Calendar 2015-2016

Fall Semester 2015
Day and evening classes begin Mon., Aug. 31
*Labor Day (day and evening) Mon., Sept. 7
Fall Graduation Application Due Thu., Oct. 1
Veterans Day (classes held; staff holiday) Wed., Nov. 11
Final Thesis/Dissertation Deadline Mon., Nov. 16 **Thanksgiving Break Thu.-Sun., Nov. 26-Nov. 29 Classes resume Mon., Nov. 30
Final instructional day Sun., Dec. 13
Final examination period Mon.-Sun., Dec. 14-20 Commencement Fri.-Sat., Dec. 18-19
Winter Recess Mon.-Sun., Dec. 15-Jan. 11

Spring Semester 2016
*Martin Luther King, Jr. Day Mon., Jan. 18
Day and evening classes begin Tue., Jan. 19
*Presidents’ Day Tue., Feb. 16
Spring Graduation Application Deadline Tue., Mar. 1
Spring Break Mon.-Sun., Mar. 21-Mar. 27
Classes resume Mon., Mar. 28
Final Thesis/Dissertation Deadline Mon., Apr. 11
Final instructional day Sun., May 8
Final examination period Mon.-Sun., May 9-May 15 Commencements Fri.-Sun., May 13-15
School of Law Commencement Sun., May 22

Summer Sessions 2016
Intersession begins Mon., May 23
*Memorial Day Mon., May 30
Summer Graduation Application Deadline Wed., Jun. 1
Intersession ends Sun., Jun. 12
Five Week I and Eight Week Sessions begin Mon., Jun. 13 *Independence Day Mon., Jul. 4
Five Week I ends Sun., Jul. 17
Five Week II begins Mon., Jul. 18
Final Thesis/Dissertation Deadline Mon., Jul. 18
Eight Week ends Sun., Aug. 7
Five Week II ends Sun., Aug. 21
Summer Commencement Sat., Aug. 22

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

Interim Dean, Graduate School
Dr. Chand Midha .............................................. 972-7857
Student Services Counselor
Ms. Stephanie Baker ......................................... 972-5858
Administrative Assistant Senior
Ms. Heather A. Blake ........................................ 972-7664
Director, Graduate Student Development
Dr. Heather E. Burton ....................................... 972-2135
Coordinator, Graduate Student Financial Aid
Mrs. Karen L. Caldwell .................................... 972-5858
Manager, Graduate Admissions
Ms. Theresa M. McCune .................................. 972-8233
Student Services Counselor
Mrs. Leanne McNicholas .................................. 972-5169
Student Services Counselor
Mrs. Megan Richardson .................................. 972-5296

Graduate School

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

Colleges

Buchtel College of Arts and Sciences ......................... 972-7880
College of Applied Science and Technology .................. 972-6375
College of Business Administration .......................... 972-7442
College of Education ......................................... 972-2632
College of Engineering ....................................... 972-6978
College of Health Professions ................................ 972-7551
College of Polymer Science and Polymer Engineering ....... 972-7500
NEOMED (Northeast Ohio Medical University) .............. 325-2511
The University of Akron–Wayne College ....................... 1-800-221-8308

Other Offices

Accessibility, Office of ...................................... 972-7928
TTY/TDD ..................................................... 972-5764
Career Center .................................................. 972-7747
Center for Child Development ............................... 972-8210
Counseling Center ............................................ 972-7082
English Language Institute .................................. 972-7544
Financial Aid, Office of Student .............................. 972-7032
Toll-Free ..................................................... 1-800-621-3847
Health Services, Student ..................................... 972-7808
International Programs ....................................... 972-6349
Immigration .................................................... 972-6296
J-1 Scholars/SEVIS ......................................... 972-8391
Libraries, University
Bierce Library .................................................. 972-8161
Law Library .................................................... 972-7330
Science and Technology Library .............................. 972-7195
University Archives ......................................... 972-7670
Military Services ............................................... 972-7838

Important Phone Numbers

Multicultural Center ........................................... 972-7008
Off-Campus Student Services ................................. 972-5500
Ohio Residency Officer ...................................... 972-8300
Parking Services .............................................. 972-7213
Photocopying
DocuZip (Student Union) ................................... 972-7870
Registrar, Office of the University .......................... 972-8300
Registration, records, graduation, scheduling, transcripts, enrollment and degree verification, and Ohio residency
Residence Life and Housing ................................ 972-7800
Student Success, Vice President for .......................... 972-7709
Student Conduct and Community Standards ................ 972-6380
Student Employment ......................................... 972-7405
Student Services Center ...................................... 972-7272
Student Union
Information Center ............................................. 972-INFO (4636)
Reservation Line ................................................ 972-8689
WZIP-FM Radio Station ...................................... 972-7105
Zips Programming Network .................................. 972-7014

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 an Akron manufacturer of farm equipment, John R. Buchtel, were instrumental in persuading the Ohio Universalist Convention to build its college on a hill overlooking the town that stood by the Buchtel Canal. The grateful townspeople were represented by organ donations, and Buchtel College was named after 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. The university's emphasis on local rather than federal sources of support increased 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 280,000, thanks in large part to a boom in local factories that bore names such as Goodyear, Firestone, Goodrich, and others. The age of the automobile — and the demand for inflatable rubber tires — changed the complexion of Akron forever.

Changes within the Municipal University's curriculum reflected the strong interrelationship of town and gown. In 1914 a College of Engineering began instruction, and other professional schools followed: Education (1921), Business Administration (1953), Law (1959), Community and Technical College (new Summit College, 1984). Fine and Applied Arts (1967) (in December 2008, the programs in the college became part of two distinct units: the College of Creative and Professional Arts and the College of Health Sciences and Human Services. In 2012, the programs in the colleges moved to the Buchtel College of Arts and Sciences and newly created College of Health Professions.), Nursing (1969) (in 2012, Nursing joined programs from the College of Health Sciences and Human Services to form the College of Health Professions), and Wayne College (1972).

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 (1988). During World War II, University of Akron researchers helped fill a critical need in the U.S. war effort by contributing to the development of synthetic rubber. The University's polymer programs have produced some of the world's most able scientists and engineers, and today attract millions of dollars annually in research support, as well as top graduate students from around the world.

Research, innovation, and creativity actively take many forms at the University — in the sciences, and in the arts and humanities. Today, University faculty study methods of teaching workers with jobs to maximize performance; develop new ways to synthesize fuel; write and produce plays, write poetry, choreograph dance works; explore improved methods of tumor detection; evaluate water quality in northeast Ohio; provide health care in community clinics; and study political campaign financing and reform. Faculty and students are awarded patents each year for their work on new technologies and products. The University of Akron's continuing and central commitment to the liberal arts is signified by the perpetuation of the institution's original name in the Buchtel College of Arts and Sciences.

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

The University's first doctoral degree was, appropriately enough, awarded in polymer chemistry in 1959, but master's degrees were granted as early as 1882. The University of Akron now offers 17 doctoral degree programs and seven law degree programs as well as more than 100 master's degree programs and options. The University offers undergraduate students a choice of more than 200 majors and areas of study leading to associate and bachelor's degrees. Hundreds of noncredit continuing education courses, certificate programs and specialized training opportunities are available for individuals and organizations.

In 1963 the receipt of state tax monies made the University a state-assisted municipal university. The University excels in many other areas, including global business, organizational psychology, educational technology, marketing, dance, intellectual property law, and nursing. Alumni of the University number nearly 151,000 and include scientists, engineers, artists, lawyers, educators, nurses, writers, business people, and other professionals at work in every state and throughout the world.

The 218-acre Akron campus, with more than 80 buildings, is within walking distance of downtown Akron and is located in a metropolitan area of 2.8 million people. The University of Akron is a member of the Mid-American Conference in 1991 and participates on the NCAA Division I level in 19 sports.

The University's ongoing, major campus renovation that began in 2000, the “New Landscape for Learning,” has added 22 new buildings, completed 18 major additions, acquisitions, and renovations, and created 34 acres of green space.

For more than 143 years, The University of Akron has been an active participant in Akron's renaissance of commercial and artistic endeavor, a leader in the metropolitan area's intellectual and professional advancement, a center for internationally lauded research efforts and a source of enrichment, education, and vitality for Northeast Ohio. Our history is a long and proud one — yet at The University of Akron, our eyes are on the future, for our students, our faculty and staff, our community, and our world.

MISSION STATEMENT

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

VISION 2020

In 2012, the University of Akron Board of Trustees gave its unanimous support to a new strategic plan called Vision 2020. The year 2020 is the 150th anniversary of the founding of the University of Akron, and the plan calls for bold initiatives and significant growth, including:

• Building on Charting the Course accomplishments, reach a $1 billion investment in student programs, faculty, research, campus and community.

• A more than 30 percent increase in enrollment from the current 30,000 to 40,000 learners, including growth in students in and out of state, international students, and e-learners.

• $200 million commitment to annual research expenditures, including hiring 160 new faculty and staff.

• Launching The Akron Experience, a new initiative that provides every student with a unique in-and-out-of-classroom learning experience to strengthen the connection between campus and community.

• New criteria for enrollment and targeted learning pathways for each student to increase retention, graduation, and job placement rates.

Our Mission - To ensure student success and leverage our region’s unique assets in the creation of knowledge and application of research that benefits humankind.

Our Vision - To sent a new standard for public research universities in adding economic value and enriching lives.

A CIVIL CLIMATE FOR LEARNING: Statement of Expectations

The University of Akron is an educational community of diverse peoples, processes, and programs. While all of us 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. To keep ourselves aware of these shared principles, this statement articulates some of the expectations and responsibilities of a civil climate for learning on our campus.

Principles of Our Campus Culture

Our campus culture acknowledges the importance of all in our community for their participation in our common enterprise as a university. We value the contributions and we respect the needs of students, faculty, contract professionals, staff, administrators and service personnel, and everyone else whose work and dedication enable 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, spiri-
tual belief, sexual orientation, and physical or mental potential. We take responsibility for sustaining a caring culture, 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 responsibility culture. We expect each member of our community to carry out responsibly his/her duties for preserving the integrity, quality, and decency of our environment and our discourse.

Expectations and Responsibilities
To preserve and propagate the Culture of The University of Akron, everyone must engage in certain specific behaviors. Anyone new to this campus must be aware of the expectations we have of each other and be committed to fulfilling 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 or 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 responsibility of civility and to request that they do so. In the event that cooperation can not 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 serve 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 (230 South La Salle Street, Suite 7-500 Chicago, IL 60604 (800) 652-7440) 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.
The Campus

Currently, the Akron campus covers 218 acres and encompasses more than 80 buildings. Recent and continued growth with new academic, administrative, and recreational spaces, in addition to major renovations to existing buildings, are attributable to the University’s commitment to provide an “Infrastructure for Academic Success.”

LOCATION

The University is situated in a large metropolitan area. The campus, although centrally located within the City of Akron, features park-like 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 eastside of the downtown area. Akron 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 airplane 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. The Akron Polymer Training Center, located at the corner of E. Mill and College streets, is the training division of the College of Polymer Science and Polymer Engineering and serves the region’s academic and industrial needs by offering a wide variety of non-credit and rubber training courses.

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, History, Mathematics, Statistics, and Psychology.

Athletics Field House. The building is adjacent to the 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 Play 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 center and spectator seating for 1,200.

Auburn Science and Engineering Center. Named for Dr. Norman P. Auburn, 10th president of the University, this complex houses the College of Engineering Dean’s office, the Engineering Co-op Office, Mechanical, Electrical and Computer, and Civil Engineering; as well as the Science and Technology Library and Department of Biology and Biotechnology.

Bierce Library. This building is named for General Lucius V. Bierce, an Akron mayor, lawyer, historian, state senator, philosopher, philanthropist, and soldier. In addition to the book, newspaper, and periodicals collections, the facility houses audio-visual materials, maps, and microforms.

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 administrative center of campus, Buchtel Hall was completely restored in 1973 following a devastating fire in 1971. It is the University’s link with its predecessor, Buchtel College. It provides office space for numerous administrative offices of the University, including the Office of the President.

Business Administration Building. This facility, located at 259 South Broadway, houses offices, classrooms, and laboratory facilities for the college of the College of Business Administration, the George W. Duvero School of Accountancy, and the department of Finance, Marketing, and Management.

Crouse Hall. Crouse Hall housing the Department of Geosciences, the Center for Environmental Studies, classrooms, and some of the College of Education offices as well as the H.K. Barker Center for Economic Education.

E.J. Thomas Performing Arts Hall. Named for Edwin J. Thomas, prominent industrialist and dedicated alumnus of the University Board of Trustees from 1962 to 1975, this cultural center was formally opened in 1973. Designed to accommodate concerts, opera, ballet, and theater productions, the hall is a masterpiece in architecture, acoustics, and creative mechanisms. It stands at the corner of University Avenue and Hill Street.

Folk Hall. This building, at 150 E. Exchange St., provides modern, well-equipped facilities for the Mary Schiller Myers School of Art. Studios are available for graphic arts, photography, drawing, painting, metalworking, ceramics, and computer design. The Emily Davis Art Gallery and Student Projects Gallery are also located in the facility.

Mary Gladwin Hall. Housing the School of Nursing and biology laboratories, this building was named for a homemaker, distinguished alumnus Mary Gladwin (1896-1979) who volunteered unparalleled service to the nation during World War I. The complex opened in 1979 and includes the administrative offices of the School of Nursing, faculty offices, the Nursing Center for Community Health, a Learning Resources Center that includes a nursing simulation lab, skills lab, and computer lab.

Goodyear Polymer Center. This building, located at 170 University Avenue, houses offices for the dean of the College of Polymer Science and Polymer Engineering, as well as the Office of Technology Transfer. The facility features a 200-seat lecture hall, offices, classrooms, and research laboratories for the Department of Polymer Science and Institute for Polymer Science and Polymer Engineering.

Guzzetta Hall. Located at 157 University Avenue, Guzzetta Hall is occupied by the School of Business Administration, Theatre and Arts Administration, and the School of Music in addition to student practice rooms, a recording studio, an experimental theater, and a 300-seat recital hall.

James A. Rhodes Arena. This structure on Buchtel Common 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, department of intercollegiate offices, locker rooms, a sports medicine room and a ticket office.

Infocision Stadium-Summa Field. Located at 375 East Exchange, this state-of-the-art multiplex facility is home to the Zips football team and can hold a capacity crowd of 30,000. This complex is also occupied by the Department of Sport Science and Wellness Education and the Department of Development.

Knight Chemical Laboratory. This complex is named in honor of Dr. Charles M. Knight, who taught the first courses in rubber chemistry at Buchtel College as early as 1909. Opened in 1979, the building houses the Department of Chemistry and features 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 houses the School of Communication, including faculty and staff offices, TV studio areas, WZIP-FM radio station, computer labs and classrooms. The building also houses the Paul A. Daum Theater.

Leigh Hall. Leigh is named in honor of Warren W. Leigh, first dean of the College of Business Administration. This building is occupied by the offices of Design and Development Services, Institute of for Teaching and Learning, and Institutional Research, in addition to The John S. Knight Auditorium.

McDowell Law Center. Named for C. Blake McDowell, prominent local attorney, alumnus, and benefactor of the University, the center houses the School of Law. Opened in 1973, it provides space for the law library, classrooms, moot courtroom, appellate-review office, seminar rooms, and faculty offices. An addition provides library and support space, and a second expansion has linked McDowell Law Center to West Hall, providing additional administration office space. The Law Building stands at the corner of University Avenue and Wolf Ledges Parkway.

National Polymer Innovation Center. Located at 240 South Forge Street this building houses the Scalable Nanomanufacturing Center, a Akron Functional Materials Center, and Center for BioMaterials and Medicine.

Ocasek Natatorium. Named for former Ohio State Senator, Oliver Ocasek, the natatorium houses an Olympic-size swimming pool with adjacent spectator seating area, locker rooms, and showers. It also houses nine racquetball courts as well as two weight rooms.

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

Olson Research Center. This facility, adjacent to the Polymer Engineering Academic Center on Forge Street, houses space for the Department of Biomedical Engineering, the Department of Polymer Engineering, and Institute of Polymer Science and Polymer Engineering, including equipment and laboratories.

The Polsky Building. This renovated downtown department store is home to 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 School of Social Work, the Office of International Programs, the School of Social Work, the Office of Research Administration, the Institute of Bio- science and Social Research, Taylor Institute for Direct Marketing, and UA Business Solutions. A University food service facility, Starbucks, and a campus bookstore are in operation on the High Street level (third floor).

Polymer Engineering Academic Center. This 32,000 sq. ft. facility houses the student, faculty, and administrative offices of the Department of Polymer Engineering.

Quaker Square Complex. This complex, located at 135 South Broadway, once used by the Quaker Oats Company, now houses the Quaker Square Inn and Quaker Square Complex. 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 Adult Focus, Biology, College of Applied Science and Technology, College of Engineering, Computer-Based Assessment and Evaluation, and Women’s Studies. Schrank Hall South contains space for the School of Family and Consumer Science, ROTC-Military Science, in addition to the College of Applied Science and Technology’s Engineering and Science Technology Department.
Simmons Hall. This building, located at 277 East Buchtel Avenue, is occupied by a number of departments including the Student Services Center, Office of the University Registrar, Student Financial Aid, Student Accounts, Office of Accessibility, Counseling Center, Student Conduct and Community Standards, Center for Academic Advising and Student Success, Undergraduate Admissions, and New Student Orientation.

Student Recreation and Wellness Center. This facility houses all of the recreational and fitness equipment, services, and programs that support our students’ health, well-being and balanced lifestyles. The building is connected to the Ocasek Nataatorium. Student Health Services can also be found inside the center.

Student Union. The Student Union, located in the center of campus, serves as a hub for social and educational activities for students, faculty, and staff. This facility houses various meeting rooms, ballrooms, meeting, theater, gaming, student organization offices, Off-Campus Student Services, Career Center, DocuZip copy center, bank, Information Center, Starbucks, Zip Card office and Barnes and Noble Bookstore. Visit our Web site 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 and Biomolecular Engineering, faculty offices and research labs, and a computer lab and classroom.

Zook Hall. Currently under renovation, Zook Hall is 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 and Student Services, and admission advisement offices. Other facilities include a lecture room, general classrooms, a science and mathematics classroom/laboratory, a distance learning classroom, and Center for Literacy, technology-enhanced demonstration classrooms, computer-training classrooms, and a multi-media laboratory.

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 Anthropology and Classical Studies manages the Active Research Methods computer laboratory, an archaeology laboratory, and a physical anthropology teaching laboratory. It has equipment for archaeochemical and for 3D artifact scanning, and active research projects locally and in the Mediterranean, Anatolia, and the western United States. It also has a collection of several thousand original digital images of ancient Mediterranean buildings, artifacts and art works, and access to the Perseus program (a digital multimedia database on the Greek world with 20,000 images and most of Greek literature in both Greek and in translation). Additional information on the department can be found at www.uakron.edu/anthropology-classics.

The Department of Biology houses greenhouses, controlled-environment chambers, an animal research facility, a molecular biology research center, modern laboratories, and equipment that includes advanced light microscopes (differential interference contrast, fluorescence), electron microscopes (scanning and transmission), ultracentrifuges, sequencing apparatus, and physiographs; vehicles, boats and a 400-acre nature preserve are available for fieldwork. Additional information about the department, faculty and programs can be found on the department Web site at www.uakron.edu/biology.

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 of 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 printout. The Chemical Stores facility maintain an inventory of more than 1,100 items, including chemicals, glassware, and apparatus. Additional information about the department, faculty, and programs can be found on the department Web site located at www.uakron.edu/chemistry.

The School of Communication features a television classroom/studio and a wide complement of supporting audio and video equipment, including graphics generators and linear and non-linear editors. Portable audio and video equipment is available for student use. There is an audio recording facility with multitrack capability. The School's new social media learning lab provides students opportunities to gain hands-on experience with emerging technology tools. The lab is equipped with an interactive whiteboard, MacBook Pro laptop computers, iPad minis, and the latest in social media management software, which can measure thousands of real time social media conversations and geo-location data on Facebook, Twitter, YouTube, LinkedIn, blogs, and other online communities. The School also provides several media-related co-curricular activities, including the nationally rated student-run radio station, WZIP; the Emmy Award winning television station, 2TV, and he nationally ranked speech and debate team. Additional information about the school, its faculty, and programs is available at www.uakron.edu/schcomm.

The Department of Computer Science is located on the second floor of the College of Arts and Sciences Building. Students in Computer Science have access to a wide variety of computing facilities, operating environments, languages and software in laboratories maintained in and by the department. In addition to a PC lab, a UNIX lab, a Security lab, and a Graduate Research lab, the department has a cluster computer available for research and instruction. Department computers provide access to the computational resources of the Ohio Supercomputing Center in Columbus. In addition, there are connections to the VNBS Internet II network. Our facilities are state-of-the-art and provide a broad range of experience that is attractive to potential employers. Additional information on the department is available at http://www.uakron.edu/computer-science.

The proximity of the faculty offices to the computer laboratories encourages regular interaction between students and faculty. Staff members provide introductory seminars and are always available to assist and guide students. A friendly, informal, helpful atmosphere makes the department an enjoyable place to learn and gain practical experience.

Additional information on the department is available at www.uakron.edu/computer-science.

The School of Dance, Theatre, and Arts Administration is located in Guzzetta Hall. The School offers a graduate program in Arts Administration. The state-of-the-art facility includes administrative and faculty offices, scene and costume shops, technology enhanced classrooms, including a design lab/studio. Additional information about the school, its faculty, and programs is available at www.uakron.edu/dtaa.

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 both faculty and graduate students. At both the undergraduate and graduate levels our programs emphasize the development of theoretical and data analysis that can be used in the investigation of economic problems in a wide variety of settings. To succeed in this mission, the department has a state-of-the-art computer laboratory for faculty and students which is equipped with 20 networked multimedia computers and statistical software such as SAS, EViews, and Stata. This allows faculty to hold classes in the computer lab and provides students with hands-on experience in developing their analytical and econometrics skills which are so attractive to potential employers. Network access allows students to search for books, journal articles, the latest economic data, etc., remotely from either OhioLink or the World Wide Web. The lab is located in close proximity to the faculty offices which facilitates interaction between faculty and students and enhances the students' learning experiences. Additional information about the department, the faculty, and the programs is available on the department Web site at www.uakron.edu/economics.

The Department of English is located on the third floor of Olin Hall. The department offers a master’s program in English and an MFA in Creative Writing, offered jointly with the Department of English at Kent State University, Kent State University, and Youngstown State University. The graduate programs enroll approximately 80-90 students, many of whom are nontraditional in their academic, social, and cultural backgrounds. Most graduate courses in English meet once or twice weekly in the late afternoon or evening, and on Saturday, for scheduling convenience and efficiency. Since the master's degree is Akron’s terminal degree in English more attention is devoted to it than some universities where the doctorate is the terminal degree. Faculty are accessible, and graduate assistants participate in the governance of the English Department by electing a representative to attend faculty meetings. Students have the opportunity to submit written work for literary prizes every spring as well as apply for various English scholarships. The department offers an open mic night featuring poetry and fiction reading by students. Additional information about the Department of English is available on the internet at www.uakron.edu/english.

The School of Family and Consumer Sciences, housed in Schrank Hall South, is accredited by The American Association of Family and Consumer Sciences and offers one graduate program with two tracks: Child and Family Development and Clothing, Textiles, and Interiors. Four laboratories, including a computer center, are available for authentic student learning experiences. All programs provide community experiences through internships and other hands-on experiences. These programs have active advisory committees of community professionals who provide advice and networking assistance. The School's Center for Family Studies offers programs of certificate programs, including Divorce Mediation, Home Based Intervention, Parent Education, and Case Management. The Center also serves as an educational resource for students and the community, sponsors seminars and workshops and disseminates research findings. Additional information about the school is available on the internet at www.uakron.edu/facs.

The Department of Geosciences engages in a range of research related to earth sciences including geology, geography and environmental science. The faculty with overlapping expertise in biogeochemistry, climate change, geographic information science, geomorphology, geophysics, hydrogeology, mineralogy, paleoclimate reconstruction, sedimentology, and structural geology conduct research that contributes to the energy and environmental sectors. The department trains students in the diverse skills that are necessary for successful careers in these fields, and is a recognized leader in earth science education research. Excellent modern research infrastructure includes geospatial technologies, environmental scanning electron microscopy, environmental magnetism, powder x-ray diffractometry, and analytical geochemistry facilities. Additional departmental information can be accessed at www.uakron.edu/geology.

The Department of History occupies one wing on the second floor of the College of Arts and Sciences Building. This 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, which offers both editorial and opportunities of scholarship, has its home in the department. The History suite contains three separate seminar rooms, where undergraduate and graduate students work closely with faculty. More information about the department can be found on its Web site: www.uakron.edu/history.

The Department of Mathematics is located on the second floor of the 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. The proximity of the faculty offices to the computer laboratories encourages regular interaction between students and faculty. Staff members provide introductory seminars and are always available to assist and guide students. A friendly, informal, helpful atmosphere makes the department an enjoyable place to learn and gain practical experience. The department homepage at www.uakron.edu/math provides updated information about the department, its facilities, faculty, and programs.

The Department of Modern Languages has a Language Resource Center in Olin Hall. The Language Resource Center contains facilities for students to listen to audio- and video tapes and view videotapes as a class or individually. Fourteen networked multimedia computers have software for additional language practice and foreign language word processing. Access to the World Wide Web provides students with the opportunity to both read and listen to up-to-date news and cultural information in foreign languages. Magazines and dictionaries are also available for student use. Additional information about the department and its programs is available on the internet at www.uakron.edu/modlang/.

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 Steinway 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. Additional information about the school, its faculty, the All-Steinway school campaign, and programs is available on the internet at www.uakron.edu/music.

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 a computer lab for undergraduate and graduate student use, and smaller PC clusters for research. Additional information about the department, its faculty, and its programs is available on the internet at http://www.uakron.edu/physics.

The Department of Political Science is located on the second floor of Olin Hall. The department maintains a computer lab that is consistently used by students as they analyze real world political conflicts. The department also houses the facilities for the internationally known Bliss Institute of Applied Politics, one of the largest internship programs in the area, and the Center for Conflict Management. Additional information about the department, the facility, and its programs is available at www.uakron.edu/polisci.

The Department of Psychology is located on the third floor of the College of Arts and Sciences Building. The department maintains three computer labs that are available for students in Psychology. All labs have access to the internet. Supported throughout the labs are statistical packages which include SAS, SPSS, and MPlus. In addition to the computer labs, a counseling clinic is maintained by the department and has video recording capabilities for the study of counseling processes and outcomes. Also, the department maintains an International Research Office to engage in outreach to the Akron community and provides applied research experience for students. Additional facilities of the department include: research areas for individual computer research and for small group behavior research, seminar/meeting rooms that fulfill a variety of purposes, and a Test Room where current psychological testing materials are kept. Additional information about the department, its faculty, and its programs, is available on the Internet at http://www.uakron.edu/psychology.

