percussion skill in ensemble performance.

610 WOODWIND ENSEMBLE
Membership by audition. Study and performance of woodwind literature from all periods for various combinations of woodwinds. Develops performance skills and knowledge of woodwind literature.

614 KEYBOARD ENSEMBLE
Involves three hours a week of accompanying. Keyboard major required to enroll for at least one year. Music education major may substitute another musical organization for one year.

615 JAZZ ENSEMBLE
Membership by audition. Provides experience in jazz ensemble performance. A student is assumed to have knowledge of rudiments of music and some experience in jazz ensemble performance.

618 SMALL ENSEMBLE MIXED
Membership by audition. Chamber Ensemble, Baroque Ensemble and Contemporary Music Ensemble. Each is a group of diverse instruments which rehearse and performs a selected body of music.

620 CONCERT CHOIR
Membership by audition. Highly select mixed choir. Performs classical literature from all periods, choral, regional, and tour performances. "Major conducted ensemble" for vocal majors.

621 UNIVERSITY SINGERS
Membership by audition. Mixed ensemble devoted to performance of a wide variety of choral literature from classical to popular. "Major conducted ensemble" for vocal majors.

625 CONCERT BAND
Membership by Audition. Performs the finest in concert band literature available for concert bands today.

626 MARCHING BAND
This organization is noted for its high energy performances a University football games. Enrollment is open to all members of the University student body.

627 BLUE AND GOLD BRASS
The official band for Akron home basketball games. Membership is by audition.

628 UNIVERSITY BAND
The University Band is open to all members of the University community and performs excellent standard band literature. All music majors are required to complete a placement audition each fall semester. Major conducted ensemble.

629 BLUE AND GOLD BRASS II
The official band for Akron home ladies basketball games. Membership is by audition.

APPLIED MUSIC 7520:

521-569 APPLIED MUSIC FOR MUSIC MAJORS
The following courses are intended for a student majoring in one of the programs in the Department of Music. Courses levels correspond approximately to class standing (90 for freshman, 200 for sophomore, etc.). A student may progress up one level by successfully completing the applied music class usually offered in the spring semester. NOTE: No more than three credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level.

521 PERCUSSION
522 CLASSICAL GUITAR
523 HARP
524 VOICE
525 PIANO
526 ORGAN
527 VIOLIN
528 VIOLA
529 CELLO
530 STRING BASS
531 TRUMPET OR CORNET
532 FRENCH HORN
533 TROMBONE
534 BARITONE
535 Tuba
536 FLUTE OR PICCOLO
537 OBOE OR ENGLISH HORN
538 CLARINET OR BASS CLARINET
539 BASSOON OR CONTRABASSOON
540 SAXOPHONE
541 HARPISCHORD

542 PRIVATE LESSONS IN MUSIC COMPOSITION
2-4 credits each
(May be repeated) Prerequisites: 7500:252 and permission of instructor; 7500:452 recommended. Private instruction in composition. For student whose major is theory/composition.

569 JAZZ VOCAL STYLES
621-661 GRADUATE STUDY IN APPLIED MUSIC
2 or 4 credits each
(May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition.

621 PERCUSSION
622 CLASSICAL GUITAR
623 HARP
624 VOICE
625 PIANO
626 ORGAN
627 VIOLIN
628 VIOLA
629 CELLO
COMMUNICATION 7600:

500 HISTORY OF JOURNALISM IN AMERICA 3 credits
A survey and analysis of the historical evolution of journalism in America, focusing primarily on newspapers, magazines, radio, television.

508 WOMEN, MINORITIES AND NEWS 3 credits
Study of images of women and minorities in U.S. news, along with the power women and minorities have as decision-makers in the news industry.

516 NEW MEDIA WRITING 3 credits
Prerequisite: 201 or permission of the instructor. Focuses on the relationship between politicians, citizens, and media.

517 JEWISH MEDIA IN THE RENAISSANCE 3 credits
Prerequisite: 201 or permission of the instructor. Focuses on the relationship between politicians, citizens, and media.

520 MAGAZINE WRITING 3 credits
An advanced writing class designed to develop the specialized reporting, researching, and writing skills needed in consumer and specialized business magazines today.

525 COMMERCIAL ELECTRONIC PUBLISHING 3 credits
This advanced class allows in-depth investigation of the business and production principles of electronic publishing of magazines.

530 COMMUNICATION IN ORGANIZATIONS 3 credits
Overview of theories and approaches for understanding communication flow and practices in organizations, including interdepartmental, networks, superordinate, formal and informal communication.

536 ANALYZING ORGANIZATIONAL COMMUNICATION 3 credits
Prerequisite: 330 or 430/530 or permission of instructor. Focuses on the relationship between politicians, citizens, and media.

537 TRAINING METHODS IN COMMUNICATION 3 credits
Prerequisite: 410 or permission of instructor. Focuses on the relationship between politicians, citizens, and media.

538 HEALTH COMMUNICATION 3 credits
This course presents an overview of health communication theory and research issues in interpersonal, small group, organizational, public relations, and mass media contexts.

546 WOMEN, MINORITIES, AND MEDIA 3 credits
Examination of the media's portrayal of white women and people of color and the roles women and minorities have as decision-makers in the news industry.

559 LEADERSHIP AND COMMUNICATION 3 credits
Theories of leadership and communication across public, organizational, small group, interpersonal, and political contexts. Assessment tools provided. Guest speakers.

562 ADVANCED MEDIA WRITING 3 credits
Prerequisites: 280, 280, 361 or equivalent. Focuses on the relationship between politicians, citizens, and media.

568 ADVANCED AUDIO/VIDEO EDITING 3 credits
Theory and practice of multi-track sound mix for video productions.

571 THEORIES OF RHETORIC 3 credits
Focuses on the relationship between politicians, citizens, and media.

575 POLITICAL COMMUNICATION 3 credits
Focuses on the relationship between politicians, citizens, and media.

581 FILM AS ART: AN INTRODUCTION TO THE FILM FORUM 3 credits
Exploring the formal laws that govern a film and acquainting the students with the film narrative and its stylistic elements.

590 COMMUNICATION WORKSHOP 1-3 credits
(May be repeated for a total of six credits) Group study or group projects investigating a particular phase of media not covered by other courses in curriculum.

593 PRODUCTION PRACTICUM 3 credits
Prerequisite: permission. Practical application of writing, directing, management, recording, and editing skills in problems in electronic media production.

600 INTRODUCTION TO GRADUATE STUDY IN COMMUNICATION 3 credits
Introduction to the ideas and scholarship that constitute the various research interests in the department.

603 EMPirical RESEARCH IN COMMUNICATION 3 credits
Introduction to elementary concepts of empirical and quantitative research and their application in studies of mass media research topics.

604 INTRODUCTION TO QUANTITATIVE RESEARCH IN COMMUNICATION 3 credits
Prerequisites: 603 or equivalent. Focuses on the relationship between politicians, citizens, and media.

605 COMMUNICATION PROBLEMS IN THE BASIC SPEECH COURSE 1 credit
Designed to train a graduate student in methods and materials of introductory speech course. Required of all teaching graduate assistants.

608 COMMUNICATION PEDAGOGY 3 credits
Focuses on the relationship between politicians, citizens, and media.

624 SURVEY OF COMMUNICATION THEORY 3 credits
Study of dimensions of field of communication: information analysis, social interaction and semantic analysis.

625 THEORIES OF MASS COMMUNICATION 3 credits
A review and analysis of the historical evolution of journalism in America, focusing primarily on newspapers, magazines, radio, television.

626 CONTEMPORARY PRACTICAL RELATIONS THEORY 3 credits
Study and practical application of communication concepts, theories and skills relevant to public relations programs in businesses and nonprofit organizations.

645 INTERCULTURAL COMMUNICATION THEORY 3 credits
Analysis of the impact on the communication process of cultural difference between communicators; examination of existing literature in intercultural communication.

670 INTRODUCTION TO COMMUNICATION CRITICISM 3 credits
Introduces the basic elements, approaches and types of critical discourse as it is relevant to communication and mass media studies.

680 GRADUATE COMMUNICATION INTERNSHIP 1-6 credits
(May be repeated for a total of six credits.) Prerequisites: must have attained the category of full admission and be in good standing in the School's graduate program; must receive permission of internship placement approval and research proposal. Provides communication graduate students with opportunity to obtain experience and to apply knowledge of academic concepts in a supervised work setting in the communication field.

691 ADVANCED COMMUNICATION STUDIES 3 credits
(May be repeated for a total of six credits.) Special topics in communication in areas of particular faculty expertise. Consult department for particular topic each semester.