The Department of Public Administration and Urban Studies is located in Olin Hall 201. The building is a center for health care, which also provides a community outreach function for the Department and the campus. The building is equipped with a team of health care professionals, including physicians, nurses, and specialists. The building is also equipped with a variety of offices, seminar rooms, and laboratories. Additional information about the department, its faculty, and its programs, is available on the Internet at http://www.uakron.edu/psaus.

The Department of Sociology facilitates research laboratories used for funded research projects and a research laboratory for undergraduate and graduate students. The Newman Library, providing many current professional journals, is open for students use. Additional information about the department, its faculty, and its programs is available on the internet 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 statistics requirement courses, Basic Statistics and Statistics for Everyday Life, and the other lab is used for various undergraduate and graduate statistics courses. The laboratories are located in the College of Arts and Sciences Building. The Department’s Center for Statistical Consulting provides opportunities for students to gain valuable experience in the practical applications of statistics while interacting with faculty and clients. Additional information about the department, its faculty, programs, and Statistical Consulting is available at http://www.uakron.edu/statistics.

College of Business Administration

The College of Business Administration is located in the 81,000 square foot four-story College of Business Administration Building and on the fifth floor of the Polisky Building, a block away from the CBA and connected by skywalks. The CBA building 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, the Institute for Global Business, and the Institute for Leadership Advancement share the building. All undergraduate and graduate programs are fully accredited by AACSB International — The Association to Advance Collegiate Schools of Business, with a separate accreditation for the Daverio School of Accountancy. AACSB International is the most prestigious accrediting agency for business schools and AACSB accreditation represents the highest standard of achievement for business schools worldwide. Less than five percent of the world’s 13,000 business programs have earned AACSB accreditation and an only twenty percent have attained the dual accreditation held by the College of Business Administration.

Tered, amphitheater-style classrooms permit close contact between students and professors. The CBA Computer Laboratories provide students with almost 290 personal computers and laptops. This facility consists of three teaching labs, the Milton and Henrietta Kushin homework lab, and two portable laptop carts. The teaching labs are each equipped a minimum of 44 student stations. One of these teaching labs is equipped with distance learning capabilities. The homework laboratory contains more than 75 computers for students. Each PC is equipped with Windows 7, Office 2013, Project 2013, Visio 2013, Ora- cle 12c, Visual Studio 2013, Adobe Creative Suite 6, SPSS, and many other software applications. When not used in classes, laptops are available to be checked out for use in the CBA building.

The Carl V. and Clyde A. Fisher Sales Laboratory provides the college with six group lab rooms connected by one-way mirrors to a central monitoring and control room. Sophisticated audiovisual 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 Mary S. and David C. Corbin Finance Lab is a state-of-the-art facility that provides an advanced learning environment by offering students the unique opportunity of putting information from a wide range of sources and presenting it simultaneously on multiple screens. It features five workstations with computer access to Internet financial databases, financial news sources (e.g. CNBC), databases such as WDRS, which includes Compustat and CRSP, and slightly delayed trading data. A projector/screen is linked to an instructor’s station.

The Becky Babcock Business Analytics Lab was established in 2014 in recognition of the importance of data-including “big data”-in business. The dedicated lab supports business analytics coursework required for all CBA undergraduate students, who learn to gather, structure, analyze, and interpret relevant data for business problems. The state-of-the-art collaborative lab has 44 student stations and 11 collaborative stations to provide an optimized and dynamic environment for students to gain hands-on training in all aspects of business modeling.

Offices of 15 active business student organizations are located in the James Dunlap Student Organization Office Suite just off the atrium lobby. Student organizations offer opportunities for development of social, professional, leadership, and networking skills through interaction with business professionals and other students.

The Gary L. and Karen S. Taylor Institute for Direct Marketing occupies approximately 32,000 square feet on the fifth floor of the Polisky Building. The facility boasts a creative lab — a state-of-the-art lab, a call center station, an applied research and teaching laboratory, a student learning suite, an entrepreneurial incubator, offices for the Institute and an executive education suite. The college’s direct marketing and executive education programs are housed in these facilities.

The Benjamin and Nancy Suarez Applied Marketing Research Laboratories, located on the fifth floor of the Polisky Building, feature a Cognitive Research Laboratory with state-of-the-art technologies focusing on techniques such as eye tracking and brainwave analysis. An Analytical Intelligence Laboratory with eight workstations and two teamwork stations where students and faculty can develop comprehensive market intelligence reports; an Experiential Research Laboratory where students and businesses use techniques such as facial coding software to test
the effectiveness of various types of advertising; and the Suarez in the Square Class-
room, an innovative class space built in an amphitheater format.

Additional information about the College of Business Administration, its faculty, and its pro-
grams is available on the internet at www.uakron.edu/cba/.

**College of Education**

The offices, laboratories, and other facilities of the College of Education are located in
Central Hower Community School, Crouse Hall, and Quaker Square.

The Department of Curricular and Instructional Studies serves undergraduate and
graduate teacher education students in the College of Education. The Master of Arts
programs include elementary education with literacy option and special education. The
Master of Science in Curriculum and Instruction leads to licensure in a chosen acad-
emic content area. Initial teacher licensure programs are also available at the gradu-
ate level. The early childhood program prepares teachers to teach age three to grade
three. The middle childhood program prepares teachers to teach grades four through
nine. The adolescent young adult program prepares teachers of grades seven to twelve
to teach language arts, mathematics, science, and social studies. The P-12 (multi-age,
program prepares teachers of music, dance, or visual arts. Endorsements are avail-
able in 4/5, reading, and teaching English as a second language. The University Cen-
ter for Child Development, under the direction of the College of Education and the
College of Health Professions, provides preschool for children while serving as an
experimental learning site for teacher education students. Additional information about
the department, its faculty, and programs is available on the internet at www.uakron.edu/education/academic-programs/CIS.

The Department of Educational Foundations and Leadership serves under-
graduate and graduate students in the College of Education. The department provides
grad-
courses in school administration, higher education, assessment and evaluation,
and instructional technology. The department faculty members also teach the core cur-
riculum of educational leadership, administration, and educational foundations in
all undergraduate and graduate education programs. They teach, advise, and sup-
ervise problems and theses of students in their graduate degree programs. Additional
information about the department, its faculty, and programs is available on the inter-
net at www.uakron.edu/education/academic-programs/EFL.

**College of Engineering**

The offices, laboratories, classrooms, research facilities, machine shops, and other
facilities of the College of Engineering are located in the Auburn Science and Engi-
neering Center, Schrann Hall North, Whitby Hall, the University of Akron Engineering
Research Center, the Gas Turbine Testing Facility, and the Olson Research Build-
ing.

The master’s programs in the College consist of departmentally administered Master
of Science degrees in Chemical and Biomolecular, Civil, Electrical, and Mechanical
Engineering. The Dean’s Office administers the Master of Science in Engineering
degree with specializations in Biomedical Engineering, Polymer Engineering, and Engi-
neering Management. The Doctor of Philosophy in Engineering is offered in the inter-
disciplinary fields of Environmental Engineering, Structural Engineering, Mechanical
Systems Engineering, Materials Science, Transport Processes, Biomedical Engi-
neering, Engineering Applied Mathematics, Chemical Reactions and Process Engi-
neering, Microscale Physicochemical Engineering, and Polymer Engineering. This
interdisciplinary degree integrates departmental disciplines and is administered by the
Dean’s Office. There is coordinated Doctor of Philosophy in Engineering Degree with
Youngstown State University and a joint MD/Doctor of Philosophy Degree in Engi-
neering with the Northeast Ohio Medical University.

The Department of Biomedical Engineering is located in the Auburn Science and
Engineering Center and Olson Research Center and has classrooms, instructional lab-
oratories and research laboratories. The department provides educational opportuni-
ties at both the undergraduate and graduate levels. Biomedical engineering
graduate students may also participate in the joint MD/Doctor of Philosophy in Engi-
neering Degree program between the College of Engineering and the Northeast Ohio
Medical University.

Faculty members in the department are engaged in a wide variety of research areas
both on campus and in collaboration with other researchers in health care institutions
and biomedical industry. Interdisciplinary interactions are encouraged to promote
vibrant research activities and to provide exceptional scholarly atmosphere for learn-
ing.

The Biomechanical Interfaces Laboratory conducts research into interactions between
skin and contacting surfaces. This laboratory is equipped with a custom-designed pres-
sure and distributed shear system capable of measuring skin stresses with 200 um resolu-
tion, thermal conductivity systems for assessing materials used for prosthetic lin-
ers and sockets, and associated computer hardware and software.

The Bone Biomechanics and Mechanobiology Laboratory focuses on both macro-
scopic and microscopic investigations of bone. The laboratory is equipped with
mechanical testing machines and standard biology equipment to study bone’s cellu-
lar response to mechanical loading.

The Biofluid Microtechnology Laboratory includes a robotic liquid handler for high
throughput applications as well as capabilities for cell culture, microscopy, and wet
chemistry work. In addition, the laboratory is equipped with an optical table with cam-
era-lens for high-resolution side view imaging and contact angle and surface tension
measurement software and hardware to examine two phase interactions.

The Motion Analysis Laboratory studies all aspects of human movement. This labo-
atory is equipped with a Vicon Motion Analysis System, two AMTI force plates, a MA-
1–EMG system, and associated computer hardware and software.

The Materials for Tissue Engineering Laboratory incorporates both a tissue culture facil-
ity with an incubated, scanning-stage, inverted fluorescent microscope and hydrogel
synthesis and analysis equipment, including a ARES fluids rheometer and an atomic
force microscope.

The Biophotonics Laboratory develops new photonics imaging, spectroscopy and sens-
ing technologies for disease diagnostics and therapeutics. The laboratory is equipped
with a Lambda-35 spectrophotometer, two VIS-NIRS spectrometers, an ULTRAPOL
polishing machine, and Epilog CO2 laser, and an optical table.

The Biomechanics and Tissue Engineering Laboratory provides equipment infrastruc-
ture to investigate all aspects of biomaterials. The facility includes a wet lab for for-
rmulation, development, and analysis of biomaterials, including medical applications
for nanomaterials, in addition to a tissue culture facility for in vitro testing.

The Stem Cell and Tissue Engineering Laboratory aims to develop stem cell-based
tissue engineering strategies to explore their biomedical applications. This laboratory
has a BSL-2 tissue culture facility and equipment for molecular- and cellular-level anal-
ysis.

Visit the department’s website at www.bme.uakron.edu.

The Department of Chemical and Biomolecular Engineering is located in Whitby
Hall and provides educational opportunities for students at both the undergraduate and
graduate levels in Chemical and Biomolecular Engineering.

The Applied Colloid and Surface Science Laboratory has a state-of-the-art laser light
scattering facility including a Lexel argon-ion laser, a vibration isolated optical bench,
Brookhaven correlation and probability analyzer, FTIR-Raman, TGA, and an IBM
PC-based data acquisition system. The Biochemical and Environmental Bioengineering
Laboratory is a satellite center of the Ohio Bioprocessing Research Consortium, hous-
ing a state-of-the-art HPLC-MS with additional mass spectrometry, UV/Vis, and IR detec-
tors. The labs are well equipped with several bioreactor assemblies, Sorvall RC-5C
refrigerated super centrifuge, Perkin-Elmer UV/VIS spectrometer and LS-50B lumi-
nance spectrophotometer and an applied NMR (200 MHz) probe.

The Biomaterials Laboratory is available for polymer synthesis and storage including
a nitrogen hood, Sephadex separation columns, an oil bath, a dry bath, a vacuum oven, a Buch rotor
evaporator, and a Labconco lyophilizer.

The Catalysis Research Laboratory is equipped with a Nicolet 6700 Spectrometer with
high pressure and high temperature IR reactor system for in situ catalyst character-
ization, an on-line Shimadzu 2014 Gas Chromatograph for gas product analysis, a
Micromeritics ASAP 2010 Chemisorption Analyzer, a CHI 760B potentiostat, and a
PINE rotating electrode system.

The Bioengineering Laboratory contains a state of art tissue culture suite, biomateria-
synthesis facilities, histology, immunohistochemistry and microscopy facilities
including a high-end inverted fluorescence microscope, recombinant protein production
facilities including a high capacity superseded centrifuge and fast protein liquid chro-
matography system.

The Multiphase Laboratory is equipped for research in filtration and flows through
porous media. Examples of equipment include a Frazier Air Permeability tester, a TSI
8610A air flow meter, a custom made turbidity meter for measuring volume fractions (poros-
ity), a gas-liquid aerosol filter test apparatus, a TSI 3080 SMPS particle counter, a Kruss
Drop Shape Analysis System DSA20E for measuring surface tension and contact
angles, and multiple electrospinning stations for fabricating submicron and micron sized
polymer fiber mats.

The Supercritical Fluids Laboratory, a key lab in the Ohio Supercritical Fluid Technol-
ology Consortium, is equipped with FTIR/Raman/ATR, GC/FID/TCD high pressure
phase behavior apparatus, Berty Reactor, 1 liter stirred Reactor, dynamic light scat-
tering, mechanical testing and high temperature GPC. The Thin Film Laboratory is
equipped with plasma systems, thermal chemical vapor deposition, and in situ
microbalance.

The International Center of Advanced Elastomers for Health Care houses all the major
equipment for the synthesis, characterization, and processing of polymers made by id-
olizations (two state of the art controlled low temperature (-100 degrees Celsius) poly-
merization dry boxes, a unique fiber optic FTIR real time in situ monitor-
ing system, 2 and 3 gallon reactors, SEC set up with five detectors and Field Flow
Fractionation, hot press, pneumatic sample cutter, composite mixer, computers with
sophisticated software (ADC NMR simulation, Predici polymerization kinetic simula-
tion software), a gas chromatography/liquid chromatography system with a HPLC and
NMR spectrometer, Fiber Optics, a home built cryostat, a NanoDrop spectrometer
(200–800 nm) and a UV/Vis spectrometer and a Raman and FTIR spectrometer.

Additional information about the department, its faculty, and programs is available at
www.uakron.edu/engineering/CBE.

The Department of Civil Engineering is located in the Auburn Science and Engi-
neering Center and Schrann Hall North and has five major laboratories. In the Envi-
ronmental 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, respon-

etters, gas chromatographs, high-performance liquid chromatographs, toxicity analyz-
ers, an atomic absorption spectrophotometer, and a total organic carbon analyzer.
Water and wastewater analytical kits are available for field studies.

The Wendell Ladue undergraduate computer room is equipped with personal com-
puters and associated facilities for civil engineering students for both class and per-
isal use.

In the hydraulics laboratory a tilting flume enables the student to visualize water flow in
streams and rivers. A pressurized pipe module is used to study frictional losses in
different sized pipes. Instructional laboratories introduce several hydraulic software tools
such as FlowMaster for pressurized pipe and open channel flow calculations, EPAnet,
for water distribution pipe network analysis, HEC-RAS, for calculating water surface
profiles for natural streams and channels, and Water CAD.

In the soil mechanics and foundation engineering lab, a student learns how to analyze
soil by a variety of tests and equipment to determine shear strength, compaction charac-
teristics, and consolidation. In addition to the standard equipment for routine test-
ing, the laboratory has a computer-controlled cyclic triaxial testing system, flexible wall
permeameters, and particle image analysis systems.

In the structural materials laboratory, students have the opportunity to observe the
experimental verification of the behavior of structural materials, members and con-
nections subjected to tension, compression, bending and torsion. Physical testing is
accomplished through the use of two universal testing machines with a maximum
capacity of 500,000 lbs., five closed loop servohydraulic testing machines with a max-
imum capacity of 100,000 lbs., an array of viscoelastic materials testing machines and a Charpy impact machine. One of the closed loop machines has the capability to apply both axial and/or torsional loads. Further, a full array of data acqui-
sition equipment is available.

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

Additional information about the department, its faculty, and programs is available on
the internet at www.uakron.edu/engineering/CE.

The Department of Electrical and Computer Engineering is located in the South
Tower of the Auburn Science and Engineering Center. The Department has learning
facilities that are available which include laboratories for the study of circuits, analog
and digital electronics, control, computers, energy conversion, embedded systems
interfacing, power electronics, and electromagnetics/microwaves. Laboratories follow
instruction to help the student apply the material learned in class.

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

The analog and digital electronics laboratory builds on the circuits sequence and intro-
duces the student to more advanced design tools and concepts, including computer
simulation of circuits. In addition to digital oscilloscopes, the laboratory contains sig-
nal 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 lab-
oratory contains networks and 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 inter-
faces to control components.

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

The embedded systems laboratory is interfacing the computer to the outside world. Students learn how to connect devices to
computers, how to program them, and how these can be used in design. The laboratory uses a variety of real-world designs and projects to keep students up to date on this important engineering activity. The equipment in the laboratory includes personal computers, single-board micro computers and industrial
controllers in addition to measurement equipment and components.

The power electronics laboratory is taught as part of a power electronics course
and design of power components and circuits for operation at high voltage,
high current and high power. Digital controllers and all digital measuring equipment
account for a very modern laboratory.

The electromagnetics/microwave laboratory uses basic experiments in transmission lines, waveguides and antennae to teach the principles involved. In addition to the basic equipment, the laboratory has a shielded room for specialized
measurements.
The department's website at www.uakron.edu/sswe offers an indoor running track, a multi-purpose room, and four teaching station areas), in physical and health education. The school has access to the James A. Rhodes Education. There are laboratories for the study of exercise physiology, anatomy, athletic training, exercise science, coaching, mass media, and related recreational fields. The master's degree program in Child Life is also housed in the School of Speech-Language Pathology and Audiology. Additional information about the school, its faculty, and programs is available on the internet at www.uakron.edu/socialwork.

The School of Sport Science and Wellness Education prepares students for careers in teaching, exercise science, coaching, mass media, and related recreational fields. The graduate program in Curriculum and Instruction with Physical Education licensure option P-12 is a collaborative program between the Department of Curricular and Instructional Studies and the School of Sport Science and Wellness Education. There are laboratories for the study of exercise physiology, anatomy, athletic training, motor behavior, teaching skills (microteaching), and computer utilization in physical and health education. The school has access to the James A. Rhodes Health and Physical Education Building and Icefission Stadium (classrooms, the main gym, an indoor running track, a multi-purpose room, and four teaching station areas), Student Recreation and Wellness Center (cardiovascular fitness and weight training areas) (Athletic Field House (sports medicine equipment), Ocasek Natatorium (classroom, swimming pool, racquetball courts, and cardiovascular fitness and weight training equipment), and Lee Jackson Field (an outdoor running track). Visit the department's website at www.uakron.edu/swee.

College of Polymer Science and Polymer Engineering

The College of Polymer Science and Polymer Engineering offers only undergraduate degrees leading to the Master of Science in Polymer Science and Engineering. In addition, there are elective courses in both polymer science and polymer engineering for undergraduate science and engineering majors. Options which emphasize polymer engineering have been developed with the College of Engineering through the Departments of Chemical Engineering and Mechanical Engineering for undergraduate students interested in the polymer industry. An option has also been developed in the college of Arts and Sciences in Chemistry which emphasizes polymer science.

The facilities of the Department of Polymer Science and the Institute of Polymer Science and Polymer Engineering support fundamental and applied research in polymer chemistry, polymer physics, and many aspects of polymer behavior. There are extensive laboratories for polymer synthetic chemistry and for the characterization of macromolecules and polymer morphology. A nuclear magnetic resonance laboratory, operated jointly with the Department of Chemistry, provides several high-resolution instruments for use by researchers and visiting faculty. The Applied Polymer Research Center (APRC) is a contract services facility operating within Maurice Morton Institute of Polymer Science. APRC has been serving industrial and government clients, especially in the areas of rubber and plastics, for over 50 years. With a full-time professional staff, and a two million dollar inventory of modern instrumentation, the Center currently performs 200 to 400 projects a year, under complete confidentiality to the client. Key areas of technical service include: chemical analysis, thermal analysis, physical testing, and rubber compounding. In addition to dedicated resources maintained by the Center, the laboratory has access to highly sophisticated instrumentation through the College of Polymer Science and Polymer Engineering, and will interface with a staff of over 35 highly specialized faculty members to solve more complex polymer-related problems. For more information, visit our website: http://www.uakron.edu/dos/.

The Department of Polymer Engineering maintains a broad range of polymer processing equipment and characterization facilities for state-of-the-art research on polymers for diverse applications such as materials for energy, water purification, nanotechnology, biomedicine, and the environment. Processing instruments are capable of handling materials from a few milligrams to hundreds of kilograms. These include unique tape-casting facilities for nano- and bio-materials processing, thin films, inkjet printing and lithography. The blending and compounding facilities include five twin-screw extruders, a microscale compounding and seven internal mixers with flow visualization capabilities. There are also eight single-screw extrusion lines with ultra-sophisticated control and water or mandrel dies for plastics and rubber. Tubular films and cast film extrusion capabilities, as well as two biaxial film stretchers, are also available. The molding facilities include five machines with screw injection molding capabilities, compression molding and filament winding for composites. The department also has capabilities for solution casting and electro-spinning. Characterizing capabilities include: electron microscopy; X-ray diffraction (including a rotating anode X-ray generator), small angle X-ray scattering, Fourier transform infrared spectroscopy, small angle light scattering, optical microscopy, radiography, ellipsometry, quartz crystal microbalance, a surface-force apparatus, a contact angle goniometer, differential scanning calorimetry, thermogravimetric analysis, an oxygen permeability tester, and surface profilometry. Rheological and mechanical testing equipment, including rotation and capillary shear and extensional rheometry, dynamic mechanical analysis, and static mechanical testing, impact testing. Other shared instrumentation is also available in the College of Polymer Science and Polymer Engineering. Students receive hands-on training on the operation of all processing and characterization equipment. Additional information about the department, its faculty, and programs is available at http://www.poly-eng.uakron.edu.

Positioned in the Rubber City, where polymers are the focus of innovation and technology, the Akron Polymer Training Center (APTC) is the training division of the College of Polymer Science and Polymer Engineering. Poised to meet the needs of our changing environment, the center strives to be the world’s leading provider of world-class training seminars and workshops to the plastics and rubber processing industry. The center’s programs include: three class-rooms, two polymer-processing laboratories, and a laboratory devoted to chemical measurements and instrumentation.

The APTC serves the region’s academic and industrial needs by offering a wide variety of hands-on, non-credit courses as well as customized training. Since its opening in 1993, the APTC has trained thousands of incumbent employees in the rubber and plastics processing industry. By actively listening to our clients, we have responded by adding courses of interest in new and emerging fields. With a diverse set of course offerings that serve our industry, the APTC is the largest polymer training center in the United States.

The center offers non-credit, short courses in the area of rubber chemistry, mixing and compounding. In addition, it presents a full complement of hands-on plastics programming designed to enhance the skills of incumbent workers in the plastics processing field. Its world-class training seminars and workshops are presented by instructors from the industry, who bring practical experience to the classroom.

For more information on the center, please contact Tayba Tahir, director, Akron Polymer Training Center, College of Polymer Science and Polymer Engineering, at (330) 972-8661 or via email at tahir@uakron.edu. Visit the APTC website at http://www.uakron.edu/aptc.

The Akron Global Polymer Academy at The University of Akron assists the College of Polymer Science and Polymer Engineering in creating and disseminating knowledge about polymer science, polymer engineering, and Science, Technology and Engineering—Innovation in Mathematics (STEM) degrees, advanced placement, and other educational ventures. 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 Libraries

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

Library services include reference and research assistance, and user education. Materiel can be borrowed from the University Libraries through the circulation department or through the OhioLINK system or other resource-sharing arrangements. The University Libraries’ collections contain more than 3 million items: books, periodicals, government documents, curricular materials, microforms, maps, audio-visual materials, and archival documents. The library receives more than 45,000 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. Students may use one of the 130 circulating laptop computers available in Bierce and Science Libraries.

Audiovisual Services, located in Bierce Library, Room 75, maintains an extensive cen
tralized collection of media hardware and audio-visual resources for student and faculty use. It also has a collection of instructional materials in various media formats (filmstrips, slides, etc.) to supplement classroom instruction. Audio Visual Services also designs, installs, and maintains technology-enhanced general purpose classrooms, offering permanent in-room projection, sound reinforcement and a sophisticated media retrieval system. Additional information about the libraries is available at http://www.uakron.edu/libraries/.

**Career Center**
The Career Center assists students and alumni with career planning by offering programming and individual career advising.

The Career Center staff is knowledgeable regarding current employment trends and job search strategies and actively assists students in their career search. This includes exploring career paths, resume and cover writing skills, interview preparation, finding relevant learning opportunities and part-time employment while in college, and professional job search strategies.

The Career Center maintains an electronic job board, Career Link, with full-time/part-time and co-op/internship opportunities. Students and alumni may register online and upload their resumes to view listings and allow employers to view their resumes.

More information about the Career Center is available at http://www.uakron.edu/career

**Information Technology Services Division**
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.

The ITS Division is preparing for the University’s future technology needs with an emphasis on the continued convergence of voice, video and data networks into a single digital network environment.

**Distributed Technology Services**

**Computer Labs:** A combination of 400 Dell, Apple, and iPad devices are available for two- and four-hour loans in Bierce Library, the Student Technology Library, Circulation Desk, and the Student Union Information desk. The wireless laptops can be used anywhere within the building to access the internet, to get mail, or to do class assignments. A general purpose computer lab of 20 Windows Desktop PCs for students is located in the College of Arts & Sciences building. Room 103B. Both the wireless and general purpose labs have the same productivity tools such as Microsoft Office, SPSS and SAS. All computers have internet and e-mail capabilities.

**Virtual Computer Labs:** 24/7/365 online access to selected software. Log into MyAkron and click on UA Virtual Lab.

**Internet Kiosks:** 124 strategically placed internet kiosks provide instant access to email and Web registration on campus.

**Computer Repair Services**

The University of Akron students with knowledgeable assistance in the setup and operation of their personal computer equipment. CRS will install University-approved software and assist in installing hardware and peripherals, which will enable you to connect to the University computer network and the internet. CRS will also provide hardware diagnostics, software diagnostics (within reason) and basic troubleshooting. CRS will not install or troubleshoot any software or hardware relating to games. If a hardware problem is found or suspected, our student technicians will give you an idea as to where the problem lies. CRS can also help you set up your direct network connection or wireless for residence hall students.

CRS will install (you must have the original media) and troubleshoot the following software products:

- Microsoft Windows 8, 7
- Microsoft Office 2013, 2010
- Microsoft Publisher
- Adobe Acrobat Reader
- Microsoft Security Essentials

Walk-in support is available for Tier 1 support. This allows you to come into the Computer Center between 8:00 a.m. and 4:00 p.m. without an appointment to get service. Some of the services are:

- Triage Apple and Windows machines for software issues
- Smart Phone and Tablet setup/service
- Basic encryption problems
- Wireless setup and issues
- Memory installation

**Please note that all Microsoft software must be purchased by the student prior to installation. An agreement between the University and Microsoft allows the university to sell Microsoft software products to University of Akron students through Computer Solutions at significantly reduced prices.

**Computer Repair Service**

Computer Repair Service information can be found at:
http://www.uakron.edu/dts/computer-repair-service.dot

**Location:** The Computer Center, 185 Carroll St., Room 129; (330) 972-7626

**Hours of Operation:** Monday-Friday, 8:00 a.m. - 5 p.m. (Fall and Spring)

**The Computer Store**

The Computer Store provides an online environment for purchasing computer hardware and software for members of The University of Akron. We also assist in obtaining home use software for products like Microsoft Windows and Office. More information can be found at http://www.uakron.edu/thecomputersstore.

**The Zip Support Center (walk-in)**

The walk-in Support Center is combined with the laptop checkout area and is conveniently located on the main floor of Bierce Library.

**The Zip Support Desk**

The Zip Support Desk provides call in (330) 972-6888, email support (support@uakron.edu), and online chat (supportchat.uakron.edu) for all students, faculty, and staff. The Support Desk maintains a self-service wiki that can be found at support.uakron.edu.

**Summer hours are modified and are posted on the Web page.**

**Software Training Services**

Software Training Services develops Web-based tutorials and documentation for student self-service applications and the portal (MyAkron). For more information, visit Software Training Services’ Web site at http://www.uakron.edu/training.

To access tutorials for hundreds of software applications log into MyAkron, click the Technology Support tab in the upper right corner, then click the Atomic Learning link under the Computer Software Help heading.

**Department of Instructional Services**

Coordinates the activities of Computer Based Assessment and Evaluation, Design, and Development Services, Distance Learning Services, and Audio Visual Services. Access these services through the Instructional Services website at http://www.uakron.edu/its/instructional_services.

**Design and Development Services**

Provides support for the design and development of web-based and multimedia instructional materials including:

- designing online courses;
- supporting web conferencing (WebEx);
- supporting virtual exam proctoring tools (Respondus Monitor);
- providing graphic design services;
- developing multimedia including interactive learning modules;
- digital photography including high definition and conventional videography, video post-production, and image scanning;
- live and on-demand video streaming and hosting;
- using audience response system (‘clickers’);
- using lecture capture/recording systems (Panopto Focus);
- using online survey technology (Qualtrics);
- using electronic portfolios (Springboard ePortfolio);
- using emerging technologies to enhance learning;
- using advanced features of the Springboard enterprise Learning Management System.

For further information, contact Design and Development Services at (330) 972-2149 or visit the website: http://www.uakron.edu/its/instructional_services

**Distance Learning Services**

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, Distance Learning Services also provides:

- A corporate videoconferencing suite ideal for group meetings and personal interviews.
- A relationship with a network of content service providers that specialize in events such as virtual field trips.
- Special event connections that support educational initiatives, i.e. work shops and professional development.

For further information, contact Distance Learning Services at (330) 972-2720.

**Audio Visual Services:**

Audio Visual Services is located on the ground floor of Bierce Library, Room 75.

- Call (330) 972-7811 to order audio visual equipment. Staff will deliver equipment on campus, assist with the set up of the equipment and will help troubleshoot any technical problems.
UA’s computer network, named UAnet, provides access to:

- use of VPN access.
- network file storage and printing
- UAnet's Web pages
- ZipLINK – UA's library catalog
- OhioLINK – the library catalogs of all State of Ohio universities and colleges
- Electronic Mail (e-mail)
- The Internet
- UAnet’s Web pages
- Network file storage and printing

**RESEARCH CENTERS AND INSTITUTES**

The Office of Research Administration facilitates all facets of sponsored research for faculty, staff, and students. Services provided include identifying funding sources, assisting in proposal development, and accepting and administering research grants and contracts. The Office also oversees and supports research compliance in the areas of human and animal subjects, radiation safety, biosafety, and Export Controls.

**Akron Global Polymer Academy**

Mark Foster, Ph.D., Director

The Akron Global Polymer Academy at The University of Akron assists the College of Polymer Science and Polymer Engineering in creating and disseminating knowledge about polymer science, polymer engineering, and Science, Technology, Engineering, and Mathematics (STEM) education by supporting initiatives in P-16 education and other distributed education ventures. Providing consulting and training services to the polymer industry worldwide, the Akron Polymer Training Center is the workforce development division of the College of Polymer Science and Polymer Engineering.

**Ray C. Bliss Institute of Applied Politics**

John C. Green, Ph.D., Director

The Ray C. Bliss Institute of Applied Politics is a bipartisan research and teaching institution, staffed by faculty and students. Services include: identifying funding sources, assisting in proposal development, and accepting and administering research grants and contracts. The office also oversees and supports research compliance in the areas of human and animal subjects, radiation safety, biosafety, and Export Controls.

**Institute for Biomedical Engineering Research**

Brian L. Davis, Ph.D., Director

This Institute for Biomedical Engineering Research (IBER) was established in 1979 to promote interdisciplinary studies in the rapidly growing intersections between medicine, engineering, and the physical sciences. The mission of IBER is to promote the growth and development of Biomedical Engineering research in medical devices and biomaterials in the Northeast Ohio region through collaboration with regional hospitals, industry, the Austen BioInnovation Institute in Akron, Northeast Ohio Medical University (NEOMED), and The University of Akron. In addition, IBER works closely with the City of Akron (through the Akron Development Corporation) and is a key component of the Biomedical Corridor, the Akron Global Business Accelerator, the international Technology Bridges, and the Akron Biinvestments Funds, LLC. As such, the objective of the institute serves to offer medical professionals in the health services industry in the region with opportunities to collaborate with engineering and basic science faculty, staff, and graduate students in strengthening the development and application of biomaterials and medical devices. Effective use of the combined resources of the University, NEOMED, the City of Akron, and the affiliated health care members permits a more cost-effective solution to design and development of biomedical products than could be achieved by each entity working independently.

**Center for Advanced Vehicles and Energy Systems (CAVES)**

J. Alex De Abreu, Ph.D., Director

The mission of the Center for Advanced Vehicles and Energy Systems (CAVES) is to be a leader in the creation of sustainable and clean energy sources and to facilitate the adoption of these technologies, considering the entire energy pipeline—extraction, conversion, and storage, and usage. The center efforts are geared toward product-oriented research, development and commercialization of cost-effective solutions to alternative transportation systems, advanced energy sources and storage devices, and their real-time control. In addition to providing research and testing services to industry, private, and government agencies, CAVES also provides knowledge dissemination symposia, lectures, seminars, training, and project-oriented graduate and undergraduate design experiences. Specific expertise can be found in the areas of power electronics, charging stations, battery management, bidirectional grid-interfaces, motor design, motor drives, and electric and hybrid vehicles, wind turbines, solar energy, fuel cells, energy harvesting, control systems, and wireless embedded networked sensor design. As part of the University of Akron-Wright Center for Sensor Systems Engineering partnership, CAVES houses the Center for Clean Technology Sensors. A one-stop shop for sensor and sensor system design, development, testing, and commercialization, CAVES unique facilities include a 150kW dynamometer for testing motors, generators, hybrid-electric drivetrains, and power electronic drive sensors; a high temperature electronics lab; a real-time computing lab; an alternative energy lab; a tribology lab; an optical strain analysis lab; a number of corrosion facilities; facilities for developing specialized coatings and surfaces; and access to a clean room in the Timken Engineering Surfaces Center. Please contact Dr. J. Alex De Abreu at alexd@uakron.edu or (330) 972-6709 for additional information.

**Center for Applied Polymer Research**

Crittenden J. Ohlemacher, Ph.D., Manager

Operating under the College of Polymer Science and Polymer Engineering, the Applied Polymer Research Center (APRC) provides technical services to companies locally, nationally, and around the world. With a full-time professional staff, the APRC is dedicated to providing timely and reliable contractual technical services for industrial and government clients of all sizes. Key areas of technical service include: polymer characterization, additive identification, defect analysis, thermal analysis, dynamic mechanical thermal analysis (RTA, DMA), chromatography, spectroscopy, and physical properties testing.

**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—form interpersonal to international.

For more information, contact the office, 202 Olin Hall, (330) 972-5855, wtyons@uakron.edu, or www.uakron.edu/conflict.

**H. Kenneth Barker Center for Economic Education**

Brad Maguth, Ph.D., Acting Director

The center exists to improve the economic literacy of individuals to help them function competently as citizens, producers and consumers. The center conducts workshops, seminars and economic programs for teachers, students and interested groups. It provides consulting services in the area of economic education and acts as a clearinghouse for the gathering and dissemination of economic education materials and programs. It also fosters an understanding and appreciation of the American economic system.

**Center for Emergency Management and Homeland Security Policy Research**

Terrence M. O’Sullivan, Ph.D., Director

The Center for Emergency Management and Homeland Security Policy Research at The University of Akron is dedicated to create a supportive environment for research in emergency management, and outreach in Emergency Management and Homeland Security. The Center supports and encourages interdisciplinary endeavors in these fields that will make a positive contribution to society and is a collaborative partnership between The University of Akron and The Ohio Emergency Management Agency.
Center for Environmental Studies
Ira D. Sasiowsky, Ph.D., Director
The Center for Environmental Studies matches the expertise of about 90 faculty in various disciplines with the needs of students seeking study and research opportunities related to the environment. Since its founding in 1970, the center has sponsored, or in other ways supported, activities appropriate to understanding the Earth system and maintaining a quality environment for humanity.

The center offers both undergraduate and graduate certificate programs. By enrolling in selected courses outside of their major field of study, students receive the broad training required to address environmental concerns. The center also coordinates special forums, workshops, and seminars that address major issues. Examples include the Energy Forum, the World Food Forum, and Evaluation of Environmental Data. Workshops on environmental studies in England, energy, and natural history exemplify the interdisciplinary approach to the understanding of issues.

Center for Family Studies
Pamela Schulte, Ph.D., Director
The Center for Family Studies, established in 1979, was designed to stimulate and encourage the interdisciplinary study of the family. It serves both the University and the community by fostering collaboration between faculty, students, practitioners, and community leaders on curriculum development, educational conferences and seminars, research and training, and public policy relevant to important family issues. The Center is a member of the Sloan (Foundation) Work and Family Research Network and can supply current and credible information on work-family issues to its constituents.

The Center is represented by faculty from a diversity of programs across campus. It also includes leaders from various community systems, such as the schools, hospitals, courts, churches, mental health, social and health care agencies. In addition, the Center has a fellows program in which outstanding faculty and community leaders are named as either fellows, adjunct fellows or senior fellows.

The Center offers trainings and certificates in the following specialty areas: General Mediation, Divorce Mediation, Parent Education, Case Management for Children and Families, and Home-Based Intervention. For more information, please refer to the descriptions of Interdisciplinary Certificate Programs in this Bulletin or the General Bulletin. Any student, faculty member or community person interested in family issues is invited to call the director to learn how they can participate or learn more about the Center’s activities.

Center for Information Technologies and eBusiness
Bindiganavale S. Vijayaraman, Ph.D., Director
The Center for Information Technologies and eBusiness (CITE) is a multi-disciplinary center within the College of Business Administration. CITE was created in 2000 with the mission to teach students and develop faculty in the principles and practices of the related disciplines of Information Technology and electronic business. CITE will accomplish its mission by providing scholarships, mentoring, internships, and co-op opportunities to students in the information systems discipline; provide resources to conduct research in the IT discipline to faculty; and conduct several outreach activities that promote IT among the local companies.

CITE is made up of an advisory board of Information Technology leaders from the Northeast Ohio region and the College of Business Administration faculty, staff, and students. The objectives of CITE are to advance information technology (IT) and information systems (IS) programs, research, best practices, and related activities at The University of Akron. The vision of CITE is to be widely recognized as an important resource connecting IT executives with IS faculty and students at The University of Akron that will provide educational, research, and networking opportunities for students, faculty, and local businesses. Visit the CITE website at http://cite.uakron.edu for more information.

Center for Intellectual Property Law and Technology
Jacqueline Lipton, Ph.D., Director
The Center for Intellectual Property Law and Technology in the School of Law is one of a number of such centers in the nation. The center exposes the community to critical thinking in the intellectual property law field, coordinates and implements the 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. In August 2011 the Center began administering a joint J.D./LL.M. program in Intellectual Property Law.

Center for Literacy
Lisa Lenhart, Ph.D., Director
The Center for Literacy furthers the mission of both the University of Akron and its College of Education through a variety of programs that support development of expertise and dissemination of knowledge about language learning. The Center brings preservice, in-service, and university teachers together with children and families in the greater Akron area through a wide range of literacy related projects. Further information about the Center for Literacy can be found at http://www.uakron.edu/education/community-engagement/literacy/.

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

Center for Statistical Consulting
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 planning of studies and analysis of the resulting data for theses, dissertations, and other research. The office is located in the College of Arts and Sciences Building, Room 424. When requesting statistical consulting refer to the Center’s website at http://www.uakron.edu/statistics/about-us/center-for-statistical-consulting/ or the General Bulletin. Fill out the Request for Statistical Consulting form and send it back to the Department of Statistics. You will be contacted to arrange for an appointment.

English Language Institute
J. Thomas Dukes, Ph.D., Interim Director
Established in 1979, the English Language Institute (ELI), part of Buchtel College of Arts and Sciences, offers a program in English as a Second Language (ESL) instruction. Its English for Academic Purposes Program provides non-credit ESL courses to international students and nonnative 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 language proficiency tests to meet the University’s English requirement. (The TOEFL, Test of English as a Foreign Language, or the ELI-ASSET, Academic Study Skills and English Test, along with ESL courses may be used to successfully complete the ELI and gain academic coursework.) In addition, students receive a wide variety of support services to facilitate their transition to life and study in the United States.

In addition to its instructional program, 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 as for members of the local community. For more information, visit the ELI web site at www.uakron.edu/eli/, e-mail u-eli@uakron.edu, or call 330-972-7544.

Fisher Institute for Professional Selling
Chris Plouffe, Ph.D., Director
Established through a gift from Ronald and Diane Fisher in 1992, the Ronald R. and Diane C. Fisher Institute for Professional Selling is the second oldest sales program in the world and widely regarded as one of the best.

The mission of the Fisher Institute for Professional Selling is (1) to enhance the image of the sales profession and to promote professional selling and sales management as rewarding lifelong careers; (2) to provide world-class, high quality excellence in sales education through our sales major, minor, and certificate programs; (3) to forge strong partnerships with the business community by providing them with top talent and outstanding training and consulting to their sales executives and their business needs; and (4) to conduct research that advances the field of sales.

The sales function generates the revenue that enables the rest of the corporation to operate. Jobs are abundant in the field of sales. Current placement is 100% (compared to 37% in all other majors).

Visit the website at http://www.uakron.edu/cba/fisher for more information.
William and Rita Fitzgerald Institute for Entrepreneurial Studies

In 1995, a generous gift from William and Rita Fitzgerald created the Fitzgerald Institute for Entrepreneurial Studies in the College of Business Administration. The Institute was established to promote the principles of free enterprise and encourage entrepreneurial spirit and practices both within the University’s curriculum and throughout the business community.

The Fitzgerald Institute focuses on the development of curriculum appropriate for both new ventures and the entrepreneurial development and growth of existing businesses. The Institute provides the needed link between the University and the community of entrepreneurs critical to business development in the future.

For information, contact the Institute, CBA 412, 330-972-7015.

Institute for Global Business

Akhilesh Chandra, Ph.D., Director

The University of Akron received a special grant from the State of Ohio to expand its offerings of undergraduate and graduate degree programs in international business. As a result of the State grant, the Institute for Global Business (IGB) was established in 1996 as an academic unit within the College of Business Administration. The mission of the Institute is to educate students with requisite skills and preparation to assume leadership roles in the global business model.

The Institute coordinates both credit and noncredit programs in international business at the undergraduate and graduate levels. The Institute also offers short courses and seminars to assist in improving international competitiveness of area organizations. With a focus on providing to our students holistic academic experiences with significant global learning opportunities, the Institute has been an integral component of the College since its inception.

Institute of Polymer Science and Polymer Engineering

Alamgir Karim, Ph.D., Interim Director

The Institute of Polymer Science and Polymer Engineering provides research support and technical service for the graduate research programs in the Department of Polymer Science and the Department of Polymer Engineering. The technical support staff provide instruction and service for students and faculty in laboratories dedicated to electron microscopy (SEM, TEM EDS, EIX), polymer characterization (SEC, DSO, TGA, light scattering, FTIR, UV-vis, X-ray, AFM, contact angle goniometer), polymer processing (mixing, extrusion, film formation, molding, filament winding, pultrusion, electrospinning), electronics and electrical repair, machining, glassblowing and a variety of analytical and processing equipment. In cooperation with the Departments of Chemistry and Chemical Engineering, the University of Akron NMR Center maintains a satellite nuclear magnetic resonance laboratory equipped with 500 MHz solid-state and solution instruments supervised by a professional staff. The Polymer Blending and Compounding Center and the Applied Polymer Research Laboratory provide contract technical service for industry and government.

Institute for Teaching and Learning

Becky J. Hoover, Ph.D., Associate Provost, Talent Development, Office of Academic Affairs, and Title IX Coordinator

The Institute for Teaching and Learning supports skill building and career development for faculty, teaching assistants, staff, contract professionals, and academic administrators. Orientation programs, workshops, online seminars, and a resource library provide tools to support classroom excellence, student success, workplace effectiveness, and career development at every stage of life and career.

Student Success workshops bring together faculty and student affairs professionals to help integrate their efforts to provide wraparound services for our students. Topics include: Supporting At-Risk Students, Teaching in Learning Communities, Using Peer Mentors and Learning Assistants, Serving Adult Students and Veteran Students, and Integrating Career-Related Learning Experiences. Teaching Tools seminars and online modules provide practical guidance on classroom instruction. Topics include: Documenting Student Learning, Supporting Student Success, Teaching with Technology, and Using Experiential Learning.

Career Tools workshops and online modules provide faculty with strategies for building their teaching portfolios and telling the story of their research to support their retention, promotion, and tenure. The Department Chair and Director Leadership Program provides guidance and support for administering an academic department. All audiences benefit from workshops and online modules on administrative procedures, compliance issues, effective communications, team-building and teamwork, stress management, work-life balance, and retention.

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

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 joint faculty that are nationally and internationally recognized scholars in gerontology.

The Institute of Life-Span Development and Gerontology has grown into a campus-wide program involving more than 63 faculty in over 20 different departments, representing six colleges. Students in the certificate programs carry out field placements at numerous community service settings. There are over 30 courses at the undergraduate and graduate levels. Research, education, training and service support has been administered from the U.S. Department of Agriculture on Aging, National Institute on Aging, U.S. Department of Education, Office of Special Education and Rehabilitation Services, National Institute on Disability and Rehabilitation Research, AARP Andrus Foundation, Ohio Department of Aging, and Area Agency on Aging 10B. The Institute has served as a major site for the Rehabilitation Research Training Center Consortium on Aging and Developmental Disabilities involving seven universities in six states.

Examples of outreach activities include The Tri-County Senior Olympics.

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.

National Center for Education and Research on Corrosion and Materials Performance

The National Center for Education and Research on Corrosion and Materials Performance (NCERCAMP) provides a holistic approach that helps government and industry develop solutions for their corrosion and materials performance challenges and day-to-day problems.

The Center offers a unique and comprehensive set of programs in education and workforce training research and technology development, as well as outreach and public policy activities. This not only supports the development of new products, but it also supports greater awareness of the need for enhanced approaches to addressing corrosion and materials performance.

Nursing Center for Community Health

Annette Mitzel, MSN, RN, Director

The Nursing Center for Community Health (NCCH) was founded in 1982 as one of the first academic nurse managed centers in the United States. Operated through the School of Nursing, the NCCH and its six satellite clinics in the community function as an Academic Nurse Managed Clinic as well as serving as a practice site for faculty and students.
Within the NCCH Advanced Practice Nurses lead an interprofessional team of students and faculty from the College of Health Professions to provide non-emergency, primary, and episodic health care to vulnerable and uninsured community residents.

Serving both the local community and The University of Akron the Nursing Center facilitates collaboration, not only between faculty and students, but among various health care disciplines, building a model for interprofessional education, practice, and research. As part of its mission the Center strives to positively affect the health and wellness of the individual and the greater community.

Nutrition Center
Kathy Schupp, MA, RD, CSG, LD, Director
The University of Akron Nutrition Center is a comprehensive center for the study and delivery of effective nutrition interventions. It provides the needed link between UA nutrition expertise and the extensive preventative health care needs of the campus and surrounding community. The center serves as an educational resource for faculty, staff, and students. The community nutrition services provides nutrition services and conducts research in chronic disease treatment, wellness and disease prevention, nutrition information technology, sports nutrition, food safety and sanitation, and community nutrition.

Taylor Institute for Direct Marketing
Jacob Farrar, MS, Director
The Taylor Institute for Direct Marketing is an educational and research organization focused on Direct Interactive Marketing at The University of Akron, College of Business Administration, on the fifth floor of the Polsky Building.

The Taylor Institute supports a wide range of marketing courses that focus on emerging direct marketing trends encompassing e-Commerce, Interactive Marketing, Social Media, Integrated Marketing Communications, Marketing Management, Marketing Research, and Marketing Analytics.

In addition to academic programs, The Taylor Institute provides University of Akron students with real-world learning experiences in working on direct interactive projects for clients, businesses, and organizations. This includes Kanga Communication, the student-run Social Media agency, open to students across campus, and the Xerox Cross Media XMpire Lab.

Training Center for Law Enforcement and Criminal Justice
Stephen Motika, MEd, MS, Director
The Training Center for Law Enforcement and Criminal Justice provides Basic Peace Officer Training Academies, Police Refresher Training, and Firearms Requalification.

Training Center for Fire and Hazardous Materials
Robert L. Pursley, Jr., Director
The Training Center for Fire and Hazardous Materials brings the University, government agencies, and industries together into one comprehensive regional center to integrate educational programs, fire and hazardous materials training and other applications of fire and safety technology. The mission is to provide comprehensive and integrated first responder training and education that coordinates community resources, protects lives, property, and the environment.

Currently the Center provides training and testing for the following State of Ohio certifications: Firefighter I, Firefighter II, Fire Instructor, Fire Safety Inspector, Fire Inspector Instructor, Live Fire Awareness, and Live Fire Operations. In addition to these state certifications the following certifications and trainings are also available: Incident Safety Officer, Health Safety Officer, Leadership 1, 2, and 3 courses, Fire Officer 1 and 2, customized fire, rescue, and hazardous materials training.

University of Akron Magnetic Resonance Center (UA/MRC)
Venkat Reddy Dudipala, Ph.D., Director
The MRC provides UA students and faculty, and the industrial and external academic scientific community, with access to routine and state-of-the-art magnetic resonance facilities and technical expertise. These capabilities include instruments for solution and solid state NMR, and the expertise of technical staff with experience in using these instruments for problem solving in chemistry, biological sciences, and polymer science and polymer engineering. Students and faculty are trained in the use of the instruments and NMR techniques in general through an ongoing educational process. The center has instruments in The Knight Chemical and Goodyear Polymer buildings. For more information contact Venkat Reddy Dudipala at (330) 972-8645 or vrd@uakron.edu or visit our website at http://www.uakron.edu/chemistry/magnet

Student Affairs

Off-Campus Student Services
Off-Campus Student Services resource center and administrative offices are located on the first floor of the Student Union. The center provides up-to-date information on apartments and housing around town and transportation options to get to campus including carpools. Educational programs are designed by the center to meet the needs of students living off campus. Much of the general information is posted to the website at www.uakron.edu/offcampus. For additional information students may stop in for assistance during posted hours or reach the center by phone at (330) 972-5500.

Student Conduct and Community Standards
Student Conduct and Community Standards is the department that receives and reviews referrals that allege violations of the University’s Code of Student Conduct. The University of Akron has the responsibility to protect the rights, health and safety of our academic community and to ensure that the members of our community may pursue their educational goals without undue interference. The development and enforcement of standards of conduct for students is an educational endeavor, which fosters students’ personal and social development. Students are expected to abide by applicable federal, state, and local laws and may be held accountable for any violations in which they are involved. Confidentiality is maintained and records of proceedings are released in accordance with the Family Educational Rights and Privacy Act (FERPA). All hearings follow written procedure and respect the rights of the individuals involved. By becoming familiar with the definition of student misconduct, students can be aware of their rights and responsibilities as a student at The University of Akron and have a successful, rewarding experience.

Students are advised to become aware of the disciplinary procedures published in the University Rules and Regulations Concerning Campus Conduct and Student Discipline Procedures (Code of Student Conduct). The Code of Student Conduct, can be accessed by visiting www.uakron.edu/studentconduct or visiting Student Conduct and Community Standards, Simmons Hall 302. For more information regarding the Code of Student Conduct, please contact Student Conduct and Community Standards at studentconduct@uakron.edu or (330) 972-6380.

Student Health Services
Student Health Services, located in Suite 260 of the Student Recreation and Wellness Center, assists students in meeting their academic and personal goals by addressing their health care concerns by providing quality, cost-effective, cultural competent and compassionate health care and health education. Open Monday through Friday, physicians and nurse practitioners in Student Health Services provide care for minor, short-term illnesses and injury as well as academic compliance exams, allergy injections, vaccines, and Women’s Health Services. Nominal fees apply.

The student who becomes seriously ill or suffers a serious injury on campus should be taken to an emergency room at 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 students enrolled for six or more credit hours. More information on the student health insurance plan is contained in brochures available at Student Health Services or online at www.leonardsinsurance.com.

For more information regarding Student Health Services contact (330) 972-7808 or visit the website at http://www.uakron.edu/healthservices.

Student Recreation and Wellness Services
SRWS is a department within the Division of Student Affairs with recreation facilities at the Student Recreation and Wellness Center, Ocasek Natatorium, Buchtel Field, and Central Hoover. We have a tradition of providing recreational and experiential education opportunities in diverse recreational programs, services, and facilities, including: fitness and wellness, intramural sports, club sports, outdoor adventure, aquatics, informal open recreation, special events, and student staff development. We promote physical, emotional, and social growth of individuals by encouraging the development of lifelong skills and positive attitudes through recreation activities. Visit the SRWS website at http://www.uakron.edu/srws.

The Student Union
The Student Union, located in the center of campus, houses numerous functions of student life and student engagement, and serves students, faculty, and staff. This facility offers various food venues, ballroom and meeting rooms, theater, game room, student organization offices, Off-Campus Student Services, Student Conduct
and Community Standards, Computer Solutions—the computer technology store, Zipcard office, DocuZip copy center, bank, Information Center, Barnes & Noble Bookstore, the Buchtelite student newspaper, and Starbucks.

Visit our website at www.uakron.edu/studentunion.

• Food Areas. On the first level is Zee’s convenience store, which has a variety of items, including sundry items for the busy student. On the second level are Subway, Auntie Anne’s, Ohio Burger Company, the Union Market, and Starbucks.

• DocuZip Copy Center, located on the second level, offers the following services: copying, including color, oversized and reduced copies; binding of materials; mailing facilities for campus, U.S. mail, and United Parcel Service (UPS); literature distribution; and class support files.

• Barnes & Noble Bookstore is located on the first level. The primary purpose of the Bookstore is to make available books and supplies required for coursework. In addition, the store also carries a wide range of classroom supplies, paperbacks, engineering and art supplies, photo supplies, greeting cards, University memorabilia and clothing.

• The Student Union Theatre, located on the second floor; screens second-run movies as well as occasional first-run sneak previews. The theater also hosts special events and performances.