697 GRADUATE RESEARCH IN COMMUNICATION 14 credits
(May be repeated for a total of six credits.) Prerequisites: 7800-600 and approval of project prospectus one term prior to undertaking the project. Performance of research on problems found in mass media communication.

698 MASTER’S PROJECT/PRODUCTION 14 credits
(May be repeated for a total of six credits.) Prerequisite: Permission of the school director. Requires of all teaching graduate assistants.

699 MASTER’S THESIS 14 credits
(May be repeated for a total of six credits.) Prerequisite: Permission of the school director.
709 AUDILOGIC ASSESSMENT
Prerequisite: 705, 743. Theoretical basis for tests underlying basic audiologic assessments. 3 credits

710 INDUSTRIAL AND COMMUNITY NOISE
Prerequisite: admission to the Au.D. program or permission of instructor. Theoretical principles of noise measurement; etiology of noise-induced hearing loss and acoustic trauma, industrial hearing conservation program, Occupational Health and Safety Act; community and recre-ational noise evaluation and management. 3 credits

711 SPEECH-LANGUAGE PATHOLOGY FOR THE AUDIOLIST
Prerequisite: admission to the Au.D. program or permission of instructor. Examination of nor- mal and abnormal aspects of speech and language including their impact on auditory function and testing. 4 credits

712 DIAGNOSIS OF AUDITORY DISORDERS
Prerequisite: 708. Understanding theory and principles of administration and interpretation of site-lesion tests. 3 credits

713 HEARING AID TECHNOLOGY
Prerequisite: 710. Study of amplification systems for the hearing impaired. 4 credits

714 GERONTOLOGICAL ISSUES IN AUDIOLOGY
Prerequisite: admission to the Au.D. program or permission of instructor. Psychological, phys-iological, and sociological theories of aging with a focus on the etiology, symptomatology, assessment, and rehabilitation of older adults with hearing impairments. 3 credits

715 CENTRAL AUDITORY PROCESSING: EVALUATION AND MEASUREMENT
Prerequisites: 705 and 706. Study of audiologic evaluation and habilitation/rehabilitation pro-cesses for people having central auditory impairments. 3 credits

716 ADULT HEARING AID FITTING AND SELECTION
Prerequisite: 713. Examination of the theory and practice of fitting hearing aids. Emphasis on the technologies required to meet the needs, and evolving technology in hearing instruments (includes 1 credit hour lab). 3 credits

717 PEDIATRIC AUDIOLOGY
Prerequisite: 709. Study of diagnostic and auditory habilitative protocols for the birth to 3 population. Both assessment and management strategies will be emphasized. 3 credits

718 COCHLEAR ImPLANTS
Prerequisite: admission to the Au.D. program or permission of instructor. Study of cochlear implants in children and adults including equipment, candidacy, mapping, and overview of re(habilitation). 3 credits

719 COUNSELING IN AUDIOLOGY
Prerequisite: admission to the Au.D. program or permission of instructor. Focus on interview-ing, counseling, and interacting with individuals with hearing impairments, their families, and significant others. 3 credits

720 PEDIATRIC AMPLIFICATION
Prerequisites: 713, 716, 717. The focus of study is on amplification systems and fitting tech-niques for the pediatric population. 3 credits

721 EVALUATION AND MANAGEMENT OF BALANCE DISORDERS
Prerequisite: admission to the Au.D. program or permission of instructor. Study of the balance mechanism; differential diagnostic assessment of balance disorders including electomyog-raphy, posturography, and vestibular testing; rehabilitation of the balance disordered patient (includes 1 credit hour lab). 3 credits

722 AUDIOLOGIC MANAGEMENT OF THE SCHOOL-AGED CHILD
Prerequisite: 717. Focus on the role of the audiologist. Functionality of for the pediatric population. 3 credits

723 AUDIOLOGIC REHABILITATION OF ADULTS
Prerequisite: 717. Study of current methodologies employed in the audiologic rehabilitation of adults with hearing impairments. Implementation of remedial strategies is emphasized. 3 credits

724 HISTORY OF AUDIOLOGY
Prerequisite: admission to the Au.D. program or permission of instructor. An examination of the history of deafness/hearing impairment and the profession of audiology. 1 credit

725 MEDICAL MANAGEMENT OF AUDITORY DISORDERS
Prerequisite: 712. A study of the multidisciplinary approach to medical/surgical management of patients with auditory and vestibular disorders. 2 credits

726 ELECTROPHYSIOLOGICAL TECHNIQUES IN AUDIOLOGY
Prerequisite: 708. Study of evoked responses used in diagnostic audiologic, including ABR, MLR, ECochG, ENOG, AUR, VEP, and SSEP. 3 credits

727 CULTURAL ISSUES IN DEAFNESS
Prerequisite: admission to the Au.D. program or permission of instructor. Study of the deaf community. 2 credits

728 SEMINAR IN AUDIOLOGY
Prerequisite: admission to the Au.D. program or permission of instructor. Selected current top-ics in audiology with emphasis on review of current literature. Course may be repeated up to six credits. 2 credits

729 RESEARCH PROJECT IN AUDIOLOGY
Prerequisite: admission to the Au.D. program or permission. Completion of a Doctoral Research Project including data collection, analysis, write-up, and oral presentation. 3 credits

730 PRACTICE MANAGEMENT IN AUDIOLOGY
Prerequisite: admission to the Au.D. program or permission of instructor. Study of issues which impact the management of audiological practices including establishing a private prac-tice, reimbursement, marketing, and professional liability. 4 credits

731 SEMINAR: SUPERVIS ED PROFESSIONAL EXPERIENCE
Course requirements: 750 or 751 or permission of instructor. In-depth consideration of topics/issues in the practice of audiology with emphasis upon issues related to clinical rotation issues. Repeatable up to six credits. 24 credits

741 DIRECTED OBSERVATION IN AUDIOLOGY I
Prerequisite: admission to the Au.D. program or permission of instructor. Introduction to clin-ical practicum in Audiology. Directed observation of clinical practice including audiologic diag-nosis and audiologic rehabilitation are required. Repeatable up to six credits. 1 credit

742 DIRECTED OBSERVATION IN AUDIOLOGY II
Prerequisite: 741. Introduction to clinical practicum in Audiology. Directed observation of clini-cal practice including audiologic diagnosis and audiologic rehabilitation are required. Repeat-able up to six credits. 1 credit

743 CLERKSHIP I
Corequisite: 709. Clinical practicum in audiology during which students perform discrete tasks under supervision. Repeatable for up to 6 credits. 1 credit

744 CLERKSHIP II
Prerequisite: 743. Supervised clinical practicum in audiology during which students will per-form discrete clinical tasks while under supervision. Repeatable for up to 6 credits. 1 credit

745 INTERNSHIP IN AUDIOLOGY I
Prerequisites: 743 and permission. Supervised practicum in audiology requiring the indepen-dent performance of basic audiological procedures, including hearing aid management. Repeatable up to eight credits. 2 credits
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<tr>
<th>Course Code</th>
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<td>544</td>
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**SOCIAL WORK**

**Graduate Courses**

**Graduate Courses**

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<th>Course Code</th>
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<tr>
<td>554</td>
<td>SOCIAL WORK IN JUVENILE JUSTICE</td>
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<td>552</td>
<td>SOCIAL WORK IN MENTAL HEALTH</td>
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<td>SOCIAL WORK IN CHILD WELFARE</td>
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<td>530</td>
<td>HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT II</td>
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<td>HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT I</td>
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<td>525</td>
<td>SOCIAL WORK ETHICS</td>
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<td>SOCIAL WORK PRACTICE III</td>
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<td>751</td>
<td>SUPERVISED PROFESSION EXPERIENCE IN AUDIOLOGY I</td>
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<tr>
<td>752</td>
<td>SUPERVISED PROFESSION EXPERIENCE IN AUDIOLOGY II</td>
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**Additional Notes**

- **SOCIAL WORK IN JUVENILE JUSTICE**: Prerequisites: 476 or permission of instructor. Supersedes 426. Supervised clinical practicum in social work requiring the integration of multiple aspects of social work practice, including the performance of diagnostic, educational, counseling, and multidisciplinary rehabilitation procedures. Repeatable up to eight credits.
- **SOCIAL WORK IN MENTAL HEALTH**: Prerequisites: 476 or permission of instructor. Supervised clinical practicum in social work which encompasses all aspects of social work practice and rehabilitation. Repeatable for up to 9 credits.
- **SOCIAL WORK IN CHILD WELFARE**: Prerequisites: 476 and permission. Supervised clinical practicum in social work which encompasses the entire range of diagnostic procedures including psychological, social, and behavioral assessment and rehabilitation. Repeatable for up to 9 credits.
- **HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT II**: Prerequisites: 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.
- **SOCIAL WORK PRACTICE III**: Prerequisites: 476 or permission of instructor. Development of understanding and application of methods for utilization of community organization and social planning as social work process in assessing problems and developing programs to meet needs.
- **MINORITY ISSUES IN SOCIAL WORK PRACTICE**: Prerequisite: 276 or permission of instructor. Must be taken prior to or concurrently with 401 and must be taken either in other practice courses 402, 403, 404. Racial, ethnic and cultural issues in social work related to various practice and theoretical perspectives, to various types of social problems, service agencies, individual family, group, community and societal contexts integrated with the methodological processes of the social work practitioners.
- **WOMEN’S ISSUES IN SOCIAL WORK PRACTICE**: Prerequisite: 276 or permission of instructor. Social work practice, knowledge and social welfare institutions and social policy in relation to women’s issues and concerns in the United States.
- **SOCIAL WORK ETHICS**: Prerequisite: 276 or permission of instructor. Social Worker’s code of ethics as applied to practice, problems and issues in social work.
- **HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT I**: Prerequisites for 427: 276 or permission of instructor; for 527: permission of instructor. Social work perspective on human development across the life cycle. Human diversity approach consistent with the needs of social work students preparing for practice.
- **HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT II**: Prerequisites: for 425, 426, 427 or permission of instructor; for 530: permission of practice area emphasis. Emphasis on social workers’ understanding of and use of individual interaction and group work with family systems as a system, groups, roles, organizations, community, and culture.
- **SOCIAL WORK RESEARCH I**: Prerequisites for 440: 276 or permission of instructor; for 540: permission of instructor. Social work practice - emphasis on the utilization of the research method in the conduct of practice and utilization of research and social work research as found in social work and social science literature for improvement and advancement of social work practice.
- **SOCIAL WORK RESEARCH II**: Prerequisite for 441: 440 or permission of instructor; for 541: permission of instructor. Evaluation of social work intervention with individual, group and community. Processing and interpreting agency information for better practice, policy and administrative decisions.
- **SOCIAL POLICY ANALYSIS FOR SOCIAL WORKERS**: Prerequisite for 445: 276 or permission of instructor. For 446: undergraduate social work degree or permission. Description, analysis and construction of social policy in social services; to understanding forces and processes which establish or change social policies, to predict consequences of social policies, and to establish goals for social policy development; integrated into effective social work methodology.
- **SOCIAL NEEDS AND SERVICES FOR LATER ADULTHOOD AND AGING**: Prerequisite: 276 or permission of instructor. Application of knowledge and principles of process of social work practice and understanding of social work role in meeting needs of aging and later maturity individuals, families and communities and institutions serving them and their relatives.
- **SOCIAL WORK IN CHILD WELFARE**: Prerequisite: 276 or permission of instructor. In-depth exploration of structure and functioning of family agencies designed to help children, and of practice of social work in child-welfare settings. Consideration of supportive, supplementary, and substitute services.
- **SOCIAL WORK IN MENTAL HEALTH**: Prerequisite: 276 or permission of instructor. Issues, organization, development, and methodology of current professional social work in mental health settings.
- **SOCIAL WORK IN JUVENILE JUSTICE**: Prerequisite: 276 or permission of instructor (undergraduate). The theory and practice of social work in juvenile justice. Traditions of the United States, and contemporary social work development, prevention, diversion and community outreach, legal concerns, case management and professional functioning.
- **THE BLACK FAMILY**: Prerequisite: 276 or permission of instructor. Contemporary problems facing black families; major family relationships, single parent households, black teens and elderly, public policy, theoretical models, explanations, and development of the black family.
- **SOCIAL WORK IN HEALTH SERVICES**: Prerequisite: 276 or permission of instructor. Policies, programs and practice in health-care settings; short-term, intermediate and long-term, hospitals, outpatient services, emergency services, clinics, visiting nurse services, nursing homes, psychiatric services, self-help organizations.
663 PSYCHOPATHOLOGY AND SOCIAL WORK 3 credits
Prerequisite: second level graduate student or permission of instructor. An examination of the symptoms, theories, and psychosocial aspects of mental illness, and the role of the social worker in the treatment of mental disorders.

664 DIRECT PRACTICE RESEARCH 3 credits
Prerequisite: second level graduate student or permission of instructor. Provides students with advanced knowledge and skills in the methodology of social work research and skills to implement an evaluation study of their intervention with clients.

665 SUPERVISION AND STAFF DEVELOPMENT 3 credits
Prerequisite: second level graduate student or permission of instructor. An examination of the purpose, functions, and theories of supervision; the impact of cultural, ethnic and racial differences on supervision/staff development; and problems encountered.

671 SOCIAL WORK ADMINISTRATION 3 credits
Prerequisite: second level graduate student or permission of instructor. This course focuses on supervisory and managerial roles and functions as they are carried out at different hierarchical levels in human service organizations.

672 COMMUNITY ORGANIZATION AND PLANNING 3 credits
Prerequisite: must have completed first year of master's program. Required for all second year social work students concentrating on Macro Practice sequence. Prepares students to work in communities and in public and private agencies.

673 STRATEGIES OF COMMUNITY ORGANIZATION 3 credits
Prerequisite: second level graduate student or permission of instructor. Emphasizes the historical development and application of several community strategies used to identify community problems, and how to organize and empower diverse community groups.

674 COMMUNITY, ECONOMIC SYSTEMS AND SOCIAL POLICY ANALYSIS 3 credits
Prerequisite: second level graduate student or permission of instructor. This course provides a base for understanding economic systems and analyzing the political framework at federal, state, and local levels and their impact on communities.

675 PROGRAM EVALUATION 3 credits
Prerequisite: second level graduate student or permission of instructor. This course provides students with methods of evaluating programs in agencies, including approaches to measurement, design, data collection and analyses employed in program outcome research.

676 FISCAL MANAGEMENT OF SOCIAL AGENCIES 3 credits
Prerequisite: second level graduate student or permission of instructor. This elective course concentrates on the financial management of social administration, financial planning and management, principles of economic and fiscal exchange, accountability and fiscal accounting.

680 AGING AND SOCIAL PRAXIS 3 credits
Prerequisite: second level graduate student or permission of instructor. An examination and evaluation of aging programs and policies, demographic trends and the changing role of social work service providers.

681 AGING: POLICIES AND PROGRAMS 3 credits
Prerequisite: second level graduate student or permission of instructor. An examination and evaluation of aging programs and policies, demographic trends and the changing role of social work service providers.

685 SOCIAL WORK PRACTICE: FAMILY AND CHILDREN 3 credits
Prerequisite: second level graduate student or permission of instructor. Examines the major problems encountered by children and families in the life cycle and explores intervention strategies and programs to address their needs and strengths.

686 SOCIAL WORK PRACTICE AND SERVICES: FAMILY AND CHILDREN 3 credits
Prerequisite: second level graduate student or permission of instructor. Examines the federal and state laws, policies, and services governing children and families, including the supportive, supplemental and substantive aspects of social legislation.

690 ADVANCED PRACTICE AND POLICY IN SUBSTANCE ABUSE 3 credits
Prerequisite: second level graduate student or permission of instructor. This course provides students the knowledge and skill base necessary for managing and practice with people involved in substance abuse, evaluating programs, and preventive work.

695 HEALTH CARE: PLANNING AND POLICY ISSUES 3 credits
Prerequisite: second level graduate student or permission of instructor. This course is designed to orient students to the planning and policy issues in health care, and how social work can interface with health care.

696 EPIDEMIOLOGICAL ANALYSIS OF HEALTH AND SOCIAL PROBLEMS 3 credits
Prerequisite: second level graduate student or permission of instructor. This course applies the epidemiological method to social work practice, such as treatment groups, making administrative decisions, in planning and evaluation, and doing preventive work.

THEATRE 7800:

567 CONTEMPORARY THEATRE STYLES 3 credits
A detailed examination of representative plays of the contemporary theatre.

570 THEATRE IN EDUCATION 3 credits
An in-depth examination with current theories, methods, and materials in P-12 theatre education and process drama techniques. Field experience provided when possible.

575 ACTING FOR THE MUSICAL THEATRE 3 credits
Prerequisite: permission of graduate coordinator of theatre arts program. Research related to production projects and major departmental productions.