• Information Center, located on the second floor, is operated seven days a week. The Information Center staff can answer questions regarding department and student organizations, on-campus events, and the Roo Express. Laptops can be checked out for use in the Union at the Information Center. Please call (330) 972-4636 if you need a question answered.

• The Career Center, located on the second floor, provides career services to all students and alumni of The University of Akron and offers workshops/seminars on resume writing, job search skills, dress for success, etiquette dining, and mock interviews. More information can be found online at www.uakron.edu/career.

• Room Reservations can be obtained in the Student Union. Call (330) 972-8689 to reserve the ballroom and meeting rooms located in the Student Union.

• The Game Room, located on the first floor, has a pool hall, bowling lanes and video gaming. The bowling lanes feature Extreme glow-in-the-dark bowling. Bowling and Billiards physical education classes are conducted in the Game Room.

• College Survival Kit workshops cover many topics including improving academic performance, career planning, increasing wellness, and personal issues; as well as providing support groups for students of diverse cultures. Brochures are available.

Testing Services

• Numerous testing programs including, CLEP, college entrance examinations, career assessments, academic placement testing, on-campus academic testing and learning disorder assessments are available.

Outreach and Consulting Service

• The Center regularly provides speakers for classes, residence halls, student organizations, and administrative offices. Consultation is available for emergency and crisis situations.

Office of Multicultural Development

The Office of Multicultural Development provides a variety of academic programs and services to support the University’s goal of recruiting and retaining multicultural students. The Office assists students with their adjustment to University life by encouraging them to achieve personal, academic, and career goals. Visit the Office of Multicultural Development website at http://www.uakron.edu/cmd/.

Office of the University Registrar

The Office of the University Registrar supports the academic mission of the University and is committed to providing students, faculty, and staff exceptional academic and customer service. Some of the key responsibilities of the Office of the Registrar include:

• Maintaining all student academic records, past and present
• Security and privacy for academic records
• Coordinate the University’s academic schedule of classes and final examination schedules
• Degree clearance and posting of degrees awarded
• Transcript production

Student Services Center

The Student Services Center provides a single location to assist students with services relating to registration, financial aid, and student accounts. These services include, but are not limited to, adding/dropping classes, reviewing/collecting financial aid documents, explaining tuition and fees charges, and much more.

The Student Services Center is located on the first floor of Simmons Hall and can be contacted at (330) 972-7272.

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 Engagement and Success 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 of Akron departments. 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, alcohol 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 Community Policing/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.

To request nonemergency assistance, call extension 2911. To schedule an appointment for an educational program, call extension 2911.

For emergencies, dial 911 from any campus telephone or (330) 972-2911 from a cell phone.

Student Campus Patrol

A student escort service operates 5 p.m. to 2 a.m. during the fall and spring semesters and from 5 p.m. to midnight during summer sessions. By calling extension 7263, an escort will come to the student’s location and accompany him/her to any campus building or parking lot.

Emergency Numbers

Call extension 911 on campus to reach UA police immediately.

Police ................................................................. 911
Campus Patrol .................................................... 7263
(Police Nonemergency) ........................................ 2911
Environmental and Occupational Health and Safety ............................................. 6866
Fire .................................................................. 911
EMS/Medical ..................................................... 911
Electrical/Plumbing ............................................. 7415
Hazardous Materials ......................................... 2911
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.

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 buildings 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.
Graduate School

Chand Midha, Ph.D., Interim Dean

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

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

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

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

History of the Graduate School
Graduate study began a few years after Buchtel College opened its doors, and the first earned master’s degree was conferred in 1882. The College of Education awarded its first master’s degree in 1924, the Colleges of Engineering and Business Administration in 1959, the College of Fine and Applied Arts in 1967 and the College of Nursing in 1979. The School of Speech-Language Pathology and Audiology (previously the Department of Speech and later, the School of Communicative Disorders), now housed in the College of Health Professions, was formerly a part of the Buchtel College of Arts and Sciences and conferred a master’s degree in 1963. The first earned doctoral degrees were conferred in 1959. Professor Charles Bulger was appointed first dean of graduate work in 1953, and he continued in that capacity until 1959. Professor Ernest H. Cherrington, Jr. served as director of graduate studies from 1955 to 1960 and as dean of the Graduate Division from its establishment in 1960 to 1967. Dr. Arthur K. Brinshall was appointed dean of Graduate Studies and Research in 1967, being succeeded in 1968 by Dr. Edwin L. Lively. Dr. Claibourne Griffin succeeded Dr. Lively in 1974 and served in that capacity until 1977. Dr. Joseph M. Walton, associate dean of Graduate Studies and Research, was administrative head of the Graduate School during the 1977-78 academic year. Dr. Alan N. Gent was appointed dean of Graduate Studies and Research in 1978 and served in that capacity until 1986. Dr. Joseph M. Walton served as acting dean of Graduate Studies and Research from 1986 until 1989. In 1989 Dr. Patricia L. Carroll became dean of the Graduate School. Dr. Charles M. Dye was named interim dean in 1993 and became the dean of the Graduate School in 1995 until his retirement in July 2000. Dr. George R. Newkome was appointed Vice President for Research and Dean of the Graduate School in January 2001 until October 2014. Dr. Rex Ramsier currently serves as Interim Dean of the Graduate School.

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

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

The Graduate School offers programs of advanced study leading to the degree of Doctor of Philosophy in chemistry, counseling psychology, engineering (biomedical, chemical, civil electrical, engineering applied mathematics, mechanical, and polymer), guidance and counseling, history, integrated biosciences, nursing, polymer science, psychology, and sociology. The Doctor of Philosophy programs in nursing and sociology are joint programs with Kent State University. The Doctor of Audiology (Au.D.) program is a joint degree program administered by The University of Akron and Kent State. Further, the school also offers programs of study 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, five members from the Buchtel College of Arts and Sciences, two members from the College of Health Professions, one member from the College of Polymer Science and Polymer Engineering, and one student member elected yearly by the Graduate Student Government. 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 Graduate Council is the executive committee of the graduate faculty. The functions of the council include examination of proposed graduate programs and course offerings, recommendation of policy for all phases of graduate education, recommendation of persons for membership in the graduate faculty, and advising and counseling the dean in administrative matters.

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

Other Graduate Student Organizations
Chemical and Biomolecular Graduate Student Association
Chi Sigma Iota - Alpha Epsilon
Counseling Psychology Graduate Student Organization
Graduate Nursing Student Association
Graduate Student Business Organization
Industrial/Organizational Psychology Graduate Club
Master of Social Work Student Association
Polymer Engineering Student Organization
Polymer Science Graduate Student Organization
Public Administration and Urban Studies Student Association
Society for the Advancement of Marriage and Family Counseling/Biology
Society of Akron Graduate English Scholars
Sociologists for Women in Society
Student Academy of Audiology
Student Association for Graduate Studies 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. Some programs have earlier deadlines. Applicants should contact the departments for more detailed application information. Information on graduate programs, including application deadlines, is available on the Graduate School website at http://www.uakron.edu/gradsch.

First-time applications to the Graduate School must be accompanied by an application fee. The fee for domestic students is $45. The fee for international students is $65. Applicants are responsible for seeing that the above conditions are met by the deadlines for filing applications.

All documentation submitted to the Graduate School becomes the permanent property of The University of Akron. The Graduate School converts all documentation into an electronic file. After the document is converted into an electronic file the hard copy document is destroyed, and, as a result, the Graduate School is not able to provide and/or return original documentation to any applicant.

An offer of admission may only be made to an applicant who meets all admission requirements. 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. To apply for admission, the student must submit a new application along with the reapplication fee to be reconsidered. Admission to graduate study in any program can only be granted by the Dean of the Graduate School, and no student will be admitted without approval and acceptance by an academic department within the University, but admission to a department does not necessarily imply 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 and the staff of that office.

Admission Validity

An applicant is admitted for the term for which he/she seeks admission as indicated on the graduate application. Admission for graduate studies is valid for one year, thus an applicant is provided the option of deferring admission to a later semester within the one year timeframe. The offer of admission is void, however, if the applicant does not register for and attend courses within one year from the semester for which admission was granted. An individual whose offer of admission has lapsed must submit a new application along with the reapplication fee 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 and 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 an academic department within the University, but admission to a department does not necessarily imply 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 and the staff of that office.

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 at the department’s discretion. Prior to selecting the examination and minimum 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 granted to a person who desires to pursue a graduate degree that does not require a baccalaureate degree from an accredited college or university with an overall grade-point average of 2.75 or better and 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. This admission status permits a student to take up to 15 semester credits of graduate coursework. Graduate courses taken under this admission status may be applied to a graduate degree program, but only when all requirements for full admission have been met.

- Deferred Admission may be granted if the applicant’s record does not meet provisional admission standards. After completion of a postbaccalaureate program of study, with an appropriate GPA, as prescribed by the department (usually two to five courses), the student may be reconsidered for provisional admission to the Graduate School. Graduate-level coursework cannot be taken by a student under the deferred admission status.

- Conditional 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 on the paper-based TOEFL or 213 on the computer-based TOEFL, or 79 on the internet-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.

- Non-Degree Admission may be granted to a person who wishes to take particular courses but who is not working toward a graduate degree. This admission status permits a student to take unlimited credits of graduate coursework. Graduate courses taken under this admission status may be applied later to a graduate degree program, but only when all requirements for full admission have been met.

- Workshop status is for a person permitted to take workshops for graduate credit without being admitted to Graduate School. Such permission is granted by the workshop director upon receipt of a signed statement of possession of a baccalaureate degree by the applicant, and terminates upon completion of this workshop. A student admitted to workshop status must apply through regular channels for any other category. A maximum of six workshop credits may be applied to degree work at a later date if the applicant is given full admission to the Graduate School.

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

- Undergraduate status is for an undergraduate student at the University who may be granted permission to take one or more graduate-level courses if all the following conditions are met.

  - senior standing;
  - overall grade-point average of 2.75 or better through preceding term (if a student does not have a 3.00 or better in the major field, special justification will be required from the department);
  - written approval is given by the instructor of the course and the student’s advisor.

These courses may later be applied to a degree program if not used to satisfy baccalaureate degree requirements. The maximum number of graduate credits that may be taken by an undergraduate and applied later toward a graduate degree is 12.
• Academic Probation status refers to any student whose cumulative graduate grade point average falls below 3.00 and is no longer in good academic standing. Full-time students 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 additional 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 degree 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 expecting 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 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 grades. A written application should be submitted to the dean of the Graduate School for each course to be taken, and approval of the instructor, department 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

The University of Akron Sixty-Plus Program has been designed to allow persons over 60 years of age to attend University courses on a non-credit (audit) basis without having to pay tuition, general service fees or other fees not charged to all students taking the same classes under conditions described below.

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 permitted to enroll in a class on a space available basis. Sixty-Plus students will be allowed in classes only after degree-seeking students have registered.

Sixty-Plus students are listed as audit students. Audit students do not generate state subsidy, therefore, audit students should not be considered in making courses reach minimum size.

Students 60 years or older who choose to take classes for credit must pay full tuition and fees.

Sixty-Plus participants are subject to the same disciplinary and/or governance rules affecting all students.

A Sixty-Plus student must either satisfy prerequisite class requirements or obtain the instructor’s permission.

A Sixty-Plus students’ admittance into a course is subject to instructor’s approval.

A Sixty-Plus student may register for no more than three courses (11 or fewer credits) per semester.

Sixty-Plus students are responsible for payment of approved fees, which are assessed to all students taking the same course. Tuition, general service fees, and any other fee not assessed to all students taking the same class will be waived.

Sixty-Plus students are responsible for any other expenses such as parking permits or books.

The Sixty-Plus program is intended to comply with section 3345.27 of the Revised Code.

Persons over the age of 60 may attend University of Akron courses and received credit for courses taken under the conditions outlined above if the person’s family income is less than 200% of the federal poverty guideline, as revised annually by the United States Secretary of Health and Human Services in accordance with Section 673 of the Community Services Block Grant Act, 42 U.S.C.A. 9902, as amended for a family size equal to the size of the family of the person whose income is being determined. However, a person receiving credit for attending courses under this division will be charged a tuition or matriculation fee in an amount no greater than the amount of any part-time student instructional grant awarded to the person by the state university or college in its discretion. The following shall also apply:

Eligible Sixty-Plus participants may enroll for no more than three courses (11 or fewer credits) unless request to enroll in a greater number is approved by the Senior Vice President and Provost and Chief Operating Officer.

Participants in this program may be prohibited from enrolling in certain courses for which special course or training prerequisites apply, in which physical demands upon students are inappropriate for imposition upon persons 60 years of age or older, or in which the number of participating regular students is insufficient to cover the University’s course-related expenses.

Sixty-Plus students are subject to the same disciplinary and/or governance rules affecting all students.

This policy is subject to an provided by Ohio law and The University of Akron Board of Trustees regulations, either of which may be amended from time-to-time.

Course Load

A full load of coursework at the graduate level is normally 9-15 semester credits including audit.

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 online through 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, Ohio University, Northeast Ohio Medical University, 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, OU, NEOEDM or YSU. Registration for such a course is controlled by the home department and will be permitted only upon receipt of an approved Cross Registration form. Cross Registration forms can be obtained online at http://www.uakron.edu/gradsch/current-students/currforms.doc.

Financial Assistance

The University awards a number of graduate assistantships to qualified students. These assistantships provide stipends of $6,000 to $22,000 plus remission of tuition and some 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. Tuition scholarships are also available in some departments on a limited basis.

A number of fellowships sponsored by industry and government agencies are available in some departments. For information, contact the chair of the department.

Additional information concerning financial aid policies is available in the Graduate Assistant Handbook which can be obtained online at http://www.uakron.edu/gradsch/current-students/.

International Students

The University of Akron welcomes international students and seeks to make their educational experience pleasant and meaningful. Currently, more than 1,000 international students and scholars from 90 countries pursues 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 $70 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 Graduate School, The University of Akron, Polsky Building, Room 407, Akron, OH 44325-2101, the Declaration and Certification of Finances (DCF), an original statement from the bank showing availability of sufficient funds to cover the cost of the first year of study, and a copy of the passport. The Graduate School will prepare the Certificate of Eligibility (I-20A/B or DS-2019) upon
receipt of adequate financial support, copy of the passport, 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 fellowships, scholarships, assistantships, or graduate teaching assistantships. Prospective teaching assistants must achieve a passing score on the University of Akron Developed English Proficiency Test (the U-ADEPT), or a 23 or greater on the speaking component of the internet-based TOEFL. Visit http://www3.uakron.edu/eli/UAEDEPT/uadeptindex.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 213 on the computer-based TOEFL or 79 or higher on the internet-based TOEFL. (The following departments require a higher standard of proficiency: English and History require a TOEFL of 580/237/92; and Biomedical Engineering requires a TOEFL of 590/243/86.) Scores more than two years old will not be accepted. See http://www.toefl.org for information about the TOEFL.

- 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.

- 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.

- 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.

- Successful completion of an undergraduate or graduate program at a university outside the United States in which English is the language of administration and instruction. English must be used for all administrative functions and for all areas of instruction (with the exception of foreign language courses) including course lectures, materials, discussions, readings, and writing assignments. Applicants must submit an official original document from the undergraduate or graduate institution certifying that all of the administrative functions and instruction are conducted in English. The document must be signed by an officer of the institution and carry an official seal. The Associate Dean of the Graduate School at The University of Akron will review the submitted document and inform the applicant if he or she has satisfied the English requirement. The decision will be final.

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), which can be downloaded at http://www.uakron.edu/ip/immigration/forms.dot. Annual tuition and living expenses for the 2015-2016 academic year will be approximately $30,000. Tuition is subject to change.

Graduate students may request financial aid through fellowships and graduate assistantships. More detailed information can be found on the Graduate School website.

The University of Akron requires that all international students and visiting scholars and researchers who are taking classes purchase major medical health insurance. J visa holders are also required to purchase catastrophic insurance for themselves and any dependent and/or spouse living with them in the United States. Students are required to purchase The University of Akron Student Health Plan unless they have an alternate health plan that meets the requirement for a waiver: government-sponsored, scholarship, or parental employer coverage.

Immigration Information for Graduate Students on F-1/J-1 Visas

Before the Certificate of Eligibility (I-20 or DS-2019) can be issued the Declaration and Certification of Finances (DCF) Form must be completed and returned to the Office of International Programs along with financial documentation as specified on the form and a copy of the biographical page of the passport. Information on estimated expenses for international graduate students on F-1/J-1 status can be found on the DCF Form, which can be downloaded at http://www.uakron.edu/ip/immigration/forms.dot. The DCF form also indicates the additional cost for an F-1 or J-1 student’s dependents should they accompany or join the student at The University of Akron. Students who bring dependents must also submit a copy of the biographical page of the passport of each dependent. According to U.S. government regulations, financial documents must demonstrate that the student has enough funds immediately available to meet all expenses of the first year of the program, and that adequate funding will be available for each subsequent year of the program. Documents must be dated within one year from the start date of the student’s program.

Once the student has been admitted he/she must submit the DCF form, a copy of their passport, and financial documents to the Office of International Programs. After all documents are approved the Office of International Programs will issue the Certificate of Eligibility (I-20 or DS-2019) which is required for a student to apply for an F-1 or J-1 visa. A Certificate of Eligibility (I-20 or DS-2019) will not be issued for online programs which do not require the student’s physical presence on The University of Akron campus.

A student on an F-1 or J-1 status transferring to The University of Akron from another U.S. college/university, without leaving the U.S., will be eligible for transfer only if he/she maintains valid nonimmigrant status. The I-20 or DS-2019 will be issued upon submission of the documents proving valid status, meeting the requirements mentioned above, and the release of the SEVIS record to The University of Akron. A new I-20 or DS-2019 must be obtained before the student begins his/her program at The University of Akron.

International Student Orientation

The required International Student Orientation takes place one week before Fall classes begin, one week before Spring classes begin, and the Friday before each summer session. Students beginning academic studies during the Summer semesters must attend Fall orientation. The cost is $100 (cost subject to change). The fee will be automatically assessed to student’s account during the first semester of enrollment.

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 “Pass” on the U-ADEPT or a 23 or greater on the speaking component of the internet-based TOEFL. 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 English proficiency testing nor departmental certification is required for research, instructional support, 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:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
<th>Key</th>
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<tbody>
<tr>
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<tr>
<td>A-</td>
<td>3.7</td>
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<tr>
<td>B+</td>
<td>3.3</td>
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<tr>
<td>B</td>
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<td>B-</td>
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<td>C+</td>
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<td>AUD</td>
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</tbody>
</table>
The following grades may also appear on the term grade reports or on the official academic record. There are no grade points associated with these grades.

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

er 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 instruc-
tor’s dean have for special reason authorized the change of an incomplete (“I”) or an
in progress (“IP”) to a permanent incomplete (“PI”).

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

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

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

*If instructors wish to extend the “I” grade beyond the following term for which the student is reg-
istered, 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 Presi-
dent for Research and Dean of the Graduate School to remove from his/her grad-
uate 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 enroll-
ment
• 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 pol-
cy:

• 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 aca-
demic record (transcript); this process will affect the cumulative graduate grade
point average only. It will not remove evidence/documentation of the student’s
overall academic history at the university.

• No grades/credits from the student’s prior graduate enrollment at the university
my be counted toward the subsequent degree program requirements. Degree
requirements may only be met by courses included in the calculation of the stu-
dent’s cumulative graduate grade point average at The University of Akron. Thus,
the student who successfully petitions for cumulative graduate grade point aver-
age 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.

Discipline. Continuation as a student of the University is dependent on the main-
tenance of satisfactory grades and conformity to the rules of the institution.

Repeating Courses

Any graduate course may be repeated once for credit; however, the degree require-
ments 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, fac-
culty 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 combina-
tion 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 par-
ticular 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 dis-
miss full-time students who do not return to good academic standing within two con-
secutive semesters (excluding summers) and part-time students who do not return
to good academic standing within the attempting of 15 additional credits.

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

The dean of the Graduate School, with the approval of the relevant department 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 accumula-
tion 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 satisfac-
tory performance is submitted and found to be acceptable.

Commencement

Students must file an online application for graduation with the Office of the Uni-
versity Registrar after completion of one-half of the credits required for their degree
program or by the following dates:

• March 1 for Spring Commencement
• June 1 for Summer Commencement
• October 1 for Fall Commencement

Students wanting to attend the commencement ceremony must visit the Office of
the University Registrar website to respond to the ceremony.

Academic Dishonesty

Students at The University of Akron are an essential part of the academic commu-
nity, and enjoy substantial freedom within the framework of the educational objec-
tives of the institution. The freedom necessary for learning in a community so rich in
diversity and achieving success toward our educational objectives requires high stan-
dards of academic integrity. Academic dishonesty has no place in an institution of
advanced learning. The University community is governed by the policies and reg-
ulations contained within the Code of Student Conduct available at
www.uakron.edu/colp, in Student Union 216, or by contacting Student Conduct and
Community Standards at 330-972-6390 or sja@uakron.edu.

The University of Akron considers academic integrity an essential part of each stu-

dent’s personal and intellectual growth. Instances of academic dishonesty are
addressed consistently. All members of the community contribute actively to build-
ing 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 acade-
mic 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.

- Possession and/or unauthorized use of tests, notes, books, calculators or formulas stored in calculators not authorized by the instructor during an examination.
- Providing and/or receiving information from another student other than the instructor, by any verbal or written means.
- Observing or assisting another student's work.
- Violation of the procedures prescribed by the professor to protect the integrity of the examination.
- Cooperation with a person involved in academic misconduct.

An incident of academic misconduct may be resolved and a sanction assessed in a meeting between the faculty member and student. If the student and faculty member agree on the facts of the incident and the proposed sanction, the matter can be resolved informally. Prior to an informal resolution the faculty member shall confer with Student Conduct and Community Standards to determine whether any prior academic misconduct has occurred. If the student and faculty member disagree about the facts of the incident or the proposed sanction, then the matter shall be referred to Student Conduct and Community Standards. When the matter is referred to Student Conduct and Community Standards a meeting will occur, and if the evidence indicates it is more likely than not that an academic misconduct violation has occurred, the department will follow procedures that can be found in the Code of Student Conduct at www.uskron.edu/sjc.

Graduate Student Grievance

Specific procedures are set forth that 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. Discussion of these procedures can be found in the Appendix of this Bulletin.

Ohio Residency Requirements

Payment of a non-resident surcharge is required of any student who does not qualify as a permanent resident of Ohio as defined by Section

A. Intent and Authority
1. It is the intent of the Ohio Board of Regents in promulgating this rule to exclude from treatment as residents, as that term is applied here, those persons who are present in the state of Ohio primarily for the purpose of receiving the benefit of a state-supported education.
2. This rule is adopted pursuant to Chapter 119 of the Revised Code, and under the authority conferred upon the Ohio Board of Regents by Section 3333.31 of the Revised Code.

B. Definitions
For purposes of this rule:
1. “Resident” 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 public assistance, 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” shall have the same meaning as “state institution of higher education” as that term is defined in section 3345.021 of the Revised Code, and shall also include private medical and dental colleges which receive direct subsidy from the state of Ohio.
4. “Domicile” as used in this rule is a person’s permanent place of abode so long as the person has the legal ability under federal and state law to reside permanently at that abode. For the purpose of this rule, only one (1) domicile may be maintained at a given time.
5. “Dependent” shall mean a student who was claimed by at least one parent or guardian as a dependent on that person’s internal revenue service tax filing for the previous tax year.
6. “Residency Officer” means the person or persons at an institution of higher education that has the responsibility for determining residency of students under this rule.
7. “Community Service Position” shall mean a position volunteering or working for: (a) VISTA, Americorps, city year, the peace corps, or any similar program as determined by the Ohio Board of Regents or (b) An elected or appointed public official for a period of time not exceeding twenty-four consecutive months.

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 student whose spouse or 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 twelve consecutive months or more immediately preceding the enrollment of such student in an institution of higher education.
2. A person who has been a resident of Ohio for the purpose of this rule for at least twelve 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 twelve consecutive months, financial support from persons or entities who are not residents of Ohio for all other legal purposes.
3. A dependent student 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 the parent, legal guardian, or spouse of the student is employed full-time in Ohio.
   b. A copy of the lease under which the parent, legal guardian, 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, legal guardian, or spouse is the owner and occupant; or if parent, legal guardian, 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, legal guardian, or spouse resides at that residence.

D. Additional criteria which may be considered by residency officers in determining residency 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 Ohio public assistance;
   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 of or intends to be a resident of another state or nation for the purpose of tax liability, voting, receipt of public assistance, or student loan benefits (if the student qualified for that loan program by being a resident of that state or nation);
   b. if a person is a resident of or intends to be a resident of another state or nation for any purpose other than tax liability, voting or receipt of public assistance (see paragraph (D)(2)(a) of this rule).
3. For purposes of determining residency for tuition surcharge purposes at Ohio’s state-assisted colleges and universities, an individual’s immigration status will not preclude an individual from obtaining resident status if that individual has the current legal status to remain permanently in the United States.

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 shall be considered a resident of Ohio for these purposes.
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.
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.
5. 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.
6. 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.
7. 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.
8. 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.
Tuition Fees

F. Procedures

1. A dependent person classified as a resident of Ohio for these purposes (under the provisions of Section C.1. of this rule) and who is enrolled in an institution of higher education 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 twelve 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. of this rule, 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 twelve months after accepting employment and establishing domicile in Ohio.

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

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

6. Any institution of higher education charged with reporting student enrollment to the Ohio Board of Regents for state subsidy purposes and assessing the tuition surcharge shall provide individual students with a fair and adequate opportunity to present proof of his or her Ohio residency for purposes of this rule. Such an institution may require the submission of affidavits and other documentary evidence which it may deem necessary to a full and complete determination under this rule.

Fees

All fees reflect changes in 2015-2016 and are subject to change without notice.

Application Fee (this fee is not refundable under any circumstances)

- Domestic: $45.00
- International: $70.00
- Domestic Student Reaplication Fee: $45.00
- International Student Reaplication Fee: $45.00
- 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)

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

Tuition Fees

Ohio Resident Tuition per credit:

- College of Arts and Sciences: $442.10
- College of Business Administration: $461.45
- College of Education: $429.50
- College of Engineering: $442.10
- College of Health Professions: $421.05
- College of Polymer Science and Polymer Engineering: $429.50
- Non-resident Surcharge per credit: $305.88

General Fee
Per credit hour: $16.45 per credit (capped at 12 credits)

Administrative Fee
Graduate, transient students: $30.00 per term

Facilities Fee
Per credit hour: $28.50 (capped at 12 credits)

Technology Fee
Per credit hour: $16.25

Library Fee
Per credit hour: $4.00

Engineering Infrastructure Fee
Per credit hour (all Engineering courses): $26.00

Master of Public Health Program
- Tuition: $554.00 per credit hour
- Non-resident surcharge: $305.88 per credit hour
- Parking (if enrolled in more than five credit hours): $175.00 per semester

Master of Fine Arts
- Tuition: $541.00 per credit hour
- Non-resident surcharge: $305.88 per credit hour
- Parking (if enrolled in more than five credit hours): $175.00 per semester

MTax Direct
- $25,000 (total program rate for Fall 2015 cohort. Additional fees may apply.)