580 ADVANCED TECHNICAL THEATRE 3 credits
Prerequisite: permission. Faculty supervised work experience in which student participates in the production of Theatre 7800:3:686. May be repeated for a total of nine credits.
### Graduate Courses

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#### Notes:
- 640: Prerequisite: Admission into the Nurse Anesthesia program. The course presents content dealing with the chemical and physical components of anesthesia agents.
- 641: Prerequisite: 640. The study of intravenous induction agents, injectable anesthetics and inhalated anesthetics commonly used in the administration of general anesthesia. Includes use of muscle relaxants.
- 642: Prerequisite: admission into the Nurse Anesthesia program. This course provides a general overview of anesthetic concepts and principles, and helps students secure in their in-hospital residency. The course includes a lecture component and selected laboratory experiences.
- 643: Prerequisites: 640. This course focuses on the acquisition of basic skills related to nursing anesthe-sia care and administration of anesthesia agents, with a focus on equipment.
- 644: Prerequisites: 643. Emphasis on pre-operative anesthe-sia care including induction techniques. Discusses airway management, fluid therapy, and ventilator use.
- 645: Prerequisites: 637. Concentration on the theoretical basis for specific nursing interventions and the rationale for their use in thoracic anesthesia, cardiac anesthesia, vascular anesthesia, and neurosurgical anesthesia management.
- 646: Professional education content as well as professional ethical issues.
- 650: Prerequisites: acceptance to Child and Adolescent Health Nursing track or permission of facul-ty. Corequisite: 651. Advanced pediatric/adolescent assessment and clinical reasoning for primary care health nursing with introduction to differential diagnosis and management.
- 651: Prerequisites: 657. Clinical practicum course emphasizing primary care health nursing to enhance positive health behavior outcomes of well children/adolescents and those with minor health disruptions and problems in family/community contexts.
- 652: Prerequisite: Admission into Child and Adolescent Health Nursing NP track or Post MSN Child and Adolescent Health Nursing NP program. Clinical practice course emphasizing primary care nursing to enhance positive health behavior outcomes of well children/adolescents and those with minor health disruption/problems in family/community contexts.
- 653: Prerequisites: 648. Comprehensive review of basic and advanced anesthetic concepts important to the anesthe-sia nurse anesthetist.
- 654: Prerequisites: admission to MSN program, 608. Examines principles of pharmacology and therapeutics for psychopharmacologic agents used to manage behavioral health care needs. Focuses on clinical competencies and therapeutic techniques in the delivery of behavioral health care to individuals.
- 655: Prerequisites: acceptance to Child and Adolescent Health Nursing track or Post MSN Child and Adolescent Health Nursing NP program. Clinical practice course emphasizing primary care nursing to enhance positive health behavior outcomes of well children/adolescents and those with minor health disruption/problems in family/community contexts.
- 656: Prerequisites: 651. Clinical practicum course emphasizing primary care health nursing to enhance positive health behavior outcomes of children/adolescents with acute and/or chronic health disruption in family/community contexts.
- 657: Clinical practicum course emphasizing primary care health nursing to enhance positive health behavior outcomes of well children/adolescents and those with minor health disruption/problems in family/community contexts.
- 659: Clinical practicum course emphasizing primary care health nursing to enhance positive health behavior outcomes of well children/adolescents and those with minor health disruption/problems in family/community contexts.
- 661: Prerequisites: 648. Comprehensive review of basic and advanced anesthetic concepts important to the anesthe-sia nurse anesthetist.
- 663: Prerequisites: 648. Comprehensive review of basic and advanced anesthetic concepts important to the anesthe-sia nurse anesthetist.
- 665: Clinical practicum course emphasizing primary care nursing to enhance positive health behavior outcomes of well children/adolescents and those with minor health disruption/problems in family/community contexts.
665 BEHAVIORAL HEALTH NURSING II 3 credits
Prerequisites: 610, 660, 661. Corequisite: 664. Focuses on advanced practice behavioral health nursing with an emphasis on developing the skills necessary to deliver care to patients with complex mental health problems. Theoretical frameworks for direct intervention are examined.

666 BEHAVIORAL HEALTH NURSING III 3 credits
Prerequisites: 664, 665. Corequisite: 666. Focuses on consultation, collaboration and program development in behavioral health systems. Frameworks for practice in psychiatric and non-psychiatric settings are discussed.

667 BEHAVIORAL HEALTH NURSING PRACTICUM 2 credits
Prerequisites: 664, 665, 666, 674. Development of clinical competencies in consultation, collaboration, and program development in behavioral health nursing practice. Practice is in a variety of advanced practice settings.

668 PRACTICUM: BEHAVIORAL HEALTH NURSING 5 credits
Prerequisites: 667.668. Integration of knowledge and skill related to behavioral health nursing: emphasis on integration of advanced practice nursing roles and implementation and evaluation of comprehensive intervention in acute and chronic health care settings.

671 ADULT/GERONTOLOGICAL HEALTH NURSING CNS I 2 credits

672 ADULT/GERONTOLOGICAL HEALTH NURSING CNS II 2 credits
Prerequisites: 671,674. Corequisites: 612, 676. Focuses on acute and chronic care of middle aged/older adults and their families experiencing chronic illness. Emphasizes management of problems common to chronic care and rehabilitation.

673 PRACTICUM: ADULT/GERONTOLOGICAL HEALTH NURSING CNS 4 credits
Prerequisites: 671, 674, 675. Corequisite: 676. Focuses on acute and chronic care of middle aged/older adults and their families experiencing chronic illness. Emphasizes management of problems common to chronic care and rehabilitation.

674 INSTRUCTIONAL METHODS IN NURSING EDUCATION 3 credits
Prerequisite: admission to the Advanced Role Preparation in Nursing Education certificate program. Study of a variety of instruction methods used in nursing education. Includes teaching and learning methods used in classroom, laboratory, and clinical settings.

675 NURSING CURRICULUM DEVELOPMENT 3 credits
Prerequisite: admission to the Advanced Role Preparation in Nursing Education certificate program. Development of curriculum with a focus on teaching-learning strategies. Emphasis is on process of developing a curriculum.

683 EVALUATION IN NURSING EDUCATION 3 credits
Prerequisite: admission to the Advanced Role Preparation in Nursing Education certificate program. Focuses on evaluation and measurement to situations in nursing education. Emphasizes evaluation as a process. Includes evaluation of teaching, learning, and program.

684 PRACTICUM: THE ACADEMIC ROLE OF THE NURSE EDUCATOR 3 credits
Prerequisites: 681, 682, 683. Precepted study and practice in the role of a nurse educator. Each experience is designed to provide the student with the opportunity to provide clinical supervision of a group of students.

690 CLINICAL MANAGEMENT I 3 credits
Prerequisites: Admission to the Adult/Gerontological Nursing Practitioner track or the Post-MSN Adult/Gerontological Nursing Practitioner certificate program. 620 or 621, 625, 693. Clinical management of complex chronic health problems of adults in primary health care settings. Focus on interdisciplinary management using differential diagnosis and clinical reasoning.

691 ACUTE CARE NURSE PRACTITIONER I 4 credits

692 CLINICAL MANAGEMENT II 3 credits
Prerequisites: admission to Adult/Gerontological Nursing Practitioner track or the Post-MSN Adult/Gerontological Nursing Practitioner certificate program and 620 or 621; corequisite: 623 or 626. Clinical management of complex chronic health problems using consultation, collaboration, and referral in selected primary health care settings.

694 ACUTE CARE NURSE PRACTITIONER II 4 credits
Prerequisite: 691; corequisite: 692. Focus is on advanced nursing interventions related to system management of chronic health care problems in tertiary settings.

696 ACUTE CARE NURSE PRACTITIONER III 4 credits
Prerequisite: 693; corequisite: 696. Focus of the course is on nursing management of patients with complex health care problems.

698 PRACTICUM: ACADEMIC ROLE OF THE NURSE EDUCATOR 2 credits
Prerequisites: 681, 682, 683. Directed study and practice in classroom and clinical teaching. Presentation of a researchable topic. Course may be waved based on submission of an approved portfolio.

702 FIELD EXPERIENCE IN NURSING 1-2 credits
Prerequisite: Admission to the Ph.D. Program or permission of instructor. Individual field experience in research, preceptorship, or internship settings related to nursing.

706 SPECIAL TOPICS IN NURSING 1-6 credits
Prerequisite: Admission to the Ph.D. Program or permission of instructor. Study of an important topic in nursing practice, research, or the profession. Offering in response to existing interest and opportunities. Topics will be announced when scheduled.