Saturday MBA Program
- $33,000 (total program rate for Fall 2015 cohort. Additional fees may apply.)

Joint Ph.D. in Nursing Program (UA and KSU)
- Tuition: $491.00 per credit hour
- Non-resident surcharge: $324.00 per credit hour
- Dissertation fee:
  - Dissertation I (1-15 credits per semester): $192.00 per credit hour
  - Dissertation II (flat rate): $15.00 per credit hour

Doctor of Audiology (Au.D.) (UA and KSU)
- Tuition: $495.00 per credit hour
- Non-resident surcharge: $342.00 per credit hour

Transportation Fee (Parking Permit and Roo Express Shuttle Service)
- Per semester, Fall and Spring: $175.00
- Summer: $120.00
- One day only permit: $6.00 per day

Student Conduct and Community Standards Fees

Administrative Fees (Finding of Responsibility/Informal Warning):
- Agreement reached during Fact Finding: $25.00
- Agreement reached during Hearing Board (HB) Process: $50.00

Workshop Referrals:
- Discussing Our Choices Workshop: $50.00

Disciplinary Fines:
- Substance Abuse Violations:
  - Alcohol use/possession/distribution
    - First offense: $50.00
    - Second offense: $75.00
    - Third (+) offense: $125.00
  - Drug/controlled substance use/possession
    - First offense: $75.00
    - Second offense: $125.00
    - Third (+) offense: $250.00

- Serious Violations of the Code of Student Conduct
  - Violent/threatening behavior: $150.00
  - Theft: $150.00
  - Weapons: $200.00
  - Drug sales/distribution: $150.00
  - Other fines corresponding to the nature of violation up to: $250.00

*Restitution for lost/stolen/damaged while in possession (max) is cost plus 20%

Other Fees

Course materials fees – assessed for selected courses to cover the cost of instructional materials. Consult the appropriate college, department, or school regarding specific course material fees for classes.

The University of Akron Developed English Proficiency Test (U-ADEPT): $125.00

Miller Analogies Test (Counseling, Testing, and Career Center): $90.00

Late payment fee: $100.00

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.

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 Federal Student Aid Programs. 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. Inquiries may be directed to the Office of Student Financial Aid, Simmons Hall, 330-972-7032 or 1-800-621-3847.
Payment Plan
A payment plan option is available to help those students who cannot pay full charges for tuition, on-campus housing, and/or the meal plan at the start of the semesters. Under the payment plan students agree to pay tuition and fees in installments over the semester. A down payment is required to start.

Detailed information on the Payment Plan can be found online at: http://www.ukron.edu/paymentoptions

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 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. Students are advised to consult the website of the Office of Student Accounts/Bursar and this bulletin for tuition and fees. Registration does not automatically carry with it the right of a refund or reduction of indebtedness in cases of failure or inability to attend class or in cases of withdrawal. The student assumes the risk of all changes in business or personal affairs.

Fees Subject to Refund
- Ohio resident tuition and nonresident surcharge
- General service fee
- Facilities fee
- Technology fee
- Course materials fee
- Transportation fee (only if permit is returned)
- Library fee
- Residence hall fees (note: subject to special policy)
- Meal plans (note: subject to special policy)
- Administrative fee (note: only with complete withdrawal)
- Career advantage fee
- Engineering infrastructure fee

Amount of 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. Depending on the date of the withdrawal and the refund due, if any, a balance may still be owed on an installment payment plan contract.

No refund will be granted to a student dismissed or suspended for disciplinary reasons.

The University reserves the right to cancel a course for insufficient enrollment.

Amount of Refund - Noncredit Courses
If a noncredit course is canceled by The University of Akron, a full refund will be issued. Withdrawal requests received up to three business days prior to the first class meeting will result in a full refund, less a $15 processing charge, or an opportunity to transfer to another course. Thereafter, withdrawal requests received up to the beginning of the second class meeting will receive a 50 percent refund. No refunds are issued after the start of the second day of classes.

Refunds for noncredit courses are determined by the date the withdrawal request is received. The refund period cannot be extended if the student fails to attend the first class. Charge cards and refund checks will be processed promptly. Parking permits must be returned to the UA Business Solutions Office to receive a refund.

The University reserves the right to cancel a course for insufficient enrollment.

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.

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 official withdrawal earlier, in which case the refund will be determined as of the date of said circumstance. The student assumes responsibility for filing for a refund.

Amount of Refund - Noncredit Courses

<table>
<thead>
<tr>
<th>Amount of Refund</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>In full</td>
<td></td>
</tr>
<tr>
<td>– if the University cancels the course;</td>
<td>100%</td>
</tr>
<tr>
<td>– 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;</td>
<td>70%</td>
</tr>
<tr>
<td>– 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 Reserves 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.</td>
<td>50%</td>
</tr>
<tr>
<td>In part</td>
<td></td>
</tr>
<tr>
<td>– all refund calculations are determined by class length percentage, not by class meetings completed or class meeting percentage. Class length is defined as the number of days between and including the beginning and ending dates of any given term/session (including weekend days and holidays). The standard fifteen-week fall/spring/summer semester percentages which apply are:</td>
<td></td>
</tr>
<tr>
<td>If 6.667% of class completed</td>
<td>100%</td>
</tr>
<tr>
<td>If 13.333% of class completed</td>
<td>70%</td>
</tr>
<tr>
<td>If 20% of class completed</td>
<td>50%</td>
</tr>
<tr>
<td>If 26.667% of class completed</td>
<td>30%</td>
</tr>
<tr>
<td>If 33.333% of class completed</td>
<td>20%</td>
</tr>
<tr>
<td>Greater than 33.333% of class completed</td>
<td>0%</td>
</tr>
</tbody>
</table>

Refunds for course sections which have not been scheduled consistent with the standard 15 week fall/spring/summer semester scheduling pattern will also be calculated on a pro rata basis according to the number of days of the section (class, institute, workshop) which has passed prior to official withdrawal compared to the number of days said section has been scheduled to meet.

Refunds will be determined as of the date of formal withdrawal unless proof is submitted that circumstances beyond control of the student, e.g., hospital confinement, prevented the filing of the official withdrawal earlier, in which case the refund will be determined as of the date of said circumstance. The student assumes responsibility for filing for a refund.
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 post-baccalaureate level. This may be recommended prior to beginning graduate work, or in some cases, can be done simultaneously.

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

Time Limit
All requirements must be completed within six years after beginning graduate-level coursework at The University of Akron or elsewhere. Extension 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, department head, and college dean.

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.

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 and fall within the six-year time limit. A University of Akron student must receive prior approval from his or her academic department for transfer courses taken elsewhere. A block transfer of credit may be requested if the student holds a prior graduate degree from an accredited college or university, including The University of Akron. A block transfer of credit does not apply to the student’s six-year time limit for degree completion.

A student seeking to transfer credit must have full admission and be in good standing at The University of Akron. 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.

No more than six workshop credits may be applied to a doctoral degree program.

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.

Graduation
To be cleared for graduation, a candidate must have completed coursework with a minimum cumulative graduate grade-point average of at least 3.00; submitted an online application for graduation with the University Registrar; paid all applicable fees; and met any other applicable department and University requirements.

If a thesis is required, a final online submission, properly prepared, is due to the Graduate School at least three weeks prior to commencement. This copy must be signed by the adviser, faculty reader, department head, and college dean prior to submission to the Graduate School. A manual titled Guidelines for Preparing a Thesis or Dissertation is available online 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 baccalaureate degree; others require a master’s degree. No specific number of sequence or number 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.

Residency 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 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 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 terms. Programs vary in their requirements beyond the minimum, e.g., credits or courses to be completed, proper time to fulfill the residency requirement, and acceptability of part-time employment.

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

Continuous Enrollment Requirement
The Graduate School requires that a doctoral student register for a minimum of one graduate credit as approved by his or her adviser during each fall and spring semester. Individual departments may exceed this minimum requirement. A doctoral student should consult with his or her academic department.

Time Limit
All doctoral requirements must be completed within ten 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. Extension of up to one year may be granted in unusual circumstances by Graduate School upon written request by the student and recommendation by the adviser, department head, and college dean.

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 sub-
ject 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 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-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 and fall within the ten-year limit. A University of Akron student must receive prior approval from his or her academic department for transfer courses taken elsewhere.

Individual course transfer of 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.

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

No more than six workshop credits may be applied to a doctoral degree program.

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 computers) may be substituted for one of the two foreign languages. Under the last option, each department should define competence and publicize.

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

• Plan C: In certain doctoral programs the demonstration of competence in appropriate research skills may serve as a substitute for the foreign language requirements.

• Plan D: In certain doctoral programs there is no 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.

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.

A final online submission of the dissertation is due in the Graduate School at least three weeks prior to commencement. This copy must be signed by the adviser, faculty reader, department head, and college dean prior to submission to the Graduate School. A manual titled Guidelines for Preparing a Thesis or Dissertation is available online and all copies of the dissertation must conform to these instructions.

Graduation
To be cleared for graduation, a candidate must have completed coursework with a minimum cumulative graduate grade-point average of at least 3.00; submitted an approved dissertation and passed an oral examination; submitted an online application for graduation with the University Registrar; paid all applicable fees; and met any other applicable department and University requirements.

GRADUATE CERTIFICATE REQUIREMENTS
Admission
A student interested in pursuing a graduate certificate program must possess at least a baccalaureate degree from an accredited college or university. Some certificate programs may require that a student already be enrolled in a specific graduate degree program. Students should consult with the academic department.

Residency Requirements
There are no formal residency requirements for graduate certificate programs. A student may meet the program requirements of the Graduate School and the department through full- or part-time study.

Time Limit
All requirements must be completed within three years after beginning graduate-level coursework at The University of Akron or elsewhere unless concurrently pursuing a master’s or doctoral degree. When this is the case the graduate degree program time limits apply for completion of the certificate requirements. 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 adviser, department head, and college dean.

Credits
The number of credits required to earn a graduate certificate varies by certificate program. A minimum of two-thirds of the total number of graduate credits required in any certificate program must be completed at The University of Akron. Unless otherwise specified, no substitute courses will be permitted to meet certificate program requirements.

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 without advance approval from the dean of the Graduate School.

Transfer Credits
Up to one-third of the total graduate credits required for a certificate program may be transferred from an accredited college or university, including The University of Akron. However, the total number of credits that may be transferred may not exceed the total allowable transfer credits for a concurrent graduate degree program. All transfer credit must be at the “A” or “B” level in graduate courses. The credits must be relevant to the student’s program. A University of Akron student must receive prior approval from his or her academic department for transfer courses taken elsewhere.

A student seeking to transfer credit must have full admission and be in good standing at The University of Akron. Transfer credit shall not be recorded until a student has completed nine semester credits at The University of Akron with a grade-point average of 3.00 or better. Twelve semester credits must be completed at The University of Akron with a grade-point average of 3.00 or better for those students concurrently pursuing a graduate degree.

Individual course transfer of credit must fall within the three-year time limit for those students pursuing only a graduate certificate. The six-year time limit applies to those students concurrently pursuing a master’s degree, and the ten-year time limit applies to those students concurrently pursuing a doctoral degree. No block transfer of credit is permitted for students pursuing only a graduate certificate.

Award of Graduate Certificate
To be cleared for award of a graduate certificate, a candidate must have completed coursework with a minimum cumulative graduate grade-point average of at least 3.00; submitted an online application for graduation with the University Registrar; paid all applicable fees; and met any other applicable department and University requirements.

Students enrolled in a certificate program without concurrent enrollment in a graduate degree program will not be permitted to participate in the commencement ceremony.
SECTION 4. Graduate Studies

Buchtel College of Arts and Sciences

Mission Statement
The mission of the Buchtel College of Arts and Sciences is to provide high quality education in fine arts, humanities, natural sciences, and social sciences. These varied disciplines constitute the foundation of a liberal arts education. The College strives to foster excellence in teaching, scholarship, and service in a positive environment that will enhance lifelong learning and student accomplishment. The College develops independent learning, critical thinking, personal responsibility, and leadership to prepare graduates to fulfill their career objectives in an environment of societal and cultural change.

Organization
The Buchtel College of Arts and Sciences has four administrative divisions: Fine Arts, Humanities, Natural Sciences, and Social Sciences.

- The Fine Arts Division includes the Myers School of Art, School of Dance, Theatre, and Arts Administration, School of Family and Consumer Sciences, and School of Music. The Arts Division places a premium on learning by doing. Students study music, dance, visual art, drama, and film with an emphasis on creative expression and critical thinking.

- The Humanities Division includes the departments of Anthropology and Classical Studies, English, Modern Languages, and Philosophy. In these disciplines students study literature, history, philosophy, and cultural studies to develop critical thinking and problem-solving skills.

- The Natural Sciences Division includes the departments of Biology, Chemistry, Computer Science, Geosciences, Mathematics, Physics, and Statistics. Students explore physical and biological processes and learn to use mathematics and the language of science. Student research in the division ranges from the characterization of molecules to mapping the expanse of the universe to mathematical modeling of real processes. Students learn how our physical world works and use this knowledge to create the technologies of the future.

- The Social Sciences Division includes the School of Communication, the department of Economics, History, Political Science, Psychology, Public Administration and Urban Studies, and Sociology. In these disciplines students study the nature of social institutions, political processes, human behavior, and the ways societies are organized for harmony, protection, and prosperity.

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, the Doctor of Philosophy in Integrated Bioscience, and the Doctor of Philosophy in Psychology. The Doctor of Philosophy in Sociology is offered jointly with Kent State University.

Doctor of Philosophy in Chemistry

(31500PHD)
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.

Admission Requirements
In addition to submission of the graduate application and official transcripts applicants must submit the following:
- A letter of recommendation from their undergraduate or graduate advisor.
- A statement of purpose outlining their academic and professional goals.
- A resume.
- GRE scores.

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.

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

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

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

Doctor of Philosophy in Integrated Bioscience

(310001PHD)
The Department of Biology, Mathematics, Biomedical Engineering, Chemical and Biomolecular Engineering, Chemistry, Civil Engineering, Computer Science, Geology, Physics, and Polymer Science and Polymer Engineering offer an interdisciplinary Ph.D. program in Integrated Bioscience. Students are required to incorporate an integrative aspect to their biologically-based research project that will incorporate approaches from multiple disciplines, and all students will have advisers on their committees that include faculty from at least two of the participating departments. This program is designed to train students to understand modern biology in the context of integrated biological systems. This program will combine modern biology, bioengineering, bioinformatics, biochemistry, and biopolymers with the central unifying theme of connection across levels of biological organization. The program is comprised of six areas of excellence: (1) molecular cell biology and genetics; (2) physiology and organismal biology; (3) ecology and evolutionary biology; (4) biochemistry and biopolymers; (5) bioinformatics and computational biology; and (6) bioengineering. Integrating information drawn from these areas of excellence will provide students with high-demand, specific skills as well as allowing them to develop integrative thinking and problem-solving expertise that will be critical for progress in the ever expanding realm of biosciences.

Admission Requirements
The applicant must meet the University admission requirements and have an undergraduate degree from a accredited institution. Applicants must submit GRE scores,
although not required it is highly recommended that applicants also submit subject
GRE in the field of undergraduate degree, three letters of recommendation, a state-
ment of career goals and research interests, and note up to five faculty (rank-
ordered) which they would be interested in having as their faculty adviser(s). Applicants
are encouraged to contact their prospective Ph.D. advisers prior to sub-
mitting their formal applications. International students should contact The Univer-
sity of Akron Graduate School for specific admission requirements. Applications will
be ranked according to:
- Academic background as evidenced by grade point average of at least 3.0
- GRE scores
- Letters of recommendation (three preferred)
- Willingness of one or more potential advisors to take student on as an advisee

Applications are accepted on a rolling basis.

Requirements

Core Courses (12 credits):
- 3100:701 Research Techniques in Integrated Bioscience 4
- 3100:702 Communicating in Integrated Bioscience 2
- 3100:703 Problem Solving Integrated Bioscience 3
- 3600:665 Ethics of Science 3
- Complete four credits of 3100:797/798 Integrated Bioscience Colloquium
- Complete a minimum of nine credits of elective courses determined by student
  advisory committee
- Complete a total of 80 credits for the degree
- Must serve as a teaching assistant for at least one semester
- Complete written and oral qualifying exam
- Complete research proposal defense
- Complete seminar requirement
- Complete dissertation credits (variable with 55 credit maximum)
- Defend dissertation in an oral examination
- Complete all general requirements for the doctor of philosophy degree

Doctor of Philosophy in Counseling Psychology

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

The Department of Psychology offers a five-year Counseling Psychology program
leading to a doctoral degree and, in general, is geared toward students who hold a
B.A. in psychology with cumulative undergraduate grade point average of 3.0 or
above and a grade point average of 3.25 or above on all psychology coursework.
Program emphasis is strongly placed on a scientist-practitioner model of training.
Beyond the basic core areas of psychology, students are expected to establish spe-
cific competencies in the areas of theory, research, and practice of Counseling Psy-
chology. Academic preparation includes theories of psychotherapy, supervision,
diversity issues in counseling psychology, vocational psychology, testing theory and
practice, research and statistics, and professional issues. Research and publica-
tions are greatly encouraged. Graduates typically seek out academic teaching,
research and training positions, as well as positions in counseling centers and other
mental health agencies.

Admission to the Collaborative Program in Counseling Psychology is handled through
the department associated with the student’s chosen entry point. Students must ful-
fill both Departmental and Graduate School admission requirements. The following
application materials must be submitted by the December 1 application deadline:
- Graduate School application
- Official transcripts of all undergraduate and graduate (if applicable) coursework
  from each institution attended
- Official reports of the GRE General Test
- Brief statement of professional goals and reasons for choosing the field of coun-
seling psychology and The University of Akron.
- Minimum of three letters of recommendation attesting to success in the field and
  probable academic success at the doctoral level.
- Resume.

Departures from the described program for Psychology Department entry may be
made only with the approval of the counseling psychology program faculty.

Requirements

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

Doctor of Philosophy in History

The Doctor of Philosophy in History is granted primarily for high scholarly achieve-
ment 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 hold-
ing 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.

Application materials must be received by February 15 if seeking departmentally-
based funding. Applications for those not seeking departmentally-based funding are
accepted on a rolling basis.

The History Department does not encourage applications for the doctoral program
from students who have received both B.A. and M.A. degrees from The University of
Akron. Special circumstances may warrant consideration, however, and the Grad-
uate Committee reserves the right to judge applications on their own merit.
- Complete studies selected by the student in consultation with an advisory com-
  mittee, including:
  - completion of 60 credits beyond master’s degree requirements, including dis-
    sertation credit. Courses at the 500-level in the student’s major and disserta-
    tion fields will be not counted toward the degree, and only 9 hours of 500-level
courses in the student’s secondary fields will be counted;
degree will require a minimum of 94 credit hours of coursework comprised of 78 classroom hours from the following:

3750:601 Psychological Research Using Quantitative and Computer Methods I
3750:602 Psychological Research Using Quantitative and Computer Methods II
3750:640 Core IV: Biopsychology
3750:727 Psychology of Adolescence and Aging
3750:740 Industrial Gerontology
3750:754 Research Methods in Psychology
3750:780 Graduate Seminar in Psychology: Additional Research Methods Courses (Multivariate Methods, Factor Analysis, Structural Equation Modeling)
3750:731 Perception, Attention, and Aging
3750:732 Cognition and Aging
3750:736 Psychopharmacology in Adulthood
3750:728 Social Aging

In addition, students will complete four thesis waiver credit hours, six dissertation credit hours, and six thesis/dissertation independent study credit hours (for a minimum total of 94 credit hours). An individual student’s point of entry into the program is at one of the two partner institutions.

Doctor of Philosophy in Sociology

(385000PHD)

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 from both campuses serve on student committees and research projects.

Admission to the Program

Our program seeks to admit students who expect to complete a Ph.D. at The University of Akron. We encourage applications from students who have completed a bachelor’s degree as well as those who have completed a master’s degree elsewhere. The curriculum in this program is structured to serve full-time students, and we presume that all students admitted intend to complete a doctoral degree. For students admitted without a master’s degree, the master’s degree in Sociology is awarded during the completion of doctoral program requirements. We recommend that students who are not interested in receiving a Ph.D. or who are interested in a part-time program of study consider applying to sociology programs that focus on awarding master’s degrees and which are better able serve the needs of part-time students.

Specific criteria considered for admission include:

- Fulfill the admission requirements of the Graduate School and department requirements;
- Attainment of an undergraduate grade point average (GPA) of 3.0 or a graduate GPA of 3.5;
- Completion of Graduate Record Examination General Test;
- Submission of a writing sample; preferably a course paper or comparable piece of scholarly work;
- Submission of a personal statement indicating reasons for pursuing a graduate degree in sociology at The University of Akron;
- Submission of three letters of recommendation from persons familiar with the applicant’s academic work;
- Applicants whose native language is not English must provide proof of English language proficiency. Options are provided in the Graduate Bulletin.

Application materials must be received by January 15 for those applicants seeking admission in the fall. Applicants not seeking funding must have application materials submitted by March 1.

Please note that the admissions committee is unable to consider incomplete applications. We encourage interested applicants to visit the department’s website for further information about the program and the application process.

Degree Requirements

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:

- Professional Development Coursework:
  - 3850:628 Professional and Ethical Issues in Sociology (3 credit hours)
  - 3850:700 College Teaching of Sociology (3 credit hours)
- Research Methods and Statistics Coursework:

Doctor of Philosophy in Psychology

(375002PHD: Industrial Organizational)

(375006PHD: Adult Development and Aging)

The Department of Psychology offers a doctoral degree in psychology with specialization in either industrial/organizational psychology or adult development and aging.

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 General Test;
  - securing of three letters of recommendation from persons familiar with applicant’s academic work;
  - submission of a brief personal statement of professional goals and reasons for choosing the field of I/O or Adult Development and Aging and The University of Akron;
  - submission of a vita outlining educational and professional experiences.

Application materials must be received by January 15.

- Major field:
  - a minimum of 94 graduate credits including a 30-credit master’s program. A student may be required to complete additional credits beyond the 94 minimum credit requirement;
  - completion of Ph.D. core courses in the student’s specialty area: industrial/organizational or adult development and 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 adult development and 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 adult development and 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.

The Psychology departments at The University of Akron and Cleveland State University offer a joint doctoral program in the Psychology of Adult Development and Aging. Students admitted to the program are required to take approximately equal amounts of coursework at each institution. The coursework covers the areas of research methods/design, foundation courses in adult biobehavioral functioning, adult psychosocial functioning, and advanced research seminars. The doctoral program seeks to admit students who expect to complete a Ph.D. at The University of Akron.
3850:604 Quantitative Methods in Sociology (4 credit hours)
3850:706 Multivariate Techniques in Sociology (4 credit hours)
3850:709 Advanced Data Analysis (4 credit hours)
3850:714 Qualitative Methodology (4 credit hours)

- Sociological Theory Coursework:
  3850:722 Early Sociological Thought (3 credit hours)
  3850:723 Contemporary Sociological Thought (3 credit hours)

- If admitted with an MA: 32 credit hours of elective coursework;
- If admitted without an MA: 26 credit hours of elective coursework plus successful completion of six thesis credit hours. Completion of thesis hours requires the writing and defense of a thesis proposal as well as a final thesis document and oral defense of document;
- Successful completion of the requirements for advancement to candidacy as outlined in the joint graduate program handbook;
- Successful completion of dissertation document, oral defense of document, and 30 dissertation credit hours;
- Complete and fulfill general doctoral degree requirements of the Graduate School.

**MASTER'S DEGREES**

Programs of advanced study leading to the master's degree are offered by the departments of biology, chemistry, communication, computer science, dance, theatre, and arts administration, economics, English, family and consumer sciences, geology and environmental science, history, mathematics, modern languages (Spanish), music, physics, political science, psychology, sociology, statistics and public administration and urban studies. Before undertaking such a program, the student must show that the general requirements for admission to the Graduate School have been met, and the standard requirements for an undergraduate major in the area of the proposed graduate specialty have been met or that the student has performed work which the department approves as equivalent to an undergraduate major.

**Biology**

(310000MS: Non-thesis Option)
(310000MST: Thesis Option)

**Admission Requirements**

- A minimum grade point average of 3.00 (4.00=A) and 3.00 average in Biology (minimum 32 semester hours or equivalent)
- Competence in Chemistry and Mathematics is expected
- Entering students must provide scores from any one or more of the following standardized tests: General GRE, Biology-specific GRE, or MCAT. Students are expected to score above the 25th percentile to be competitive for admission (provisional or full). Full admission is required for a teaching assistantship or tuition waiver.
- Statement of purpose
- A letter of interest from the prospective advisor in the Biology department is required.
- Foreign students, in addition to the above requirements, must have a score of 220 or more on the TOEFL and one of the following: a) >=23 on the "S" portion of the TOEFL, b) >=50 on the Test of Spoken English (TSE), or c) a passing score on the U-Adept test

Applications are accepted on a rolling basis. Review begins in January/February for fall enrollment.

**Master of Science**

**Thesis Option I**

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

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

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

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

**Required Courses for Both Options:**

At least two courses of the following six listed below are required

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3100:616</td>
<td>Graduate Evolutionary Biology</td>
<td>3</td>
</tr>
<tr>
<td>3100:617</td>
<td>Advanced Ecology</td>
<td>3</td>
</tr>
<tr>
<td>3100:625</td>
<td>Basic DNA Techniques</td>
<td>3</td>
</tr>
<tr>
<td>3100:626</td>
<td>Techniques in Molecular Biology</td>
<td>3</td>
</tr>
<tr>
<td>3100:673</td>
<td>Integrative Stress Physiology</td>
<td>3</td>
</tr>
<tr>
<td>3100:676</td>
<td>Integrative Physiology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Nonthesis Option**

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

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

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

**Chemistry**

(315000MS: Non-thesis Option)
(315000MST: Thesis Option)

**Master of Science**

**Admission Requirements**

In addition to submission of the graduate application and official transcripts applicants must submit three letters of recommendation, statement of purpose, and resume.

Application materials should be submitted by June 1 for fall enrollment and by November 15 for spring enrollment.

**Degree Requirements (30 credits)**

- Option A:
  - 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.
- Option B:
  - Chemistry coursework – with the approval of the advisor, up to 12 credits may be taken in related areas – 30 credits.
- Option C:
  - Chemistry coursework – with the approval of the advisor, up to 12 credits may be taken in related areas – 24 credits.
  - Research and oral exam – six credits.

**Communication**

(C60004MA)

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

**Admission 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.
- Three letters of recommendation
- Statement of purpose
- Resume

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:
    | Course Code | Course Title                          | Semester Credits |
    |-------------|--------------------------------------|------------------|
    | 7600:600    | Introduction to Graduate Study in Communication | 3 |
  - Choose two of the following courses:
    | Course Code | Course Title                          | Semester Credits |
    |-------------|--------------------------------------|------------------|
    | 7600:602    | Qualitative Methods in Communication  | 3 |
    | 7600:603    | Quantitative Methods in Communication | 3 |
    | 7600:670    | Communication Criticism              | 3 |
Computer Science

Master of Science – Computer Science
(346009MS: Thesis Option)
(346008MS: Non-thesis Option)

Admission Requirements

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

• submit three letters of recommendation from individuals capable of evaluating the applicant’s potential for success in the program;
• submit a statement of purpose;
• submit a resume;
• 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 knowledge of at least one high-level programming language; and,
• demonstrate proficiency in data structures, computer organization and operating systems.