800 DOCTORAL DISSERTATION II 1 credit
Prerequisite: 899 and permission of the dissertation chairperson. Continuing enrollment to complete the doctoral dissertation.

810 HISTORY AND PHILOSOPHY OF NURSING SCIENCE 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Examines the nature of metaphysics and epistemology and the influence of contemporary Eastern and Western philosophies on the developing epistemology of disciplinary nursing knowledge. (KSU 70701)

815 THEORY CONSTRUCTION AND DEVELOPMENT IN NURSING 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Focuses on theory development, including logical-empirical-inductive and inductive approaches. Emphasis will be on using both the inductive and deductive strategies used in theory building. (KSU 70702)

820 INTRODUCTION TO NURSING KNOWLEDGE DOMAINS 3 credits
Prerequisite: 810 and 815. Corequisite: 815. Introductory seminar analyzing selected theoretical and methodological approaches to knowledge development in nursing. Emphasis on critical analysis of knowledge of special interest. (KSU 70703)

825 QUANTITATIVE RESEARCH METHODS 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor: An integrated approach to the study of quantitative research. Exploration of the interdependent relationship between quantitative and qualitative approaches to common health problems. Emphasis on comprehensive assessment, health promotion and risk reduction.

830 QUALITATIVE RESEARCH METHODS 3 credits
Prerequisites and methods, and evaluation to the Ph.D. Program or permission from the instructor. Selected qualitative research methods used to study nursing phenomena. Philosophical bases; design, data collection, and analysis; evaluation of rigor; and ethical issues covered. Major qualitative methods will be analyzed with regard to nursing phenomena. (KSU 70703)

835 NURSING AND HEALTH CARE POLICY 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Focuses on the political and legislative process, and contemporary policy dilemmas. (KSU 70703)

836 ADVANCED INTERDISCIPLINARY LEADERSHIP FOR THE HEALTH SCIENCES 4 credits
Prerequisite: Admission to the Ph.D. Program or permission of the instructor. Seminar on advanced leadership in health sciences to assist students to become leaders within practice, academia, and the community.

837 ADVANCED HEALTH CARE STATISTICS I 3 credits
Prerequisites: 627 and admission to the Ph.D. Program or permission of instructor. Focus is on in-depth understanding of one qualitative research approach (chosen by student according to further research plans), including associated philosophical foundations, key concepts, typical methodology, and evaluative criteria.

840 NURSING SCIENCE SEMINAR 3 credits
Prerequisite: 820. Seminar on critical analysis and synthesis of theoretical models and empirical research that form the foundation for the student’s research. Funding sources are examined.

846 AMNR: MEASUREMENT IN NURSING RESEARCH 3 credits
Prerequisite: 620 and admission to the Ph.D. Program or permission of instructor. Focus is on measurement principles and techniques commonly used in health care and nursing research.

848 AMNR: PROGRAM EVALUATION IN NURSING 3 credits
Prerequisite: 620 and admission to the Ph.D. Program or permission of instructor. Seminar and study of theories of evaluation and their relationships to designs, processes, techniques, and outcomes in nursing-related evaluations.

849 AMNR: GRANT DEVELOPMENT AND FUNDING 3 credits
Prerequisite: 620 and admission to the Ph.D. Program or permission of instructor. Focus is on development of a grant proposal.

850 NURSING SCIENCE SEMINAR 3 credits
Prerequisite: 820 and 840. Focuses on advancement of student’s scholarship within one of the following areas: discovery, teaching, integration, or application through design and implementation of a faculty-facilitated project. (KSU 87091)

883 EVALUATION IN NURSING EDUCATION 3 credits
Application of evaluation and measurement principles to nursing education. Emphasis on evaluation as both process and outcome. Includes evaluation of program, curriculum, course, and learner.

898 PRACTICUM: ACADEMIC ROLE OF THE NURSE EDUCATOR 2 credits
Prerequisites: 860, 861, 862, 863. Directed study and practice in classroom and clinical teaching. Presentation of a researchable topic. Course may be waved based on submission of an approved portfolio.

899 DOCTORAL DISSERTATION 1-15 credits
Prerequisite: 899 and permission of the dissertation chairperson. Continuing enrollment to complete the doctoral dissertation.
Polymer Science & Polymer Engineering

POLYMER ENGINEERING  9841:

525 INTRODUCTION TO BLENDING AND COMPOUNDING POLYMERS  3 credits
Prerequisite: 600-620 or permission. Nature of polymer blends and compatible polymers and their applications. Preparation and technology using batch and continuous mixers. Mixing and compounding.

527 MOLD DESIGN  3 credits
Prerequisite: 420-321 or 4600-310 or permission. Molding methods to manufacture polymer products. Machinery, molds, equipment, computer-aided design.

565 BLENDING PROPERTIES OF POLYMERS  3 credits
Prerequisite: 4600-310 or permission. Introduction to engineering properties and polymer processing. Analyzing mechanical polymer tests in glassy, rubbery, and fluid states. Product design, rheology, rheometry, and polymer processing concepts.

551 POLYMER ENGINEERING LABORATORY  3 credits
Prerequisite: 420-321, corequisite: 432. Laboratory experiments on the rheological characteristics of polymer melts, fabrication of engineering products, structural investigation of polymeric parts.

601 POLYMER ENGINEERING SEMINAR  1 credit
Presentations of recent research on 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, birefringence, dichroism, Crystallography, unit cell determination.

621 RHEOLOGY OF POLYMERIC FLUIDS  3 credits

622 ANALYSIS AND DESIGN OF POLYMER PROCESSING OPERATIONS I  3 credits
Prerequisite: 621. Mathematical modeling and engineering design analysis of polymer processing operations including extruder screws, melt injection, dies, fibers, film formation.

623 ANALYSIS AND DESIGN OF POLYMER PROCESSING OPERATIONS II  3 credits
Prerequisite: permission of instructor. Basic studies on non-isothermal phenomena in polymer engineering emphasizing crystallization, vitrification, freeze-in orientation and residual stress development, including fiber spinning and film extrusion.

631 ENGINEERING PROPERTIES OF SOLID POLYMERS  2 credits
Transitions as a function of polymer structure, optical characteristics, mechanical including ultimate properties, creep, viscoelastic behavior of elastomers and plastics, large strain behavior. Emphasis on experimental methods.

641 POLYMER MATERIALS ENGINEERING SCIENCES  2 credits
Physical and mechanical properties of amorphous and crystalline polymers. Glass transition, crystallization, molecular orientation and morphology of important commercial polymers, fabricat-ed products and composite materials.

642 ENGINEERING ASPECTS OF POLYMER COLOIDS  2 credits
Thermodynamic properties of polymer colloids, solgelf transformation, rheology of polymer solutions, gels, suspensions and emulsions, phase separation, applications to paints and plastics technology.

650 INTRODUCTION TO POLYMER ENGINEERING  3 credits
Basic concepts of general and polymer engineering taught in lecture-recitation format intend-ed to provide solid background for students interested in polymer technology. Emphasis on polymer technology for product development.

651 POLYMER ENGINEERING LABORATORY  3 credits
Rheological characterization of polymer melts, rubber and plastic extrusion, extrudate swell, injection and compression molding, crystallization behavior, vapor diffusion, film blushing, impact and tensile testing.

661 POLYMERIZATION REACTION ENGINEERING  3 credits
Polymers in kinetic, design, reactor design, comparison of polymerization in batch and continuous stirred tank reactors, flow patterns around agitators, tubular reactors, reactor stability.

670 POLYMER NANOCOMPOSITES  3 credits
Prerequisites: 3150/263, 264, 315, 314, 9841/4700/381, 321 or permission of instructor. Development of basic understanding of synthesis, characterization, processing and properties of polymer nanocomposites involving nanoscale 1-3 dimensional fillers with thermosetting, thermoplastics and elastomeric polymers.

675 CARBON-POLYMER NANOTECHNOLOGY  3 credits
Prerequisite: Permission of instructor. This course focuses on the fundamental aspects of nano-technology in general and basic knowledge of polymer/carbon nanoscience and nanotechnol-ogy in particular.

680 POLYMER COATINGS  3 credits
Prerequisite: Permission of instructor. This course is an introduction to coating science. The synthesis of polymeric binders and pigments used in commodity coatings will be the focus of the first part of the course. The second part of the course will focus on coatings formulation and end-use applications for commodity coatings.

699 MASTER’S THESIS  3 credits
(May be repeated) Supervised original research in specific area of polymer engineering.

711 ADVANCED ELECTROMAGNETIC AND OPTICAL PROPERTIES AND INVESTIGATIONS OF POLYMERS  3 credits
Maxwell’s equations with application to anisotropic dielectrics, birefringence and dichroism and representation of orientation, local optical properties, piezoelectricity, scattering and diffraction of x-rays and light. Micromechanics, scattering, applications.

712 RHEO-OPTICS OF POLYMERS  2 credits
Application of two-optical methods as means of determining stress fields in polymer glasses and melts during deformation, rheo-optical properties of polymers in glasses, rubbery and fluid states. Theory of dynamic birefringence and its application to mechanical relaxations of amorphanous and semi-crystalline polymers, and recent experimental results.

713 RADIATION SCATTERING AND DIFFRACTION BY POLYMERIC MATERIALS  2 credits
Principles of scattering and diffraction theory as applied to polymer crystals, glasses and multilayer systems. Wide angle and small angle x-ray, light and neutron scattering, analysis and determination of crystal structures, mathematical description of orientation distribution of polymer molecules and determination of orientation factors by WAXD and other methods.

720 MOLECULAR ASPECTS OF POLYMER RHEOLOGY  2 credits
Prerequisite: 621 or permission of instructor. Molecular theory for concentrated solutions and melts of flexible homopolymers, molecular rheology of miscible polymer blends, block copolymers, and liquid crystalline polymers.

721 RHEOLOGY AND PROCESSING TWO-PHASE POLYMER SYSTEMS  2 credits
Prerequisite: 622 or equivalent. Particle-particle interactions, mixing devices and design, rheo-technical hydrodynamics of suspensions of rigid particles, experimental studies of rheological behavior, phenomenological theories representing orientation behavior, dispersion of droplets to form an emulsion, phase morphology development and rheological properties of blends.

722 ADVANCED MODELING OF POLYMER PROCESSING  2 credits
Prerequisite: permission of instructor. Modeling of processing operations including extrusion molding, fiber and film processing, computer-aided design.

723 RHEOLOGY AND PROCESSING OF ELASTOMERS  2 credits

727 ADVANCED POLYMER RHEOLOGY  2 credits
Prerequisite: 621 or equivalent. Second level course in non-linear constitutive equation for viscoelastic, viscoelastoviscoplastic material laws. Utility and applicability to poly-mer processing problems.

728 NUMERICAL ANALYSIS OF POLYMER PROCESSING OPERATIONS  2 credits
Prerequisite: permission of instructor. Analyzes of case studies involving flows of polymer melts through channels of single and twin-screw extruders and dies and molds with the aid of commercial softwares such as Polyflow and Moldflow.

731 STRESS ANALYSIS OF POLYMERS AND COMPOSITES  2 credits
Prerequisite: 651. The theory of composite materials, bearings and sandwich components with demonstration of finite element methods. Classical plates and shells theories with applica-tions to composite structures.

741 PHASE TRANSFORMATIONS IN POLYMERIC MATERIALS  2 credits
Prerequisite: permission of instructor. Thermodynamics, nucleation and kinetics of growth of new phases, spinodal decomposition and related mechanisms, crystallization, crystal-crystal transformation, stress induced crystallization.

743 POLYMER BLENDS AND ALLOYS  2 credits
Thermodynamics of miscibility and relationship to structure of components, compatibilizing blending procedures, mechanical properties and property-structure relationships.

745 LIQUID CRYSTALS  2 credits
Prerequisite: permission of instructor. Structure of low molecular weight and polymer liquid crystals, characterization, rheology of polymer solutions including optical properties, phase transitions, structure-property relationships, processing of polymeric systems.

773 ADVANCED POLYMER COATING TECHNOLOGY  2 credits
Prerequisite: 641 or equivalent or permission of instructor. The polymer binders used in radio-curable coatings for electronic packaging and waterborne coatings will be stressed. The chemistry of dyes and the coatings science of pigments will be presented. The chemistry of polymer degradation will also be covered.
POLYMER SCIENCE 9871:

610 POLYMER CONCEPTS 2 credits
Prerequisite: 350:264 and 350:334 or equivalent courses or permission of instructor. Introduction to basic concepts in polymer science, including polymerization, copolymerization processes and naturally occurring polymers. Polymer nomenclature, definitions and classifications. Polymer stereochemistry and structure-property relationships.

602 SYNTHESES AND CHEMICAL BEHAVIOR OF POLYMERS 2 credits
Prerequisite: 601 or instructor's permission. Introduction to fundamentals and practical aspects of polymer synthesis and reactions of polymers, general knowledge of laboratory and commercial methods for polymer preparation, practical examples.

604 SPECIAL PROJECTS IN POLYMER SCIENCE 3 credits
Prerequisite: permission. Research projects of limited nature assigned to student entering polymer science program. Intended to familiarize student with typical problems and techniques in this field.

6039 POLYMER SCIENCE SEMINAR I AND II 1 credit each
Prerequisite: limited to first- and second-year graduate students. Participants are to present a 25-minute lecture on some aspect of polymer science and to participate in discussions of lectures presented by other seminar participants.

613 POLYMER SCIENCE LABORATORY 3 credits
Prerequisites or corequisites: at least one of the courses 601, 631, 634, or 701, or permission of instructor. Laboratory experiments in synthesis, characterization, physical properties and processing and testing of polymers.

615 LABORATORY COMPUTER APPLICATIONS IN POLYMER SCIENCE 3 credits
Prerequisite: Basic knowledge of computer programming and permission of instructor. Laboratory use of computers in polymer science research for data acquisition, data analysis, graphing, and preparation of reports and thesis.

631 PHYSICAL PROPERTIES OF POLYMERS I 2 credits
Prerequisite: permission of instructor. Thermodynamic and molecular basis of rubber elastic behavior; time-dependent mechanical properties of polymeric materials; melt-flow and entanglements; the morphology of crystalline polymeric materials; fracture of polymers.

632 PHYSICAL PROPERTIES OF POLYMERS II 2 credits
Prerequisite: 631 or permission of instructor. Normal-coordinate theories of molecular motion and applications to time-dependent mechanical, electrical, and scattering properties of polymeric systems; time-temperature superposition, free volume, WLF relation; fracture; glass transition.

674 POLYMER STRUCTURE AND CHARACTERIZATION 2 credits
Prerequisites: 350:264 and 350:334 or permission of instructor. Presentation of statistical description of polymer molecular properties including chain polymerization and degradation, characterization of conformation, molecular weight, local structure, crystal structures and ordering.

675 POLYMER THERMODYNAMICS 2 credits
Prerequisite: 634 or permission of instructor. Presentation of the theories and experiments concerning polymer solutions, polymer phase equilibria, and polymeric phase transitions and dilute solution steady-state transport.

699 MASTER'S THESIS 16 credits
Prerequisite: permission. For properly qualified candidate for master's degree. Supervised original research in polymer science, under direction of faculty member, followed by submission of thesis.

701 POLYMER TECHNOLOGY I 2 credits
Principles of compounding and testing, processing principles and types of operation, design principles.

702 POLYMER TECHNOLOGY II 2 credits
Prerequisite: 701 or permission of instructor. Rubber industry, rubber compounding and processing, vulcanization methods, physical testing, plastics preparation and compounding, manufacturing processes. Lecture/laboratory.

703 POLYMER TECHNOLOGY III 2 credits
Prerequisite: 702 or permission of instructor. Flow properties, extrusion, calendaring and milling, molding, mixing, bond operations, engineering properties, rubber springs, viscoelastic analysis design consideration. Lecture/lab/laboratory.

704 CONDENSATION POLYMERIZATION 2 credits
Prerequisite: 350:463/563 or permission of instructor. Survey of the theory and practice of condensation polymerization. Numerous commercial examples are presented with special emphasis being placed on the properties and applications of polymers prepared by this technique. Structure-property relationships are highlighted for each major polymer class.

705 FREE RADICAL REACTIONS IN POLYMER SCIENCE 2 credits
Prerequisite: 340:405/553 or permission on instructor. Covers the kinetics and mechanisms of free radical initiated reactions encountered in polymer science, including polymerization methods, detailed considerations of the initiation, propagation and termination steps in vinyl polymerizations and copolymerization, preparation of block and graft copolymers by free radical initiated reactions and the mechanisms of free radical induced polymer degradation reactions.

706 IONIC AND MONOMER INSERTION REACTIONS 2 credits
Prerequisite: 350:463/563 or permission of instructor. Covers the scope, kinetics and mechanisms of polymerizations initiated by amides, carboxylic acids and anions as well as polymerizations induced by coordination catalysts. Living polymerizations, molecular weights, molecular weight distributions, stereo-chemistry, solvent effects, counter-ion effects, temperature effects, ZieglerNatta catalysis, olefin metathesis, functionalization of polymers, graft and block copolymer synthesis.