A student deficient in one or more of these areas may be granted provisional admission. Application materials must be submitted by March 15 for fall and summer enrollment and by October 15 for spring enrollment. Applications submitted after these deadlines may be considered.

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 39. With prior consent, up to 6 credits of approved graduate-level coursework outside the department may be substituted for elective courses in both the thesis and nonthesis options. The grade point average of all Computer Science courses and pre-approved electives taken at The University of Akron must not be less than 3.0.

• Core Courses (required of all students):
  (1) 3460:635 Algorithms or 3460:636 Advanced Algorithms
  (2) 3460:601 Research Methodology
  (3) Two courses from Software, Languages and Systems: 3460:626, 630, 641, 653, 655, 665, 677, and 680.
  (4) Two courses from Applications: 3460:645, 658, 660, and 676.

Note: 689 may be counted for requirement area (3) or (4) upon the approval of the department.

Thesis Option (30 credits of graduate work)

24 credits in approved coursework, at least 15 credits of which must be taken at the 600 level. In addition, 3 credits in 3460:698 Master’s Research 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 (39 credits of graduate work)

39 credits in approved coursework, at least 21 credits of which must be taken at the 600 level.

Cooperative Education Program in Computer Science
(346008MS: Non-thesis Option)
(346009MS: Thesis Option)

Admission Requirements

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. If the student does not complete the course requirements for the Cooperative Education course, no credits will be assigned. A cooperative education 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
(325000MA)

Admission Requirements

For full admission students require Intermediate Microeconomics, Intermediate Macroeconomics, Calculus I, and Statistics. The academic background of each applicant will be reviewed by the Director of Graduate Studies to determine whether background deficiencies exist for his/her planned program of study. Exceptional departures from these requirements may be approved with the permission of the Director of Graduate Studies and Department Chair. All applicants must submit at least three letters of recommendation (preferably from academics) and a statement of purpose. International applicants must also submit scores from the GRE. Applications must be submitted by February 15 for fall enrollment and by November 15 for spring enrollment.

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>3250:620</td>
<td>Microeconomics Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>3250:611</td>
<td>Microeconomics 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>Applied Econometrics I</td>
<td>3</td>
</tr>
<tr>
<td>3250:627</td>
<td>Applied Econometrics II</td>
<td>3</td>
</tr>
</tbody>
</table>

Courses taken outside the department must be approved (in writing) by the student’s advisor prior to enrollment.
BA/MA Economics (325004MA)

After successful completion of this accelerated five-year BA/MA program students will received both a bachelor and master of arts degree in economics. Students are expected to complete the core course requirements and the electives for the bachelor’s degree in the first three years of the program. Students are asked to formally apply to the accelerated program through the Graduate School during the third year of study. Upon acceptance student will be expected to complete the remaining electives of the bachelor’s degree and the requirements of the master’s degree in the last two years of study. Students will register for at least nine graduate credits in each of the last three semesters of the program. They will also be eligible to apply for a graduate assistantship starting in the spring semester of their fourth year in the program.

For full admission into the master’s program in economics students need to have taken Intermediate Microeconomics and Intermediate Macroeconomics with a grade of B+ or better, Calculus I (3450:221), and statistics equivalent to Introductory Statistics I and II (3470:261 and 262). All of these classes will be completed in the undergraduate portion of the program. The academic background of each applicant will be reviewed by the Director of Graduate Studies to determine whether background deficiencies exist for his/her planned program of study. Exceptional departures from these requirements may be approved with the permission of the Director of Graduate Studies and Department Chair. All applicants must submit at least three letters of recommendation (preferably from academics) and a statement of purpose.

The total number of credit hours for the MA is 30 of which 21 credit hours must be at the 600-level of economics courses. Six graduate credit hours will be completed in the undergraduate portion of the program.

Core Economics Requirements (15 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3250:622</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>3260:260</td>
<td>Applications of Mathematical Models to Economics</td>
<td>3</td>
</tr>
<tr>
<td>3260:286</td>
<td>Applied Econometrics I</td>
<td>3</td>
</tr>
<tr>
<td>3260:267</td>
<td>Applied Econometrics II</td>
<td>3</td>
</tr>
</tbody>
</table>

Economics Electives (15 credits from the following):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3250:506</td>
<td>State and Local Public Finance</td>
<td>3</td>
</tr>
<tr>
<td>3250:515</td>
<td>Cost-Benefit Analysis</td>
<td>3</td>
</tr>
<tr>
<td>3250:523</td>
<td>Applied Game Theory</td>
<td>3</td>
</tr>
<tr>
<td>3250:527</td>
<td>Economic Forecasting</td>
<td>3</td>
</tr>
<tr>
<td>3250:530</td>
<td>Labor Market and Social Policy</td>
<td>3</td>
</tr>
<tr>
<td>3250:536</td>
<td>Health Economics</td>
<td>3</td>
</tr>
<tr>
<td>3250:538</td>
<td>Economics of Sports</td>
<td>3</td>
</tr>
<tr>
<td>3250:540</td>
<td>Special Topics in Economics</td>
<td>3</td>
</tr>
<tr>
<td>3250:560</td>
<td>Economics of Developing Countries</td>
<td>3</td>
</tr>
<tr>
<td>3250:561</td>
<td>Principles of International Economics</td>
<td>3</td>
</tr>
<tr>
<td>3250:575</td>
<td>Development of Economic Thought</td>
<td>3</td>
</tr>
<tr>
<td>3250:580</td>
<td>Monetary and Banking Policy</td>
<td>3</td>
</tr>
<tr>
<td>3250:587</td>
<td>Urban Economics: Theory and Policy</td>
<td>3</td>
</tr>
<tr>
<td>3250:606</td>
<td>Economics of the Public Sector</td>
<td>3</td>
</tr>
<tr>
<td>3250:610</td>
<td>Framework of Economic Policy</td>
<td>3</td>
</tr>
<tr>
<td>3250:615</td>
<td>Industrial Organization</td>
<td>3</td>
</tr>
<tr>
<td>3250:617</td>
<td>Economics of Regulation</td>
<td>3</td>
</tr>
<tr>
<td>3250:621</td>
<td>Application of Linear Models in Economic Analysis</td>
<td>3</td>
</tr>
<tr>
<td>3250:628</td>
<td>Seminar in Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>3250:633</td>
<td>Theory of Wages and Employment</td>
<td>3</td>
</tr>
<tr>
<td>3250:640</td>
<td>Special Topics in Economics</td>
<td>3</td>
</tr>
<tr>
<td>3250:664</td>
<td>Seminar in Economic Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>3250:670</td>
<td>International Monetary Economics</td>
<td>3</td>
</tr>
<tr>
<td>3250:671</td>
<td>International Trade</td>
<td>3</td>
</tr>
<tr>
<td>3250:683</td>
<td>Monetary Economics</td>
<td>3</td>
</tr>
<tr>
<td>3250:695</td>
<td>Graduate Internship in Economics</td>
<td>1-3</td>
</tr>
<tr>
<td>3250:697</td>
<td>Reading in Advanced Economics</td>
<td>1-4</td>
</tr>
<tr>
<td>3250:698</td>
<td>Reading in Advanced Economics</td>
<td>1-4</td>
</tr>
<tr>
<td>3250:699</td>
<td>Master’s Thesis</td>
<td>3</td>
</tr>
<tr>
<td>3250:591</td>
<td>Workshop in Economics</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Two 3250:5xx elective courses are to be applied to the requirements of both the bachelor’s and master’s degrees. Six credit hours of economics electives for the master’s degree need to be 3260:6xx.

BS Applied Mathematics/MA Economics (325002MA)

This is an accelerated five-year BS/MA program. After successfully completing this program a student will receive a bachelor’s degree in applied mathematics and a master’s degree in economics. Students in this program will be supervised by faculty advisers in applied mathematics and economics. Students are expected to finish the core course requirements and most of the electives for the bachelor’s degree in the first three years of the program. Students are asked to formally apply to the accelerated program through the Graduate School during the third year of study. Upon acceptance student will be expected to complete the remaining electives of the bachelor’s degree and the requirements of the economics program in the last two years of the program. Students will be eligible to apply for a graduate assistantship in these last two years of the program.

For full admission into the master’s program in economics students need to have taken Intermediate Microeconomics and Intermediate Macroeconomics with a grade of B+ or better, Calculus I (3450:221), and Applied Statistics I (3470:461). All of these classes will be completed in the undergraduate portion of the program.

The total number of credit hours for the MA is 30 of which 21 credit hours must be at the 600-level economics courses. Six graduate credit hours will be completed in the undergraduate portion of the program.

Core Economics Requirements (15 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3250:622</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>Applied Econometrics I</td>
<td>3</td>
</tr>
<tr>
<td>3250:627</td>
<td>Applied Econometrics II</td>
<td>3</td>
</tr>
</tbody>
</table>

3250:620 is to be applied to the requirements of both the bachelor’s and master’s degrees.

Economics Electives (15 credits from the following):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3250:506</td>
<td>State and Local Public Finance</td>
<td>3</td>
</tr>
<tr>
<td>3250:515</td>
<td>Cost-Benefit Analysis</td>
<td>3</td>
</tr>
<tr>
<td>3250:523</td>
<td>Applied Game Theory</td>
<td>3</td>
</tr>
<tr>
<td>3250:527</td>
<td>Economic Forecasting</td>
<td>3</td>
</tr>
<tr>
<td>3250:530</td>
<td>Labor Market and Social Policy</td>
<td>3</td>
</tr>
<tr>
<td>3250:536</td>
<td>Health Economics</td>
<td>3</td>
</tr>
<tr>
<td>3250:538</td>
<td>Economics of Sports</td>
<td>3</td>
</tr>
<tr>
<td>3250:540</td>
<td>Special Topics in Economics</td>
<td>3</td>
</tr>
<tr>
<td>3250:560</td>
<td>Economics of Developing Countries</td>
<td>3</td>
</tr>
<tr>
<td>3250:561</td>
<td>Principles of International Economics</td>
<td>3</td>
</tr>
<tr>
<td>3250:575</td>
<td>Development of Economic Thought</td>
<td>3</td>
</tr>
<tr>
<td>3250:581</td>
<td>Monetary and Banking Policy</td>
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<td>1-4</td>
</tr>
<tr>
<td>3250:699</td>
<td>Master’s Thesis</td>
<td>3</td>
</tr>
</tbody>
</table>

A 3250:5xx elective course is to be applied to the requirements of both the bachelor’s and master’s degrees. Six credit hours need to be 3260:6xx.

English

Master of Arts – Literature Track.
(330000MA: Non-thesis Option)
(330000MAT: Thesis Option)

Admission Requirements

In addition to the graduate application and official transcripts applicants must submit a statement of purpose. Applications are accepted on a rolling basis.

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.

Graduation Requirement: Candidates for graduation must see the Department of English Graduate Coordinator to complete the departmental Graduate Student Survey.

Non-thesis 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 Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3300:506</td>
<td>Chaucer†</td>
<td></td>
</tr>
<tr>
<td>3300:615</td>
<td>Shakespearean Drama†</td>
<td></td>
</tr>
<tr>
<td>3300:665</td>
<td>Literary Criticism†</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>
</tbody>
</table>

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

British American

<table>
<thead>
<tr>
<th>Level</th>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 1660</td>
<td>3300:506</td>
<td>Chaucer†</td>
<td></td>
</tr>
<tr>
<td>Up to 1865</td>
<td>3300:615</td>
<td>Shakespearean Drama†</td>
<td></td>
</tr>
<tr>
<td>1660-1900</td>
<td>3300:665</td>
<td>Literary Criticism†</td>
<td></td>
</tr>
<tr>
<td>1900-present</td>
<td>3300:570</td>
<td>History of the English Language†</td>
<td></td>
</tr>
<tr>
<td>1900-present</td>
<td>3300:670</td>
<td>Modern Linguistics†</td>
<td></td>
</tr>
</tbody>
</table>
Graduation Requirement: Candidates for graduation must see the Department of English Graduate Coordinator to complete the departmental Graduate Student Survey.

Master of Arts – Composition Track
(330001MA: Non-thesis Option)
(330001MAT: Thesis Option)

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.

Admission Requirements
In addition to the graduate application and official transcripts, applicants must submit a statement of purpose. Applications are accepted on a rolling basis.

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.

Graduation Requirement: Candidates for graduation must see the Department of English Graduate Coordinator to complete the departmental Graduate Student Survey.

Non-thesis Option
A minimum of 36 credits is required, only 6 of which may be individual reading. At least 24 credits are 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:
3300:650 The New Rhetorics
3300:673 Theories of Composition
3300:674 Research Methodologies in Composition

Students must also choose one of the following two courses:
3300:578 Grammatical Structures of Modern English
3300:670 Modern Linguistics

And one of the following three courses:
3300:579 Management Reports
3300:625 Autobiographical Writing
3300:679 Scholarly Writing

Optional courses:
3300:660 Cultural Studies: Theory and Practice
3300:689 Contemporary Reading Theory
3300:688 Composition and Rhetoric
3300:689 Literature and Composition

Graduation Requirement: Candidates for graduation must see the Department of English Graduate Coordinator to complete the departmental Graduate Student Survey.

Master of Fine Arts in Creative Writing
(330007MFA)

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. Application materials must be submitted by February 1.

Degree Requirements
Students must complete the following courses among the participating universities by taking classes restricted to graduate students only, except as noted below:

- Writing Workshops - 15 credits
- Craft and Theory Courses - 9 credits (at least three and no more than six in the student’s primary genre of concentration)
- Literature Courses - 6 credits
- Internship - 3 credits
- Thesis - 6 credits
- Electives - 9 credits, up to six of which may be from advisor-approved courses not solely restricted to graduate students

A total of 48 credit hours is required for the MFA in Creative Writing. Up to nine credits from previously uncompleted graduate degrees may be accepted for transfer credit in the NEOMFA program.

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 and clothing, textiles and interiors.

Admission Requirements

- Minimum GPA of 3.0 for four years of undergraduate study or 3.25 for the last two years of undergraduate study.
- Applicants to the Child and Family Development track with a 3.5 or higher undergraduate GPA are exempted from the Graduate Record Examination. For all other students completion of general Graduate Record Examination within the past five years preceding the application with the following scores:
  - For students who have taken the GRE prior to August 2011: 140 on verbal, 430 on quantitative, and 4.0 on analytical writing;
  - For students who have taken the GRE in August 2011 or later: 147 on verbal, 141 on quantitative, and 4.0 on analytical writing
- Three letters of recommendation
- Statement of purpose
- Resume

The graduate faculty of the School of Family and Consumer Sciences may require an interview with any applicant.

Application materials must be received by March 1 for fall enrollment if applying for a graduate assistantship, and by October 1 for spring enrollment if applying for a graduate assistantship. Applications are accepted on a rolling basis for those not applying for a graduate assistantship.

Accepted students will be expected to comply with the following requirements:

- Complete the course of study in one of the two 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, in areas related to the degree program.

- Pass a written comprehensive examination over major and minor areas after the completion of at least 19 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 graduation upon successful completion of 24 credits of graduate study, the written comprehensive examination, and an approved prospectus or proposal for a thesis or project.
- Pass an oral examination covering the thesis or project report.

Foundation Courses

- Required by all program options:
  7400:604 Orientation to Graduate Studies in Family and Consumer Sciences 1
  7400:680 Historical and Conceptual Bases of Family and Consumer Sciences 3
  7400:685 Research Methods in Family and Consumer Sciences 3

Child and Family Development Option
(330007MA)

- Core Courses:
  7400:602 Family in Lifespan Perspective 3
  7400:605 Developmental Parent-Child Interactions (online) 3
  7400:607 Family Dynamics 3
  7400:610 Child Development Theories 3
  7400:665 Development in Infancy and Early Childhood 3
• Option Electives
Select 6 credits from the following courses with approval of advisor (if a course has been taken at the undergraduate level, other courses must be selected):

7400:501 American Families in Poverty (online) 3
7400:504 Middle Childhood and Adolescence (online) 3
7400:506 Family Financial Management (online) 3
7400:540 Family Crisis (online) 3
7400:541 Family Relationships in the Middle and Later Years 3
7400:542 Human Sexuality 3
7400:546 Culture, Ethnicity, and the Family (online) 3
7400:548 Before and After School Child Care 2
7400:560 Organization and Supervision of Child-Care Centers 3
7400:596 Parent Education (online) 3
7400:688 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):
  7400:694 Master’s Project 5
  7400:699 Master’s Thesis 5

Total 40

Clothing, Textiles and Interiors Option
(H40104MA)
• Core Courses:
  7400:634 Material Culture Studies 3
  7400:639 Theories of Fashion 3
  7400:677 Social Psychology of Dress and the Near Environment 3

• Options Electives (select 13 credits with approval of advisor):
  7400:518 History of Interior Design I 4
  7400:519 History of Interior Design II 4
  7400:523 Professional Image Analysis 3
  7400:525 Textiles for Apparel 3
  7400:527 Global Issues in Textiles and Apparel 3
  7400:536 Textile Conservation 3
  7400:537 Historic Costume 3
  7400:538 History of Fashion 3
  7400:631 Problems in Design 1-6
  7400:688 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.

• Thesis or Project (select one):
  7400:694 Master’s Project 5
  7400:699 Master’s Thesis 5

Total 40

Geology

Admission Requirements
In addition to the graduate application and official transcripts applicants should submit three letters of recommendation and a statement of purpose.

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:
  3370:080 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 (337000MS)
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 (337001MS)
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 (337002MS)
Equivalents of the geology, cognate science and mathematics requirements for the University’s B.S. in geophysics are required.

Engineering Geology (337003MS)
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.

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

Environmental Geology (337004MS)
Equivalents of the University’s B.S. degree in natural science (biology, chemistry, geology, mathematics, or physics) or engineering, plus the equivalent of the University’s minor in geology and Geology Field Camp I and II are required. As many as eight credits may be selected from engineering, biology and/or geography with the approval of a geology advisor.

Master of Science in Geography/Geographic Information Sciences (335010MS: Thesis Option)
(335000MS: Nonthesis Option)
The M.S. in Geography/Geographic Information Sciences is administered by the Department of Geosciences.

Admission Requirements
In addition to the graduate application and official transcripts applicants must submit two letters of recommendation and a statement of purpose. Applications are accepted on a rolling basis.

Thesis Option
• Core Requirements (18 credits)
  3350:581 Research Methods in Geography and Planning
  3350:583 Spatial Analysis
  3350:596 Field Research Methods
  3350:687 History of Geographic Thought
  3350:650, 651 Seminar (6 credits)
• Geotechniques Requirements (9 credits)
  3350:505 Geographic Information Systems
  3350:540 Cartography
  3350:547 Remote Sensing
• Geotechniques Electives (9 credits)
  3350:547 Remote Sensing
  3350:548 GIS Programming and Customization
  3350:549 Advanced Remote Sensing

• Geography and Planning Electives (9 credits)
  Graduate courses from the Department of Geography and Planning

  Any course taken outside the department must be approved in advance by the student's graduate advisor or department chair

  No more than three credits of 3350:698 Independent Reading and Research

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

Nonthesis Option

• Core Requirements (18 credits)
  3350:581 Research Methods in Geography and Planning
  3350:583 Spatial Analysis
  3350:596 Field Research Methods
  3350:687 History of Geographic Thought
  3350:600, 601 Seminar (6 credits)

• Geotechniques Requirements (9 credits)
  3350:505 Geographic Information Systems
  3350:540 Cartography
  3350:547 Remote Sensing

• Geotechniques Electives (9 credits)
  3350:507 Advanced Geographic Information Systems
  3350:541 Global Positioning Systems (GPS)
  3350:542 Cartographic Theory and Design
  3350:544 Applications in Cartography and GIS
  3350:545 GIS Database Design
  3350:546 GIS Programming and Customization
  3350:549 Advanced Remote Sensing

• Geography and Planning Electives (9 credits)
  Graduate courses from the Department of Geography and Planning

  Any course taken outside the department must be approved in advance by the student's graduate advisor or department chair

History

Master of Arts (340000MA)

Admission Requirements
Students applying for admission to the M.A. program must have a minimum undergraduate grade-point average of 3.0. The applicant's average in history courses should be substantially higher. Applicants must also have completed at least 24 semester or 36 quarter hours in history courses at the undergraduate level. An application to the M.A. program consists of the following:

– an application form;
– a letter of intent, stating the applicant's reasons for wishing to pursue graduate work and the fields of history which the applicant intends to study;
– scores on the Graduate Record Examination, General Aptitude Test;
– a writing sample, preferably a research paper from a history class;
– three letters of recommendation, preferably from faculty who know the applicant well.

– Applicants whose native language is not English must also score at least 580 on the Test of English as a Written Language (TOEFL), at least 240 on the Test of English as a Spoken Language (TSE), and take the Test of Written English (TWE).

Application materials must be received by February 1 if seeking departmentally-based funding. Applications for those not seeking departmentally-based funding are accepted on a rolling basis.

Degree Requirements

– Satisfactory completion of a minimum of 30 credits of graduate study in history, of which only six may be in individual reading.

– Concentrated study of three fields, two of which must be chosen from the following:

  Ancient
  Medieval
  United States Since 1877

  Europe, Renaissance to 1750
  Europe, 1750 to present
  History of Science
  Comparative Non-Western History*
  Public History
  World History
  The third field must be chosen from the above history fields or from an approved cognate discipline.

*The Comparative Non-Western History field includes East Asia, South Asia, Middle East, Africa, and Latin America. Students who choose this field as their first, second, or third MA field must focus, through coursework, on two of these four geographical areas (for example, Middle East and Latin America). The comprehensive exam (one for the field as a whole) for a student who takes Comparative Non-Western as their first or second field will incorporate materials from the two geographical regions he or she chose.

– The student must pass written examinations in two of the three fields. The third field requirement will be met by at least seven credits of coursework at the graduate level, completed with a GPA of 3.0.

– 3400:689 Historiography (3 credits)
– 3400:601 Graduate Research Seminar in History (4 credits)
– Twenty-three credit hours of 600-level coursework, at least 18 credits of which must be in seminars. Seminars must be chosen to satisfy one of the following options.

Option I

Three reading seminars, the research seminar, and a thesis read and approved by two faculty members. This option is strongly encouraged for students intending to pursue further academic training in history.

Option II

Three reading seminars, the research seminar, and a research paper read and approved by two faculty members. Students taking this option must enroll in 3400:602 MA Option Paper Completion in the semester they complete their option paper.

BA/MA Program in History (340001MA)

This is an accelerated five-year BA/MA program. After successfully completing this program a student will receive a bachelor’s degree as well as a master’s degree in history. Under the supervision of faculty advisers in history a student in the program will finish the core course requirements and most of the electives for the bachelor’s degree in the first three years. During the third year of the baccalaureate degree a student will formally apply to the program through the Graduate School. Upon acceptance, a student will be cleared to complete the remaining electives of the bachelor’s degree and 30 credits of graduate coursework for the master’s degree in the last two years. A student will be eligible for a graduate assistantship only in these last two years and must be registered for at least nine graduate credits in each of those semesters.

Bachelor of Arts in History

– the General Education requirement* and the second year of a foreign language;
– a minimum of 32 credits of history courses, which include:
  Core Requirements:
  3400:310 Historical Methods (3 credits)

At least six credits from each of the following fields:

Field I United States and Canada
Field II Europe
Field III Ancient, Asia, Latin America, Africa

Electives:

– Additional elective credits to total at least 32 credits**
– Upper-level requirement:***

A minimum of six credits must be at the 400-level and in two different fields.

Notes:

*Courses in World Civilizations as well as Humanities in the Western Tradition (3400:21) and Humanities in the World since 1300 (3400:211) may not be used to meet major requirements in History.
**With the approval of the Department of History undergraduate adviser a History major may apply up to six credits of coursework in related disciplines (cognate courses) toward the 32 credits required for the History major. Cognate credit, however, shall not be substituted for either Historical Methods or for the field distribution requirement specified above.
***Transfer students must take a minimum of 14 credits of history coursework at UA and must have a minimum of 16 credits in 300- and 400-level classes.

Graduate coursework will include:

– In the fourth year:
  3400:689 Historiography (fall semester) plus any two courses which offer credit at both the 400- and 500-level but will receive credit for them at both the undergraduate and graduate levels.
In the fifth year:

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

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

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

(Students intending to go on to the doctoral program should select Option II or Option III, preferably Option III)

To complete the program a student must:

- Finish all undergraduate General Education requirements;
- Complete the second year (or its equivalent) of a foreign language;
- Earn 32 undergraduate credits in history;
- Earn 30 graduate credits in history (not including 3400:690 Teaching Practicum);
- Pass written comprehensive examinations in at least two fields from the following list:
  - Ancient America to 1877
  - Medieval
  - United States Since 1877
  - Europe, Renaissance to 1815
  - European, 1750 to present
  - History of Science
  - Latin America
  - Public History
  - East Asia
  - South Asia
  - Africa
  - Middle East
  - World History
- Earn at least seven credits in a third field from the list above or in a cognate field approved by the director of graduate studies.

Mathematics

Master of Science – Mathematics
(345000MS: Non-thesis Option)
(345000MST: Thesis Option)

Admission Requirements

In addition to the graduate application and official transcripts applicants must submit three letters of recommendation and a statement of purpose. Applications are accepted on a rolling basis.

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.

Admission: 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.

Program Requirements: A minimum of 30 graduate credits, after completion of any deficiency courses, are required.

- Core requirements (18-19 credits):
  - 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
  - 3450:625 Analytic Function Theory 3
  - 3450:636 Advanced Combinatorics and Graph Theory 3
  - A statistics course selected from:
    - 3470:550 Probability 3
    - 3470:551 Theoretical Statistics I 3
    - 3470:561 Applied Statistics I 4
    - 3470:651 Probability and Statistics 4

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, three credits in 3450:692 Seminar in Mathematics, and three credits in 3450:699 Master’s Thesis must be completed.

Nonthesis Option (minimum of 30 credits)

In addition to the placement review and core requirements, at least eleven (or twelve) credits of electives approved by the graduate advisor must be completed.

Master of Science – Applied Mathematics
(345001MS: Non-thesis Option)
(345001MST: Thesis Option)

Admission Requirements

In addition to the graduate application and official transcripts applicants must submit three letters of recommendation and a statement of purpose. Applications are accepted on a rolling basis.

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.

Program Requirements: A minimum of 30 graduate credits, after the completion of deficiency courses, is required.

- Core Requirements (18 credits):
  - 3450:621 Real Analysis 3
  - 3450:627 Advanced Numerical Analysis I 3
  - 3450:633 Methods of Applied Mathematics I 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:
  - 3450:634 Methods of Applied Mathematics II 3
  - 3450:635 Optimization 3
  - 3450:730 Advanced Numerical Solution of Partial Differential Equations 3

Thesis Option

In addition to the placement review and core requirements, at least six credits of electives approved by the graduate adviser, three credits of 3450:692 Seminar in Mathematics, and three credits of 3450:699 Master’s Thesis must be completed.