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 wherever applicable.

899 DOCTORAL DISSERTATION 1-16 credits
Open to properly qualified students accepted as candidates for Doctor of Philosophy in Polymer Science depending on the availability of staff and facilities.
Grievance Procedures for Graduate Students

Purpose
The procedures set forth in this document are intended to provide graduate students with a formal channel of appeal and redress of grievances arising out of their academic and/or employment relationship with the University.

Procedures
1. Any graduate student who believes that he or she has valid grounds for a complaint shall attempt to resolve the problem through a conference with the faculty member involved, the department head, and/or the graduate advisor. Following that, the student may attempt to resolve the problem with the assistance of the academic dean. A graduate student presenting a case to the academic dean must provide a 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 complaint, the Chairperson shall be responsible for informal resolution. The Chairperson shall waive the hearing and shall direct the parties involved to attempt to resolve the problem.

7. If the charged party in that grievance admits the validity of the grievance, the Chairperson of the Hearing Committee shall conduct the hearing and shall direct the parties involved to attempt to resolve the problem.

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, 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 Head. If the grievance is filed against the department, the Senior Vice President and Provost shall substitute for the Department.
   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 advisory colleague present to protect his/her rights if so desired. However, the parties shall speak and act on their own behalf. Witnesses may be called to present evidence on behalf of the complainant or the charged person. The use of tape recorders is prohibited, except as may be required to accommodate persons with disabilities.

4. All parties shall be entitled to an expedited hearing. In urgent cases in which it is alleged that a regulation, administration decision, or action threatens immediate and irreparable harm to any of the parties involved, the Hearing Committee shall expedite the hearing and disposition of the case. The Hearing Committee is empowered to recommend to the Dean of the Graduate School that an individual, 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 fair play shall prevail in the adjudication of violations and grievances.

6. If necessary, the Hearing Committee may consult with the University’s Office of General Counsel for advice at any time throughout this process.

Decisions and Actions
1. The Hearing Committee shall decide as follows: there has been a violation of the complainant’s rights, or there has been no violation of the complainant’s rights.

2. Should the Hearing Committee determine that a violation of the complainant’s rights occurred, the Committee shall, if practical, recommend a resolution to the Senior Vice President and Provost.

3. The Senior Vice President and Provost, exercising his/her judgment, shall act on the implementation of the resolution recommended by the Hearing Committee.

Record Keeping
The Chairperson of the Hearing Committee shall be responsible for keeping a summarized, written record of all the proceedings.

1. Records of all proceedings shall be prepared by the secretarial personnel of the Graduate School. Copies of all proceedings shall be distributed as follows:
   a. To all parties involved in the proceedings.
   b. To the Hearing Committee members.
   c. To the President of the Graduate Student Government.
   d. To the Dean of the Graduate School.
   e. To the Senior Vice President and Provost.

2. A copy of all proceedings shall be kept in the office of the Dean of the Graduate School pursuant to the University’s record retention proposal.

Appeal
An appeal may be made to the President of the University after all of the above procedures have been followed. The President of the University shall assess each case on an individual basis and his/her decision shall be considered final.
The Family Educational Rights and Privacy Act (FERPA) protects the privacy of students and allows students and parents to have rights with respect to their Education Records. The following outlines your rights under 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 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 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 students or parents’ 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. These officials include representatives of 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.

**Annual Notification**
Each year, The University of Akron is required to give notice of the various rights accorded to parents or students pursuant to the Family Education Rights and Privacy Act (FERPA). Parents and students, under FERPA, have a right to be so notified and informed. In accordance with FERPA, you are notified of the following:

**Right to Prevent Disclosures**
You have the right to prevent disclosure of Education Records to third parties with certain limited exceptions. It is the intent of The University of Akron to limit the disclosure of information contained in your Education Records to those instances where prior written consent has been given for disclosures, as an item of directory information of which you have not refused to permit disclosure, or under the provisions of FERPA which allows disclosure without prior written consent.

**Right to Inspect**
You have the right to review and inspect substantially all of your Education Records maintained at or by The University of Akron.

**Right to Request an Amendment**
You have the right to have corrected any parts of any Education Record that you believe to be inaccurate, misleading, or otherwise in violation of your FERPA rights. This right includes the right to a hearing to present evidence that the record should be changed if this institution decides not to alter the Education Record.

**Release of Directory Information**
The Family Educational Rights and Privacy Act of 1974 (FERPA) permits The University of Akron to release directory (public) information about students. Director (public) information includes the student’s name, local (mailing) address, telephone number, major field of study, participation in officially recognized activities and sports, the student’s photograph, weight and height of members of athletic teams, dates of attendance, degrees and awards received, and the most recent previous education agency or institution attended by the student.

**Withhold Directory Information**
If a student asks for directory information to be withheld, it will be withheld from a variety of sources, including friends, relatives, prospective employers, honor societies, the news media, and the commencement program. Students should carefully consider the consequences of a decision to withhold directory information.

Students may obtain a “DIRECTORY INFORMATION RESTRICTION REQUEST” form at http://www3.uakron.edu/registrar/DirInfoRel.doc or at the Office of the University Registrar. Completed forms must be provided to the Office of the University Registrar more than ten (10) days prior to the starting date of the semester or summer session for instructions to be effective for that semester. Return to: Office of The University Registrar, The University of Akron, Akron, Ohio 44325-6208, or fax to (330) 972-6097.
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.

In the event you think you have been omitted as an inventor on a patent application, or improperly omitted from the list of authors, 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.

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/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.

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 in 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 as re-evaluation by patent counsel shall only occur with the prior knowledge of your faculty advisor, Department Chair and Dean.
DIRECTORY

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LUIS M. PROENZA, President of the University, Ph.D.
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RICHARD L. AVNES, Dean of the School of Law, McDowell Law Center 136, 972-7331
JAMES BARNETT, Dean of the College of Business Administration, College of Business Administration Building, 419, 972-7041
CYNTHIA F. CAPERS, Dean of the College of Nursing, Mary Gladwin Hall 101, 972-7552
KARLA T. MUGLER, Dean of the College of Engineering, Heizleton E. Simmons Hall 302, 972-7066

Graduate Council

September 2005

GEORGE R. NEWKOME, Vice President for Research and Dean of the Graduate School, Chair

Term expires August 31, 2006

Charles Beneke, MFA, College of Fine and Applied Arts
Martin D. Murphy, Ph.D., College of Arts and Sciences: Social Sciences
Erol Sancaktar, Ph.D., College of Polymer Science and Polymer Engineering
Ochukwu Ugojiwe, Ph.D., College of Engineering

Term expire August 31, 2007

Brian P. Bagatto, Ph.D., College of Arts and Sciences: Natural Sciences
Francis S. Broadway, Ph.D., College of Education
Michael F. D’Amico, DBA, College of Business Administration
Terril H. Hallett, Ph.D., College of Fine and Applied Arts
Claire A. Tessier, Ph.D., College of Arts and Sciences: AS-Large

Term expire August 31, 2008

Lu-Kwang Ju, Ph.D., College of Engineering
Paramjit Kahai, Ph.D., College of Business Administration
Huey Li, Ph.D., College of Education
Hillary Nunn, Ph.D., College of Arts and Sciences: Humanities

Term expires August 31, 2011

MRS. ANN AMER BRENNAN (Term expires 2012)
MRS. JAMES M. FAUST (Term expires 2010)

Student Trustees

MRS. JAMES M. FAUST (Term expires 2005)
MS. ELIZABETH M. KOVAC (Term expires 2006)

Graduate Faculty*

September 2005

Luis M. Proenza, President; Professor of Biology; Adjunct Professor of Education; Adjunct Professor of Political Science (January 1999) B.A., Emory University; M.A., The Ohio State University; Ph.D., The University of Minnesota, 1971.
Stephen H. Abbey, Professor of Bibliography; Education Bibliographer (August 1988) B.A., University of Texas at Austin; M.A., University of Houston; Ph.D., State University of New York at Buffalo; M.L.S., Kent State University, 1984.
Maria Adamowicz-Haras, Associate Professor of Modern Languages (1995) M.A., Maria Curie-Sklodowska University, Poland; M.A., Ph.D., University of Pennsylvania, 1994.
Aigbe Akighie, Professor of Finance, Frederick W. Mayer Chair in Finance (2000) B.S., University of Jos; M.S., University of Southwestern Louisiana; M.B.A., Ph.D., University of Houston, 1991.
M. Kay Alderman, Professor of Education (1979) B.S., University of Southern Mississippi; M.Ed., University of Texas at Austin; Ed.D., University of Houston, 1976.
Sonia Alemagno, Associate Professor of Public Administration and Urban Studies; Director, Institute for Health and Social Policy; (1998) B.A., John Carroll University; M.A., Kent State University; Ph.D., Case Western Reserve University, 1991.
Carolyn M. Anderson, Professor of Communication (1995) B.A., University of Detroit; M.A., Wayne State University; Ph.D., Kent State University, 1992.
L. Leigh Anerson, Assistant Professor of Business Law (2001) B.S., California State University, Long Beach; J.D., The University of Akron; LL.M., The Georgetown University Law Center, 1996.
Jerome E. Apple, Instructor in Accounting (August 1996) B.A., The Ohio State University; J.D., Cleveland State University; M.T., The University of Akron, 1987.
William B. Arbuckle, Associate Professor of Civil Engineering (July 1982) B.S.C.H.E., Ohio University; M.S.E.E., Ph.D., University of North Carolina, 1975.
Steven R. Ash, Assistant Professor of Management (2001) B.A., M.B.A., Ph.D., New Mexico State University, 1996.
Mark S. Auburn, Dean of Fine and Applied Arts; Professor of English; Professor of Dance, Theatre and Arts Administration (July 1991) B.S., B.A., The University of Akron; M.A., Ph.D., University of Chicago, 1971.
Kenneth E. Appperle, Professor of Management (1986) B.A., M.A., Western Michigan University; M.B.A., Kansas State University; Ph.D., University of Georgia, 1987.
James F. Austin, Associate Professor of Education (1987) B.A., M.A., Ph.D., Case Western Reserve University, 1971.
Brian P. Bagatto, Assistant Professor of Biology (2001) B.S., Queen’s University; M.A., Auburn University; Ph.D., University of North Texas, 2001.
Christopher P. Banks, Associate Professor of Political Science; Editor, Series of Law, Politics, and Society (1995) B.A., University of Connecticut; J.D., University of Dayton; Ph.D., University of Virginia, 1995.
S. Olly Baranowski, Professor of History; Associate Department Chair of History (1988) B.A., Wells College; M.A., Ph.D., Princeton University, 1980.
Celal Batur, Department Chair of Mechanical Engineering, Professor of Mechanical Engineering (February 1980) B.Sc., M.Sc., The Technical University of Istanbul; Ph.D., The University of Letchester, 1976.
Rose A. BeeRon, Assistant Professor of Nursing (2009) B.S., The Ohio State University; B.S., Ursuline College; M.S, Case Western Reserve University; D.N.Sc, Rush University, 2001.
Rahajoe M. Berry-James, Assistant Professor of Public Administration and Urban Studies (2000) B.S., Rider College; M.A., Kean College of New Jersey; Ph.D., Rutgers University, 1999.
Wieslaw K. Biendeia, Professor of Civil Engineering; Department Chair of Civil Engineering (1988) M.S., Warsaw Technical University; M.S.E., Ph.D., Drexel University, 1980.
David Black, Assistant Professor of Geology (2001) B.S., Ph.D., University of Miami, 1998.
Todd Alan Blackledge, Assistant Professor of Biology (January 2005) B.S., George Washington University; Ph.D., The Ohio State University, 2000.
Tracy J. Boisseau, Associate Professor of History (1999) B.A., Suffolk University; M.A., George Washington University; Ph.D., Binghamton University, 1996.

* The dates in parentheses indicate the beginning of service at The University of Akron; unless otherwise stated, service began in the month of September.

KATHRYN M. FELTEY, Associate Professor of Sociology (January 1988) B.A., M.A., Wright State University; Ph.D., The Ohio State University; Doctor of Technology, University of New York at Buffalo, 1970.

RUDY FENWICK, Professor of Sociology (1979) B.A., University of Oklahoma; M.A., McGill University; Ph.D., Duke University, 1978.


TODD FINKLE, Associate Professor of Management; Director of the Fitzgerald Institute; Intellectual Property Center Fellow (1997) B.S., D.O.C., University of Nebraska; M.B.A., University of Wisconsin-Madison, 1990.

ELAINE M. FISHER, Assistant Professor of Nursing (1988) B.S.N., The University of Akron; M.S.N., Kent State University, 1985.

VIRGINIA L. FITCH, Assistant Professor of Music; Director of Vocal Activities (1991) B.A., M.M., Ph.D., West Virginia University, 1984.

KAREN C. FLYNN, Assistant Professor of Education; Associate Professor of Education (February 2000) B.S., Colorado College; M.A., Indiana University; Ph.D., University of Maryland, 1996.

LESLEY J. GORDON, Associate Professor of Management (1985) B.S., M.B.A., University of Pennsylvania; M.S., West Virginia University, 1984.

MARK D. FOSTER, Professor of Chemistry (1980) B.S., University of Illinois; Ph.D., University of Illinois, 1980.

GEORGE C. GIAKOS, Associate Professor of Mechanical Engineering; Associate Professor of Materials Science (1981) B.S., M.S., Ph.D., University of Wisconsin-Madison, 1993.


SUCHARITA GHOSH, Associate Professor of Public Administration; Associate Professor of Public Administration (2000) B.S.S.W., M.A., University of Akron; Ph.D., University of Maryland, 1985.

J. CLAYTON FANT, Associate Professor of Management; Director of the Fitzgerald Institute; Intellectual Property Center Fellow (1997) B.S., D.O.C., University of Nebraska; M.B.A., University of Wisconsin-Madison, 1990.

JERRY A. GOODWIN, Professor of Business Administration (1989) B.S., M.B.A., Ph.D., University of Akron; Ph.D., The Ohio State University, 1991.

KAREN C. FLYNN, Associate Professor of Political Science; Associate Professor of Public Administration (2000) B.S., M.A., University of Akron; Ph.D., University of Maryland, 1985.

ELAINE M. FISHER, Assistant Professor of Nursing (1988) B.S.N., The University of Akron; M.S.N., Kent State University, 1985.


RICHMAN W. HAIRE, Professor of Art; Acting Director, School of Art (August 1990) B.A., Rochester Institute of Technology; M.F.A., State University of New York at Buffalo, 1970.

ALI HAJJAFAR, Associate Professor of Mathematics; Program Coordinator of Mathematics (1984) B.S., M.S., Ph.D., University for Teacher Education in Tehran, Iran; M.S., Ph.D., Michigan State University, 1989.

ROASOLE J. HALL, Associate Professor of Psychology; Fellow; Institute for Life-Span Development and Gerontology (1988) B.S., Nebraska Wesleyan University; M.A., University of Maryland, 1986.

STEPHEN F. HALLAM, Professor of Management (1995) B.S., M.S., Illinois State University; Ph.D., University of Iowa, 1975.

TERRY L. HALLETT, Assistant Professor of Speech-Language Pathology and Audiology (2000) B.S., M.A., Kent State University; Ph.D., Pennsylvania State University, 1994.

GARY R. HAMEL, Professor of Business (1981) B.S., Eastern Michigan University; M.S., Purdue University, 1973.

KRISTINE M. GILL, Associate Professor of Chemical Engineering; Associate Professor of Engineering; Fellow, Institute for Life-Span Development and Gerontology (1988) B.S., Nebraska Wesleyan University; M.A., University of Maryland, 1986.

ALI HAJJAFAR, Associate Professor of Mathematics; Program Coordinator of Mathematics (1984) B.S., M.S., Ph.D., University for Teacher Education in Tehran, Iran; M.S., Ph.D., Michigan State University, 1989.

ALI HAJJAFAR, Associate Professor of Mathematics; Program Coordinator of Mathematics (1984) B.S., M.S., Ph.D., University for Teacher Education in Tehran, Iran; M.S., Ph.D., Michigan State University, 1989.

NANCY K. GRANT, Associate Professor of English; Associate Professor of History; Americanist Coordinator (1989) B.A., University of Kentucky; M.A., Western Kentucky University; Ph.D., University of Colorado, 1986.

JAMES E. GROVER, Professor of Accounting (1985) B.A., M.A., University of Minnesota; M.A., Ph.D., University of California, 1985.

ANTONIA M. FORSTER, Associate Professor of Communication; Fellow, Institute for Life-Span Development and Gerontology (1988) B.S., Nebraska Wesleyan University; M.A., University of Maryland, 1986.

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JOSEPH M. WALTON, 1986-1989, Ph.D. (Dean of Graduate Studies and Research)

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