Nonthesis Option

In addition to the placement review and core requirements, at least twelve credits of electives approved by the graduate adviser must be completed.

Coordinated Program
(415001PHD)

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

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

Admission and Degree Requirements

Applicants for the Engineering Applied Mathematics Program must have their graduate application and credentials evaluated by one of the departments in the College of Engineering and the Department of Mathematics. The Admission and Degree Requirements for the Doctor of Philosophy in Engineering, as given in the Graduate Bulletin (see page 48, College of Engineering), shall apply to all applicants for the Engineering Applied Mathematics Program.

BS/MS Program in Mathematics
(345010MS: Non-thesis Option)
(345010MST: Thesis Option)

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 as well as a master's degree in mathematics. Under the supervision of a faculty advisor, a student in the program will finish the core course requirements and most of the electives for the bachelor's degree in the first three years. During the third year of the baccalaureate degree a student will formally apply to the program through the Graduate School. Upon acceptance a student will be cleared to 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. A student will be eligible for a graduate assistantship only in these last two years and must be registered for at least nine graduate credits in each of those semesters. In this program six of the required senior-level credits for the undergraduate program will be replaced by graduate-level credits. These six credits will be applied to the requirements of both the bachelor's and master's degrees. Further, students in the program may choose to replace nine credits of the open electives for the undergraduate program by graduate-level electives.

Graduate coursework will include the following courses:

- 3450:510 Advanced Linear Algebra or 3
- 3450:513 Theory of Numbers 3
- 3450:512 Abstract Algebra II 3

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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 (345011MS)

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 as well 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 requirements and most of the electives for the bachelor’s degree in the first three years. During the third year of the baccalaureate degree a student will formally apply to the program through the Graduate School. Upon acceptance a student will be cleared to 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. A student will be eligible for a graduate assistantship only in these last two years and must be registered for at least nine graduate credits in each of those semesters. In this program six of the required senior-level credits for the undergraduate program will be replaced by graduate-level credits. These six credits will be applied to the requirements of both the bachelor’s and master’s degrees. Further, students in the program may choose to replace nine credits of the open electives for the undergraduate program by graduate-level electives.

Graduate work will include the following courses:

- 3450:621 Real Analysis
- 3450:627 Advanced Numerical Analysis I
- 3450:633 Methods of Applied Mathematics I
- 3450:692 Seminar in Mathematics
- 3450:699 Master’s Thesis
- **At least one course from the following:**
  - 3450:625 Analytic Function Theory
  - 3450:628 Advanced Numerical Analysis II
  - 3450:632 Advanced Partial Differential Equations

- **At least two courses from the following:**
  - 3450:634 Methods of Applied Mathematics II
  - 3450:635 Optimization
  - 3450:730 Advanced Numerical Solution of Partial Differential Equations
- **Graduate Electives**

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.

### 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.

#### Admission Requirements

- Students must have earned an undergraduate baccalaureate degree in music or the equivalent as determined by the department.
- The Graduate School’s requirements for admission.
- Three letters of recommendation.
- 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.
- The option in orchestral, choral, and wind conducting require the applicant to successfully pass an interview and audition with the orchestra/conducting faculty member and an audition on his/her particular applied instrument.

Applications are accepted on a rolling basis.

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

For the Voice Performance and Piano Accompanying options a proficiency equal to two semesters each of Italian, German, and French is required for completion of the Master of Music degree. There is no substitution for this requirement for the MM Voice Performance. Piano Accompanying degree program (only) may substitute Option I and II for this requirement. For the History and Literature option proficiency equal to two semesters of German is required for completion of the MM degree. A language other than German may be substituted for the History and Literature language proficiency with approval from the department. For details on how to show language proficiency please contact the Graduate Coordinator for the School of Music.

After completion of all course work, the student must pass an examination covering the graduate program. This examination is individualized for each candidate’s unique program.

### Composition Option

(C50003MM)

- **Music core courses – eight credits (to be selected):**
  - 7500:555 Advanced Conducting: Instrumental
  - 7500:556 Advanced Conducting: Choral
  - 7500:615 Musical Styles and Analysis I (Chant through Palestrina)
  - 7500:616 Musical Styles and Analysis II (Baroque through early Beethoven)
  - 7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Strauss)
  - 7500:619 Theory and Pedagogy
  - **Major required courses – 21-23 credits:**
    - 7500:618 Musical Styles and Analysis IV (20th Century)
    - 7500:624 Music History Survey: Music Since 1900
    - 7500:647 Master’s Chamber Recital
    - 7500:674 Seminar in Music (must be Schenkman Analysis)
    - 7500:699 Master’s Thesis/Project
    - 750:6— Ensemble (participation in two ensembles required)
    - 752:642 Applied Composition
  - **Additional music courses – zero to two credits.**
  - **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.

Degree total: 34-36 credits.

### Music Education Option

(C50016MM: Thesis Option)

(C50006MM: Nonthesis Option)

#### Thesis Option – 32 credits

- **Required Music Education Core Courses – 13-15 credits**
  - 7500:611 Foundations of Music Education (summer)
  - 7500:612 Practices and Trends in Music Education (fall)
  - 7500:614 Measurement and Evaluation in Music Education (spring)

- **Additional music/education courses – select 17-19 credits with approval of music education and graduate advisors. Choices may include the following:**
  - 7500:675 Seminar in Music Education
  - 7500:697 Advanced Problems in Music Education
  - 7500:590 Music Workshops
  - 7520:642 Applied Composition
  - 7510:6— Ensemble
  - 7500:619 Theory and Pedagogy
  - 5170:5—/6— Curricular and Instructional Studies 4
  - 5100:5—/6— Educational Foundations and Leadership 4
  - 7570:5— General Administration 4
  - 7500:619 Theory and Pedagogy
  - 5000:780 Seminar in Curriculum and Instructional Studies (Maximum of 4 credits of 5500:780)

#### Non-Thesis Option – 34 credits

- **Required Music Education Core Courses – 9 credits**
  - 7500:611 Foundations of Music Education (summer)
  - 7500:612 Practices and Trends in Music Education (fall)
  - 7500:614 Measurement and Evaluation in Music Education (spring)

- **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
  - 7500:697 Advanced Problems in Music Education
  - 7500:590 Music Workshops
  - 7520:642 Applied Composition
### Music Education: Instrumental Option

**(C50017MM: Thesis Option)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7500:675</td>
<td>Seminar in Music Education</td>
<td>9</td>
</tr>
<tr>
<td>7500:697</td>
<td>Advanced Problems in Music Education</td>
<td>4</td>
</tr>
<tr>
<td>7500:590</td>
<td>Music Workshops</td>
<td>6</td>
</tr>
<tr>
<td>7520:5—/6—</td>
<td>Applied Music</td>
<td>8</td>
</tr>
<tr>
<td>7510:6—</td>
<td>Ensemble</td>
<td>2</td>
</tr>
<tr>
<td>7500:590</td>
<td>Other music courses</td>
<td>8</td>
</tr>
<tr>
<td>5100:5—/6—</td>
<td>Educational Foundations and Leadership</td>
<td>4</td>
</tr>
<tr>
<td>5170:5—/6—</td>
<td>General Administration</td>
<td>4</td>
</tr>
<tr>
<td>55—5—/6—</td>
<td>Curricular and Instructional Studies</td>
<td>4</td>
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<tr>
<td>or</td>
<td>Maximum 7 credits</td>
<td>1-3</td>
</tr>
<tr>
<td>5500:780</td>
<td>Seminar in Curricular and Instructional Studies</td>
<td>1-3</td>
</tr>
<tr>
<td></td>
<td>(Maximum of 4 credits of 5500:780)</td>
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</tr>
</tbody>
</table>

### Non-Thesis Option – 34 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

  (must be related to instrumental music education)

### Additional music/education courses – select 17-19 credits with approval of the student and advisor

- 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
- 7500:590 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
- or
- 5500:780 Seminar in Curricular and Instructional Studies
- (Maximum of 4 credits of 5500:780)

### Music Education: Choral/General Music Option

**(C50019MM: Thesis Option)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7500:675</td>
<td>Seminar in Music Education</td>
<td>9</td>
</tr>
<tr>
<td>7500:697</td>
<td>Advanced Problems in Music Education</td>
<td>4</td>
</tr>
<tr>
<td>7500:590</td>
<td>Music Workshops</td>
<td>6</td>
</tr>
<tr>
<td>7520:5—/6—</td>
<td>Applied Music</td>
<td>8</td>
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<tr>
<td>7510:6—</td>
<td>Ensemble</td>
<td>2</td>
</tr>
<tr>
<td>7500:590</td>
<td>Other music courses</td>
<td>8</td>
</tr>
<tr>
<td>5100:5—/6—</td>
<td>Educational Foundations and Leadership</td>
<td>4</td>
</tr>
<tr>
<td>5170:5—/6—</td>
<td>General Administration</td>
<td>4</td>
</tr>
<tr>
<td>55—5—/6—</td>
<td>Curricular and Instructional Studies</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td>Maximum 7 credits</td>
<td>1-3</td>
</tr>
<tr>
<td>5500:780</td>
<td>Seminar in Curricular and Instructional Studies</td>
<td>1-3</td>
</tr>
<tr>
<td></td>
<td>(Maximum of 4 credits of 5500:780)</td>
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</tr>
</tbody>
</table>

### 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. A minimum of 22 credits must be related to choral/general music education. 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
  - 7500:886 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
  - or
  - 5500:780 Seminar in Curricular and Instructional Studies
  - (Maximum of 4 credits of 5500:780)

### Music Technology Option

**(C50205MM)**

- **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 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
  - 7500:623 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
  - 7520:542 Composition (electronic music) 2
  - 7600:697 Graduate Research in Communication 3

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

### Performance Option in Accompanying

**(C50008MM)**

- **Music core courses – Eight credits (to be selected):**
  - 7500:555 Advanced Conducting: Instrumental 2
  - 7500:556 Advanced Conducting: Choral 2
  - 7500:615 Musical Styles and Analysis I (Chant through Palestrina) 2
  - 7500:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
  - 7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Strauss) 2
  - 7500:618 Musical Styles and Analysis IV (20th Century) 2
  - 7500:621 Music History Survey: Middle Ages and Renaissance 2
  - 7500:622 Music History Survey: Baroque 2
  - 7500:623 Music History Survey: Classic and Romantic 2
  - 7500:624 Music History Survey: Music Since 1900 2

- **Major required courses – 23-26 credits:**
  - 500:562 Repertoire and Pedagogy: Organ 3
  - 7500:633 Teaching and Literature: Piano and Harpsichord 2
  - 7500:640 Advanced Accompanying I 2
  - 7500:641 Advanced Accompanying II 1
  - 7500:642 Advanced Accompanying III 1
  - 7500:643 Advanced Accompanying IV 1
  - 7500:666 Advanced Song Literature I 2
  - 7500:698 Graduate Recital (to be completed in a minimum of two performance media) 2
  - 7510:614 Keyboard Ensemble (participation in two ensembles required)** 2-4
  - 7510:618 Small Ensemble - Mixed 2
  - 7520:6— Applied Music (piano, organ and/or harpsichord) 8

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

- **Elective – two credits.**
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, advanced problems, workshops and/or applied lessons, to be selected by the student and advisor.

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

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

Performance Option in Winds, String, Percussion
(C50102MM: Strings Performance)  
(C50103MM: Woodwinds Performance)  
(C50105MM: Percussion Performance)  
(C50108MM: Brass Performance)

• Major required courses – 18-21 credits:
  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

• Additional music courses – six credits.*
  7500:698 Graduate Recital 2
  7500:631 Teaching and Literature: Woodwind Instruments 2
  7500:633 Teaching and Literature: Piano and Harpsichord 2
  7500:697 Advanced Problems in Music 2
  7500:696 Graduate Recital 2
  7500:614 Keyboard Ensemble (participation in two ensembles required)** 2-4
  7520:524 Applied Music (piano, organ and/or harpsichord) 8

• 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.

Elections – 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
(C50110MM)

• Music Core Courses (8 credits)
  7500:615 Musical Styles and Analysis I 2
  7500:616 Musical Styles and Analysis II 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)
  7500:555 Advanced Conducting: Instrumental 2
  7500:556 Advanced Conducting: Choral 2
  7500:562 Repertoire and Pedagogy: Organ 3
  7500:563 Teaching and Literature: Piano and Harpsichord 2
  7500:697 Advanced Problems in Music 2
  7500:696 Graduate Recital 2
  7500:698 Graduate Recital 2
  7520:621-22 Ensemble* 2
  7520:524 Applied Music 4

• Electives (3 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, other than ensembles.

Degree total: 36 credits

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

*Two semesters ensemble participation required for degrees completed in two semesters. Four semesters ensemble participation required for degrees completed in four semesters.
Performance Option: Orchestral Conducting (C50111MM)

- Music Core Courses (8 credits)
  - 750:616 Musical Styles and Analysis II 2
  - 750:617 Musical Styles and Analysis III 2
  - 750:618 Musical Styles and Analysis IV 2
  - 750:622 Music History Survey: Baroque 2
  - 750:623 Music History Survey: Classical and Romantic 2
  - 750:624 Music History Survey: Music Since 1900 2

- Major Required Courses (29 credits)
  - 750:555 Advanced Conducting: Instrumental 2
  - 750:630 Teaching and Literature: Brass Instruments 2
  - 750:631 Teaching and Literature: Woodwind Instruments 2
  - 750:632 Teaching and Literature: Percussion Instruments 2
  - 750:634 Teaching and Literature: String Instruments 2
  - 750:675 Graduate Seminar: Instrumental Arranging 3
  - 750:698 Graduate Recital (Conducting) 2
  - 751580-21 Orchestra* 4
  - 7520xxx Applied Music (required) 8

Degree total: 37 credits

*Participation in Orchestra required for all semesters in residence.

Performance Option: Wind Conducting (C50112MM)

- Music core courses – eight credits to be selected from the following:
  - 750:616 Musical Styles and Analysis II 2
  - 750:617 Musical Styles and Analysis III 2
  - 750:618 Musical Styles and Analysis IV 2
  - 750:622 Music History Survey: Baroque 2
  - 750:623 Music History Survey: Classic and Romantic 2
  - 750:624 Music History Survey: Music Since 1900 2

- Major required courses – 29 credits:
  - 750:555 Advanced Conducting: Instrumental (repeated for total of eight credits) 2
  - 750:698 Grad Recital 2
  - 7510-604 Symphonic Band (repeated for four semesters) 1
  - 7510-625 Concert Band (repeated for four semesters) 1
  - 750:630 Teaching and Literature: Brass Instruments 2
  - 750:631 Teaching and Literature: Woodwind Instruments 2
  - 750:632 Teaching and Literature: Percussion Instruments 2
  - 750:634 Teaching and Literature: String Instruments 2
  - 750:675 Seminar in Music Education: Instrumental Arranging 3
  - 750:675 Seminar in Music Education: Wind Literature 2
  - 7520xxx Applied Music (repeated for two semesters) 2

Degree total: 37 credits

Theory Option (C50009MM)

- Music core courses – six credits (to be selected):
  - 750:555 Advanced Conducting: Instrumental 2
  - 750:556 Advanced Conducting: Choral 2
  - 750:621 Music History Survey: Middle Ages and Renaissance 2
  - 750:622 Music History Survey: Baroque 2
  - 750:623 Music History Survey: Classic and Romantic 2
  - 750:624 Music History Survey: Music Since 1900 2
  - 750:625 Bibliography and Research 2

- Major required courses – 26-28 credits:
  - 750:615 Musical Styles and Analysis I (Chant through Palestrina) 2
  - 750:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
  - 750:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Straus) 2
  - 750:618 Musical Styles and Analysis IV (20th Century) 2
  - 750:619 Theory and Pedagogy 2
  - 750:674 Seminar in Music (must be Schenkerian Analysis) 2
  - 750:697 Advanced Problems in Music 2
  - 750:699 Master’s Thesis/Project 4-6
  - 7510-6— Ensemble participation in two ensembles required** 2
  - 7520-642 Applied Composition 2

- Additional music courses – zero to two credits.

- Electives – zero to two credits.

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

Degrees total: 34-36 credits.

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

Physics

Admission Requirements

In addition to the graduate application and official transcripts applicants must submit three letters of recommendation, statement of purpose, and resume. Application materials should be submitted by March 15 for fall enrollment. Applications are accepted on a rolling basis for spring and summer enrollment.

Master of Science (365000MS)

- Complete a minimum of 30 graduate credits of approved courses in physics. Up to six credits of graduate-level electives outside the department may be included in the program. There is no foreign language requirement for this degree.
- A cumulative grade-point average of 3.00 or better for all graduate-level credits applicable toward the degree.
- Complete an approved program of courses which includes the following required courses:
  - 3650:551 Advanced Laboratory I 3
  - 3650:615 Electromagnetic Theory I 3
  - 3650:625 Quantum Mechanics I 3
  - 3650:641 Lagrangian Mechanics 3
  - 3650:661 Statistical Mechanics 3
  - 3650:685 Solid-State Physics I 3

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

- 3650:581.2 Methods of Mathematical Physics I, II 6
- 3650:616 Electromagnetic Theory II 3
- 3650:626 Quantum Mechanics II 3
- 3650:552 Advanced Laboratory II 3

A student must complete at least one of the following two options:
- Option A: A formal report, based on an original research project, submitted in a form suitable for publication and approved by a physics faculty committee.
- Option B: A master’s thesis.

- Graduate research participation is strongly encouraged. Up to five credits may be earned in 3650:697 Graduate Research, upon the completion of a graduate research project. One additional credit may, upon approval by the department, be permitted in 3650:699 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 Physics and Chemistry offer a cooperative option leading to the Ph.D. in chemistry for those graduate students wishing to specialize in the interdisciplinary field of chemical physics.

Admission Requirements

Applicants may be admitted with either a baccalaureate or a master’s degree in either chemistry or physics. Students pursuing this option are subject to all admission and degree requirements for the Ph.D. in chemistry, as outlined in page 29 of this Graduate Bulletin. The Chemical Physics option is described in detail on page 29.

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 (370000MA)

Admission Requirements

Admission is open to students who have completed a four-year undergraduate degree with a minimum cumulative grade point average of 3.0 and who fulfill the admission requirements of the Graduate School. Three letters of recommendation (at least two 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.

Application materials should be submitted by April 1 for fall enrollment and by December 1 for spring enrollment.

The Master of Arts in Political Science allows students to focus their study in one of three concentrations: American Institutions, Criminal Justice, or International Studies.
Students may also work toward certificates in Applied Politics in conjunction with their graduate studies in Political Science.

Degree Requirements
• Complete 30 credits of graduate work, including 24 credits at the 600 level, as follows:
  Three required core courses:
  3700:600 Scope and Theory of Political Science 3
  3700:601 Research Methods in Political Science 3
  3700:603 Scholarly Writing and Professional Development in Political Science 3
  Two additional departmental seminars, 6 credits (neither Independent Study nor Internship credit counts as a graduate seminar).
  Two track-required seminars depending on the track chosen (6 credits)
  Nine additional graduate Political Science credits (500 or 600 level)
• Pass a comprehensive written examination covering one concentration: American Institutions, Criminal Justice, or International Studies.
• Complete the following writing requirement:
  An Essay of Distinction is a single, article-length, scholarly research paper. 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 are also required to orally defend their paper to their Faculty Advisory Committee (FAC). All FAC members must approve the topic and pass the paper and oral defense.

Political Science - Security Studies Track (370015MA)
The Security Studies track is intended to prepare professionals in the world of national security operations. Students in the Security Studies option are required to complete an Essay of Distinction and a Comprehensive Examination along with the required coursework outlined below.

Degree Requirements
Complete 30 credits of graduate work as follows:
• Department Required Courses - 9 credits:
  3700:600 Scope and Theories of Political Science 3
  3700:601 Research Methods in Political Science 3
  3700:603 Scholarly Writing and Professional Development in Political Science 3
• Track Required Seminars - 6 credits:
  3700:610 Seminar in International Politics 3
  3700:612 Seminar in Security Studies 3
• Electives - 15 credits (selected from the courses below):
  3350:505 Geographic Information Systems 3
  3700:500 Political Extremism and Violence 3
  3700:510 International Security Policy 3
  3700:513 Global Public Health Threats 3
  3700:514 Wealth and Power Among Nations 3
  3700:545 Al Qaeda 3
  3700:546 Intelligence and Counterterrorism 3
  3700:553 Human Rights in World Politics 3
  3700:611 Seminar in War and Insurgency 3
  3700:620 Seminar in Comparative Politics 3
  3700:622 Seminar in Alternatives to Violence at Home and Abroad 3
  3700:630 Seminar in National Politics 3
  3980:643 Introduction to Public Policy 3
  3980:673 Computer Applications in Public Organizations 3
• Complete an Essay of Distinction
• Pass a Comprehensive Examination

Master of Applied Politics (370005MAP)
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 Requirements
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.
Application materials should be submitted by March 1 for fall enrollment and by December 1 for spring enrollment.

Degree Requirements
• Complete 39 credits of graduate work, including the following:
  Core courses - 18 credits:
  3700:570 Campaign Management I 3
  3700:571 Campaign Management II 3
  3700:600 Scope and Theory of Political Science 3
  3700:601 Research Methods in Political Science 3
  3700:672 Seminar: Political Influence and Organizations 3
  3700:695 Internship in Government and Politics* 3
  * Three credits required; additional credits will be counted toward elective credit.
  Elective courses - 21 credits (6 credits must be at the 600-level)
  3700:540 Survey Research Methods 3
  3700:572 Campaign Finance 3
  3700:574Political Opinion, Behavior, and Electoral Politics 3
  3700:577 Lobbying 3
  3700:655 Campaign and Election Law 3
  7600:575 Political Communication 3

Fifteen credits of additional course work from above or from approved courses in Political Science, Communication, Public Administration, or other departments.
• 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
Admission Requirements
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 - 24 credits (18 credits core courses; 6 credits required electives)
• Joint Law School/Political Science Course - 3 credits
  3700:655/9200:655 Campaign and Election Law 3
• J.D. Elective Courses - 32 credits
  At least three credits from the following courses:
  9200:623 Administrative Law 3
  9200:642 Alternative Dispute Resolution 3
  9200:644 First Amendment Law 3
  9200:645 Non-Profit Tax Entities 3
  9200:659 Negotiation 1
  9200:662 Media Law 3
  9200:664 Local Government Law 3
  9200:684 Selected Legal Problems 3 or 4
  9200:698 Individual Studies and Research 2-3
• MAP Electives - 6 credits
  Choose two from the following courses:
  3700:502 Politics and the Media 3
  3700:540 Survey Research Methods 3
  3700:572 Campaign Finance 3
  3700:574 Political Opinion, Behavior, and Electoral Politics 3
  3700:577 Lobbying 3
  3700:620 Seminar in Comparative Politics 3
  3700:630 Seminar in National Politics 3
  3700:668 Seminar in Public Policy Agendas and Decisions 3
  3700:690 Special Topics in Political Science (Applied Politics focus) 3
  3700:695 Internship in Government and Politics (in addition to required three credits) 3
  7600:575 Political Communication 3

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

Master of Arts (375013MA: Industrial/Organizational-Nonthesis Option)

Admission Requirements
Fulfill admission requirements of the Graduate School and the following departmental requirements:

- psychology major or minimally the equivalent of psychology undergraduate minor including a general or introductory course, statistics course, and experimental psychology course;
- GPA of 3.00 in psychology courses;
- Graduate Record Examination General Test;
- three letters of recommendation;
- resume.

Application materials must be received by January 15.

Degree Requirements

• 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.

Completion of coursework, practicum and examinations (no thesis required), with a minimum of 41 credits of graduate work.

Public Administration and Urban Studies

Master of Public Administration (MPA) (398005MPA)

The Master of Public Administration (MPA) is a professional degree designed to prepare students for their public service careers in local government, public management, and administration as well as the management of non-profit organizations. The program of study consists of a core of 27 credit hours, 12 credit hours of electives, and three credit hours of internship. Students with sufficient professional work experience in the public sector may petition for a waiver of the internship requirement.

Admission Requirements
Admission is open to students who have completed a bachelor’s degree. No specific field or undergraduate major is required for admission. The GPA requirements for consideration for full admission are an overall bachelor GPA of 2.8 or greater or 3.05 for the last 60 credit hours. Provisional admission may be granted for those with an overall GPA between 2.5 and 2.75. Additionally, applicants must submit the following:

- For students who have an overall GPA below 3.0 a standardized test score from the GRE, GMAT, or LSAT.
- A copy of their current resume (especially important for in-service students to ascertain their professional experience).
- A personal essay explaining why the study and completion of a MPA degree will help with their personal or professional goals.

Admission decisions are made by the department committee considering the entire application file. Applications are accepted on a rolling basis; however, all application materials should be received by the department three weeks before the start date of the term for the department to make admission decisions for that term.

For those students seeking a graduate assistantship there are additional application materials, and all of these must be received by July 1 for fall enrollment, November 15 for spring enrollment, and April 1 for summer enrollment.

Degree Requirements
Satisfactory completion of a minimum 42 credit hours of graduate study, including 27 credit hours of core classes, 12 credit hours of elective courses, and three credit hours of internship. Students with sufficient professional work experience may petition for a waiver of the internship requirement, and those students that are granted an internship waiver have a minimum of 39 credit hours for the degree. Procedures for an internship waiver are included in the student handbook. For more program details students should refer to the Public Administration and Urban Studies Master’s Degree handbook that is available online.

- Core requirements (27 credit hours):
  - 3980:516 Personnel Management in the Public Sector 3
  - 3980:600 Basic Quantitative Research 3
  - 3980:605 Orientation to Master of Public Administration 0
  - 3980:606 Foundations of Urban Public Administration and Policy 3
  - 3980:610 Legal Foundations of Public Administration 3
  - 3980:614 Ethics and Public Service 3
  - 3980:615 Public Organization Theory 3
  - 3980:642 Public Budgeting 3
  - 3980:688 Capstone Seminar in Public Administration 3

And one course from the following:

- 3980:695 Internship 3

(Students with sufficient work experience can petition for a waiver of this requirement)

J.D./Master of Public Administration

The University offers a joint J.D. and Public Administration program (JD/MPA). The MPA is a professional degree designed to prepare students for their public service careers in local government, public management, and administration as well as the management of non-profit organizations. One benefit of the J.D./MPA is to prepare students for careers in the public sector what a law degree is useful. This program reduces the total existing credit hours of the School of Law from 88 to 77 and Public Administration from 42 to 33.

Admission Requirements
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. The Public Administration admission requirements for this program are the same as for the MPA degree. Students must be admitted as a joint degree student by both programs.

Degree Requirements

Seventy-seven credits in law and 30 credits in public administration plus a three credit internship.

Under this program a student must take 43 credits of required law courses, 32 credits of law electives, 24 credits of required public administration courses, six credits of public administration electives, a three credit internship course, and a zero credit orientation. The required MPA courses for this program differ from the MPA.

- Core requirements (24 credit hours):
  - 3980:516 Personnel Management in the Public Sector 3
  - 3980:600 Basic Quantitative Research 3
  - 3980:605 Orientation to Master of Public Administration 0
  - 3980:606 Foundations of Urban Public Administration and Policy 3
  - 3980:610 Legal Foundations of Public Administration 3
  - 3980:614 Ethics and Public Service 3
  - 3980:615 Public Organization Theory 3
  - 3980:642 Public Budgeting 3
  - 3980:688 Capstone Seminar in Public Administration 3

And one course from the following:

- 3980:695 Internship 3

(Students with sufficient work experience can petition for a waiver of this requirement)

Executive Master of Public Administration (398005EMPA)

The Executive Master of Public Administration is designed to advance the careers and develop skills of senior public and non-profit sector managers. The focus of the program is on student practitioners with a minimum of ten years professional administrative and managerial experience. The curriculum is offered to students organized as a cohort. A cohort begins only when there are sufficient students in
the cohort to justify the use of resources for the degree (typically 20 students). Once the cohort is formed the courses are offered in a specific sequence and on a format which is designed to reflect the ongoing work demands of the students in the cohort. The classes are not offered on the same format as traditional courses, but, rather, rely on weekend, web-based, and web-enhanced courses. The cohort moves through that sequence as a group. A student may not take courses out of sequence nor can students drop in and out of the cohort. If a student drops out of a class the student must wait until a new cohort reaches that same point in the sequence to re-enter the program.

Admission Requirements
For the Executive MPA students must have ten years of professional administrative or managerial experience in government or non-profit sector as shown in their current resume. Admission is open to students who have completed a bachelor’s degree. No specific field or undergraduate major is required for admission.

The grade point average requirements for consideration for full admission is an overall undergraduate cumulative GPA of 2.8 or greater or 3.05 for the last 60 credit hours. Provisional admission may be granted to those with an overall GPA between 2.5 and 2.79; however, applicants with a GPA between 2.5 and 2.79 must also submit two letters of reference that speak to the applicants’ goal and abilities.

Additionally, applicants must submit the following:
- A copy of their current resume to ascertain professional experience and eligibility for this program.
- A personal essay explaining why the study and completion of a MPA degree will help with personal and professional goals.

Admission decisions are made by the department committee as explained in the department handbook.

Degree Requirements
Satisfactory completion of 39 credit hours of graduate study.

• Required Courses:
  - 3890:516 Personnel Management in the Public Sector 3
  - 3890:600 Basic Quantitative Research 3
  - 3890:610 Legal Foundations of Public Administration 3
  - 3890:613 Intergovernmental Management 3
  - 3890:614 Ethics and Public Service 3
  - 3890:615 Public Organization Theory 3
  - 3890:624 Emergency Management Policy Implementation and Analysis 3
  - 3890:640 Fiscal Analysis 3
  - 3890:641 Urban Economic Growth and Development 3
  - 3890:642 Public Budgeting 3
  - 3890:651 Introduction to City Management 3
  - 3890:671 Program Evaluation in Urban Studies 3
  - 3890:688 Capstone Seminar in Public Administration 3

The cohort will have a distinct capstone project. In addition, there will be an exit questionnaire.

Sociology

Master of Arts
(385010MA: Thesis Option)
(385011MA: Nonthesis Option)

The University of Akron and Kent State University offer a joint graduate program in Sociology. Coursework is offered at both campuses, faculty from both campuses serve on students’ committees and research projects.

It should be noted that the program seeks to admit students who expect to complete a Ph.D. at the University of Akron, and the curriculum is structured to serve full-time students. Thus, students generally complete the requirements for the master’s degree in the process of pursuing the doctorate. It is recommended that students who are not interested in receiving a Ph.D. or who are interested in a part-time program of study consider applying to sociology programs that focus on awarding master’s degrees and which are better able to serve the needs of part-time students.

Admission Requirements
The curriculum is designed for fall admission only, and completed application materials must be received by January 15 for those applicants seeking financial support from the department. Applicants not seeking funding must have application materials submitted by March 1.

Specific criteria considered for admission include:
- Fulfill admission requirements of the Graduate School and department
- Undergraduate cumulative grade point average of 3.0
- GRE General Test
- Personal statement indicating reasons for pursuing a graduate degree in Sociology at The University of Akron
- Three letters of recommendation from persons familiar with the applicant’s academic work

• Applicants whose native language is not English must score at least 577 (paper-based) or 233 (computer-based) on the TOEFL.

Note: The admissions committee is unable to consider incomplete applications. Interested applicants are encouraged to visit the department website for further information about the program and the application process.

Thesis Option
In addition to meeting the general requirements of the Graduate School, a student working toward the M.A. in Sociology must fulfill the following requirements:
- Complete 35 credit hours of coursework (14 credits of required coursework, 15 credits of electives, and six credits of thesis) with at least a 3.0 grade point average. Only three credit hours taken at the 500-level, and only three credit hours of 697 or 698 can be counted toward the degree.
- Complete the following required courses:
  - 3850:604 Quantitative Methods in Sociology 4
  - 3850:628 Professional and Ethical Issues in Sociology 3
  - 3850:706 Multivariate Techniques in Sociology 4
  - 3850:722 Early Sociological Thought 3
- Complete six credit hours of thesis (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
In rare circumstances it may be determined by the graduate faculty that the M.A. degree may be completed through the non-thesis option. This terminal degree will be completed through a process focused on intensive substantive training in a specialized area.

In addition to meeting the general requirements of the Graduate School, a student working toward a non-thesis M.A. in Sociology must fulfill the following requirements:
- Complete the following required courses with at least a 3.0 grade-point average:
  - 3850:604 Quantitative Methods in Sociology 4
  - 3850:628 Professional and Ethical Issues in Sociology 3
  - 3850:706 Multivariate Techniques in Sociology 4
  - 3850:722 Early Sociological Thought 3
- Completion of at least 21 additional credits of elective coursework. Only six credit hours taken at the 500-level and only three credit hours of 697 or 698 can be counted toward the degree. Twelve to 15 of these credits must be in a contracted specialty area defined in consultation with the student’s advisor and approved by the Graduate Studies Committee.
- Pass an oral examination on the specialty area.

Spanish

Master of Arts
(388000MA)

Admission Requirements
In addition to the graduate application three letters of recommendation, statement of purpose, and resume must be submitted. Applicants must have a minimum score of Advanced Low on the Oral Proficiency Interview (score must be no more than two years old). Applications are accepted on a rolling basis.

Program Requirements
- 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.

Statistics

Master of Science – Statistics
(347000MS: Non-thesis Option)
(347000MST: Thesis Option)

Admission Requirements
Entrance into the program will require the initial completion of the following prerequisites:
- Three semesters of calculus or equivalent
- One semester of Linear Algebra or equivalent.
- One semester of Applied Statistics or equivalent.

Applicants must also submit three letters of recommendation, statement of purpose, and resume.
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Admission Requirements

• 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 arts administration/theatre program.
• Statement of purpose (no more than 300 words) summarizing background and outlining career goals.

All application materials must be received by March 15 for fall enrollment.

Arts Administration Option (C80006MA)

• Complete a minimum of 45 credits.
• Required theatre arts courses (30-33) credits:
  7850:600 Research and Writing Techniques 3
  7850:605 Colloquium in the Arts 3
  7850:685 Audience Development 3
  7850:686 Principles of Arts Administration 3
  7850:682 Fund Raising and Grantmanship in the Arts 3
  7850:691 Arts Administration Policies and Practices 3
  7850:692 Legal Aspects of Arts Administration 3
  7850:698 Internship 3-6
  7850:699 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 Customer Relationship Management 3
• Electives in related fields (3-6 credits):
  Options here include coursework in business, computer science, urban studies, art, music, law, theatre and dance.
• Complete an oral defense of the thesis.
• General electives 0-3

Thesis requirements (30 credits of graduate work)

In addition to the core curriculum, students must take three credits in 3470:689 Advanced Topics in Statistics, 2-4 credits in 3470:699 Master’s Thesis, and 7-9 credits of other approved graduate electives. Upon approval of the thesis by the student’s adviser and reader, the thesis must be presented in a colloquium to faculty and students.

Nonthesis requirements (33 credits of graduate work)

In addition to the core curriculum, students must take three credits in 3470:689 Advanced Topics in Statistics, 2-4 credits in 3470:692 Statistics Masters Paper, and 10-12 other approved elective graduate credit hours must be completed. Upon approval of the Statistics Master’s Paper by the student’s adviser and reader, the paper must be presented in a colloquium to faculty and students.
The GRE requirement may be waived for students holding degrees from ABET accredited programs (with department approval).

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

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

Applicants whose native language is not English must have a TOEFL score of at least 550 (paper-based) or 213 on the computer-based TOEFL, and also must submit their score on the Test of Written English. Applicants to the Department of Biomedical Engineering must have a TOEFL score of 590 (paper-based) or 233 (computer-based).

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

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

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

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

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

Degree Requirements
The University’s Academic Requirements (See Academic Requirements in this Graduate Bulletin) for the Doctoral Degree and the following College of Engineering’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 admisibility to the doctoral program and any technical weakness.
- Satisfy the language requirement specified by the Interdisciplinary Doctoral Committee.
- Pass a Candidacy Examination. The purpose of the candidacy examination is to test the student’s ability to conduct independent research.
- Present an acceptable Dissertation Proposal that describes the proposed research to the Interdisciplinary Doctoral Committee.
- Present and successfully (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 establish a research agenda for the entire college and permit the interdisciplinary programs to adapt to the changing research and funding environment. Since the approval of the proposal, the interdisciplinary areas have expanded from the original five programs to ten interdisciplinary programs. These interdisciplinary programs are broadly defined as follows.

Environmental Engineering includes the study of water and air pollution, environmental health, chemical disposal, waste management, noise control, resource engineering, and appropriate fields of urban planning.

Mechanics includes the theoretical and experimental study of the stresses, strains, and endurance of structures, machines and various materials, mechanics of solids, fluids, solid, and composite materials.

Systems Engineering include the scientific prediction, control, and evaluation of the performance of integrated operational systems, and interaction effects among the components of engineering systems. It includes system analysis and design, operations research, linear and dynamic programming.

Materials Engineering studies the materials from the physical, chemical, and engineering standpoints. Its purpose is to develop a better understanding of the composition, properties, and performance of various materials, and to develop new materials, manufacturing methods, and applications.

Transport Processes include the theoretical and experimental study of the transfer of mass, energy, and power, as related to engineering systems and processes.

Biomedical Engineering studies the theoretical and experimental application of engineering principles to biomedical problems. Some typical areas of interest are signal and image processing, biomechanics, and biomaterials.

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

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

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

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

The interdisciplinary doctoral program has succeeded in providing doctoral students access to the resources of the entire college while providing an economical sound administration for a program that deals with a doctoral population that is much smaller than those for undergraduate or master’s degrees.

COORDINATED AND JOINT PROGRAMS

Coordinated Engineering Applied Mathematics program for the Doctor of Philosophy in Engineering degree between the College of Engineering and the Department of Mathematics (415001PHD)

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 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. Applications to the Engineering-Applied Mathematics Program are accepted on a rolling basis.

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 in the participating program faculty from the applied mathematics division of the Department of Mathematics. The participating faculty from the Department of 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 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.

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Joint program for the M.D. and Ph.D. in Engineering degree between the College of Engineering at The University of Akron and the Northeast Ohio Medical University (415002PHD)

The College of Engineering and NEOMED 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 NEOMED.

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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:

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

Degree Requirements

To obtain an M.D. degree from NEOMED and a Doctor of Philosophy Degree in Engineering, the student must satisfy NEOMED 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.

MASTERS 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 official undergraduate transcripts, undergraduate grade point average, three letters of recommendation, and a statement of purpose. Personal statements or descriptions of post-baccalaureate experience that provide a rationale for proposed graduate study may also be submitted.

Official results of the analytical writing and quantitative portions of the GRE must be submitted. The GRE minimum requirements for admission into graduate programs in the College of Engineering can be met by one of the four score combinations below:

<table>
<thead>
<tr>
<th></th>
<th>Analytical</th>
<th>Quantitative Writing</th>
<th>Quantitative Current Scale</th>
<th>Quantitative Prior Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>159</td>
<td>159</td>
<td>750</td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>153</td>
<td>680</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td>149</td>
<td>620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td>146</td>
<td>550</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The GRE requirement may be waived for students holding degrees from ABET accredited programs (with department approval).

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

Applicants whose native language is not English must have a TOEFL score of at least 550 (paper-based) or 213 on the computer-based TOEFL, and also must submit their score on the Test of Written English (TWE). Applicants to the Department of Biomedical Engineering must have a TOEFL score of 590 (paper-based) or 243 (computer-based).

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

Degree Requirements

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

- Identify a three-member Advisory Committee including a major advisor before completion of 9 credit hours of coursework.
- Complete a formal Plan of Study that is acceptable to the Advisory Committee with a minimum of 24 credit hours of coursework of which no more than 6 credits are special topics courses. The formal Plan of Study may be revised upon approval of the Advisory Committee.
- Successfully (no “fail” votes) defend the thesis before the Advisory Committee, or have the Engineering Report approved by the Advisory Committee, or successfully complete the appropriate department’s nonthesis option requirements.
Master of Science in Chemical Engineering
(420000MS: Non-thesis Option)
(420000MST: Thesis Option)

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:

4210:200 Material and Energy Balances 4
4210:225 Equilibrium Thermodynamics 4
4210:321 Transport Phenomena 3
4210:330 Reaction Engineering 3
Total 14

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

4210:600 Transport Phenomena 3
4210:605 Chemical Reaction Engineering 3
4210:610 Classical Thermodynamics 3
4210:697 Chemical Engineering Report 3
4210:615 Chemical Engineering Electives* 6
Approved Electives** 6
Approved Mathematics 3
Master’s Thesis 6
Total 30

Nonthesis Option

4210:600 Transport Phenomena 3
4210:605 Chemical Reaction Engineering 3
4210:610 Classical Thermodynamics 3
4210:697 Chemical Engineering Report 3
4210:615 Chemical Engineering Electives* 6
Approved Electives** 15
Approved Mathematics 3
Total 36

*Chemical Engineering students in both degree options are expected to attend and to participate in the department's seminars.
**Students without BS in Chemical Engineering are required to take 4200:535, 4200:541.

Five Year BS/MS Chemical Engineering Program
(420001MS)

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

Master of Science in Civil Engineering
(430000MS: Non-thesis Option)
(430000MST: Thesis Option)

Applicants with a bachelor’s degree in a discipline other than engineering shall have completed coursework in calculus, differential equations, have one year of classical physics, and must select and complete undergraduate coursework from one of four undergraduate disciplines. These undergraduate engineering courses may be taken prior to graduate admission, or concurrently if the student has full admission or provisional admission, and is enrolled for at least 9 graduate credits.

4300:306 Theory of Structures 3
4300:313 Soil Mechanics 3
4600:315 Fluid Mechanics 3
4300:323 Water Supply and Wastewater Disposal 4
4300:341 Hydraulics 3
4300:361 Transportation Engineering 3
4300:401 Steel Design 3
4300:403 Reinforced Concrete Design 3
Total 25

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

Thesis Option

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

Nonthesis Option

Civil Engineering Courses 15
Approved Mathematics or Sciences 3
Approved Electives 12
Engineering Report 2
Total 32

Master of Science in Electrical Engineering
(440000MS: Non-thesis Option)
(440000MST: Thesis Option)

Applicants with a bachelor’s degree in a discipline other than engineering shall have completed coursework in calculus, differential equations, have one year of classical physics, and must select and complete undergraduate coursework from one of four undergraduate disciplines. These undergraduate engineering courses may be taken prior to graduate admission, or concurrently if the student has full admission or provisional admission, and is enrolled for at least 9 graduate credits.

4400:360 Physical Electronics 3
4400:361 Electronic Design 4
4400:363 Switching and Logic 4
4400:384 Energy Conversion I 3
4400:385 Energy Conversion Lab 2
4400:445 Analog Communications 3
4400:453 Antenna Theory 3
4400:472 Control Systems II 4
Total 26

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

Thesis Option

Electrical Engineering Courses** 15
Approved Mathematics 6
Approved Electives 3
Master’s Thesis 6
Total 30

Nonthesis Option

Electrical Engineering Courses** 18
Approved Mathematics 6
Approved Electives 9
Total 33

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 required electrical engineering coursework of 18 credits may not include more than six credits of 500-level courses.
**The elective chemical engineering courses may not include more than three credits of 500-level courses.

Master of Science in Mechanical Engineering
(460000MS: Non-thesis Option)
(460000MST: Thesis Option)

Applicants with a bachelor’s degree in a discipline other than engineering shall have completed coursework in calculus, differential equations, have one year of classical physics, and must select and complete undergraduate coursework from one of four undergraduate disciplines. These undergraduate engineering courses may be taken prior to graduate admission or concurrently if the student has full admission or provisional admission and is enrolled for at least 9 graduate credits.

4600:300 Thermodynamics I 4
4600:301 Thermodynamics II 3
4600:311 Fluid Mechanics II 3
4600:315 Heat Transfer 3
4600:336 Analysis of Mechanical Components 3
4600:340 Systems Dynamics and Response 3
4600:380 Mechanical Metallurgy 2
4600:444 Fundamentals of Mechanical Vibrations 3
4600:441 Control System Design 3
Total 27

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

Thesis Option

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

Nonthesis Option

Mechanical Engineering Courses* 15
Approved Mathematics 3
Approved Electives 12
Engineering Report 2
Total 32

*The program is limited to not more than three 500-level courses in engineering. Not more than two 500-level courses can be applied to the 15 credits of mechanical engineering coursework.
Master of Science in Engineering
(410000MSE: Non-thesis Option)
(410000MSET: Thesis Option)
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.

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

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

Nonthesis Option

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

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

Biomedical Engineering Specialization
(480000MSE)

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, one year of chemistry, and must select and complete undergraduate coursework in:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4400:307</td>
<td>Basic Electrical Engineering</td>
<td>4</td>
</tr>
<tr>
<td>4600:203</td>
<td>Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>4600:300</td>
<td>Thermodynamics I</td>
<td>3</td>
</tr>
<tr>
<td>4800:360</td>
<td>Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4800:362</td>
<td>Transport Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>4800:400</td>
<td>Materials Science</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4800:202</td>
<td>Mechanics of Solids</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>16</strong></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.

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4800:605</td>
<td>Fundamentals of Biomedical Engineering</td>
<td>4</td>
</tr>
<tr>
<td>4800:611</td>
<td>Biometry</td>
<td>3</td>
</tr>
<tr>
<td>3100:695</td>
<td>Physiology for Engineers and Lab</td>
<td>5</td>
</tr>
<tr>
<td>Approved Electives</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Master’s Thesis</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>33</strong></td>
</tr>
</tbody>
</table>

Approved electives include 4800:600-level courses other than the core requirements.

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

Polymer Engineering Specialization**
(410003MSE)

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

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

Engineering Management Specialization
(410001MSE)

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>Course Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Courses</td>
<td>21</td>
</tr>
<tr>
<td>Management Courses</td>
<td>15</td>
</tr>
<tr>
<td>Engineering Management Report</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>38</strong></td>
</tr>
</tbody>
</table>

Required Courses (3 credit hours each)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200:601</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>6400:602</td>
<td>Managerial Finance</td>
<td>3</td>
</tr>
<tr>
<td>6500:652</td>
<td>Managing People in Organizations</td>
<td>3</td>
</tr>
<tr>
<td>6600:620</td>
<td>Strategic Marketing</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective

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

*Engineering courses can be taken from any engineering department with approval of engineering advisor.

**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.

†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.

ENGINEERING CERTIFICATE PROGRAMS

The College of Engineering offers graduate certificate programs in addition to master’s and doctoral degree programs. Certificates in Environmental Engineering, Geotechnical Engineering, Structural Engineering, Transportation Engineering, and Motion and Control Specialization are available. Descriptions of these and all graduate certificate programs can be found on page 79 of this bulletin under Interdisciplinary and Certificate Programs of Study.

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

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

Mission Statement

The University of Akron’s College of Education is a learning and teaching community that prepares professional educators and practitioners who are committed to equity and excellence in diverse settings through scholarship, leadership, collaboration, inclusive education, professionalism, integrity, and ethics. Our guiding principles are embedded in the educator as scholar, leader, collaborator, inclusive practitioner, and as a professional.

Purpose

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, higher education, 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 Services and Professional Learning at (330) 972-7750 or visit www.uakron.edu/education.

MASTER’S DEGREES

Programs leading to the degree of M.A. in Education or M.S. in Education.

The student who expects to earn the master’s degree must meet the general requirements for admission to the Graduate School and must be qualified to hold a standard teaching license for certain programs. The student who expects to earn the master’s degree also should have had successful teaching experience. Students must demonstrate verbal/written expression abilities necessary for successful progression through the program unless eligible for accommodations. The student must receive a pass grade on the relevant Master’s Comprehensive Exam if required.

No more than six credits of workshops can be used to satisfy degree requirements.

Curricular and Instructional Studies

Elementary Education with Literacy Option (M.A.)  
(520101MA)

This program leading to a Master of Arts in Elementary Education is designed for elementary school teachers. Students complete foundations courses in education and in curriculum and instruction and courses for an area of concentration in literacy education.

Admission Requirements

Applications to the master’s program in Elementary Education with Literacy Option must be completed and submitted at least six weeks (domestic) or six months (international) before the beginning of the term for which admission is sought in order to allow for adequate processing time. Contact the College of Education Office of Student Services at (330) 972-7750.

Degree Requirements

- Educational Foundations – 9 credits:
  
  5100:600 Philosophies of Education  3
  5100:624 Seminar: Educational Psychology  3
  5100:640 Using Research to Inform Practice  3

- Curricular and Instructional Studies – 6 credits:
  
  5500:600 Concepts of Curriculum and Instruction  3
  5500:625 Contemporary Issues in Literacy Instruction and Phonics  3

- Area of Concentration/Reading – 15 credits:
  
  5500:622 Children’s Literature in the Curriculum  3
  5500:627 Special Topics in Curric & Inst: Studies: Teaching Young Adult Literature  3
  5500:522 Content Area Literacy  3
  5500:626 Assessment of Reading Difficulties  3
  5500:524 Teaching Reading to Culturally Diverse Learners  3
  5500:627 Special Topics in Curricular and Instructional Studies  3
  5500:628 Literacy Assessment Practicum  3

- Master’s Project/Thesis Options - 6 credits

  Option 1:
  5500:690 Master’s Research  3
  5500:760 Action Research  3

  Option 2:
  5500:696 Master’s Project (with advisor’s permission)  6

  Option 3:
  5500:699 Master’s Thesis (with advisor’s permission)  6

Minimum credit hours for degree: 36

*If seeking a literacy endorsement, a valid teaching license, completion of 18 credit hours in reading and a passing score on Praxis II: Introduction to the Teaching of Reading (0204) are required.

Special Education (M.A.)  
(561000MAED)

The 30-33 hour graduate program in special education is designed for those individuals who currently hold an undergraduate degree and Intervention Specialist licensure. The program is divided into three options. The first option (Option I) is for individuals seeking only a Masters in Special Education. The second option (Option II) contains coursework providing focus on Pervasive Developmental Disabilities/Autism. The third option (Option III) provides specific coursework designed to focus on providing behavioral support in the school setting. Completion of the Master’s of Arts program does not lead to licensure in special education.

Admission Requirements

Applications to the master’s program in Special Education must be completed and submitted at least six weeks (domestic) or six months (international) before the beginning of the term for which admission is sought in order to allow for adequate processing time.

Degree Requirements

- Educational Foundations core (9 credits):
  
  5100:600 Philosophies of Education  3
  5100:624 Seminar in Educational Psychology  3
  5100:640 Using Research to Inform Practice  3

- Curricular and Instructional Studies/Special Education core: (15 credits)
  
  5610:604 Collaboration and Consultation Skills for Special Educators  3
  5610:605 Inclusion Models and Strategies  3
  5610:611 Seminar: Legal Issues in Special Education  3
  5610:612 Seminar: Social/Ethical Issues in Special Education  3
  5610:698 Master’s Problem  3

- Option I: Master’s in Special Education (6 credits)
  
  5610:601 Seminar in Curriculum Planning  3
  5610:602 Supervision in Special Education  3

Minimum Credit Hours Required  30

- Option II: Master’s with focus on Pervasive Developmental Disabilities/Autism (9 credits):
  
  5610:607 Characteristics and Needs of Individuals Demonstrating PDD  3
  5610:609 Programming Issue for Individuals with PDD  3
  7700:540 Augmentative Communication  3

Minimum Credit Hours Required  33

- Option III: Master’s with focus on Behavior Support (6 credits):
  
  5610:610 Characteristics and Needs of Individuals with Behavioral and Emotional Disorders  3
  5500:631 Advanced Behavioral Strategies for the Educator  3

Minimum credit hours required for degree  30

Master of Science in Curriculum and Instruction (M.S.) with Licensure Options

(For those without a teaching credential or those who seek to add Intervention Specialist)

This program is a Master of Science degree, which leads to licensure in a chosen teaching field and is open to highly qualified students who hold a B.A., B.F.A., or B.S. degree. It is designed to give the student concentrated study in one of the licensure areas listed for high school (grades 7-12), multi-age (grades P-12), or intervention specialist (grades P-3 or K-12).

The University of Akron offers adolescent/young adult licensure (grades 7-12) in the following fields:

- Integrated Social Studies
- Integrated Language Arts
- Life Science
- Earth Science
- Life and Earth Science

Susan G. Clark, Ph.D., J.D., Interim Dean
Sandra C. Coyner, Ed.D., Interim Associate Dean

Interim Dean
• Life Science and Chemistry
• Life Science and Physics
• Chemistry
• Physics
• Chemistry and Physics
• Earth Science
• Earth Science and Chemistry
• Earth Science and Physics
• Integrated Mathematics

Specializations for Multi-Age (P-12) licensure include:
• Visual Arts
• Physical Education

Intervention Specialist (Mild/Moderate and Moderate/Intensive) licensure is K-12.
The Early Childhood Intervention Specialist provides licensure for children with disabilities in preschool through grade three. All requirements for licensure must be met. Candidates may need additional subject area coursework to meet ODE licensure requirements, including mandated coursework in reading.

Admission Requirements
• Completed application for Graduate School
• Students must have an overall 3.0 grade point average to be fully admitted

College of Education Teacher Education Program:
• Completed teacher education program application
• BCI (Bureau of Criminal Investigation) and FBI

Call (330) 972-7750 or visit the following for more information:
http://www.uakron.edu/education/academic-programs/CIS/how-to-apply.dot

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. Decision-making is stressed in the standards-based programs that prepare teachers and other school personnel for professional practice. Initial teacher preparation programs are aligned with the Ohio Standards for the Teaching Profession, Specialized Professional Association Standards. Advanced Programs for practicing teachers are aligned with the Ohio Standards for the Teaching Profession. Specific key assessments embedded in coursework must be completed to demonstrate that students meet these standards. For more complete information about the teacher education program please consult the College of Education Office of Student Services at (330) 972-7750.

Program
• Educational Foundations Courses (10 credits):

All are required unless waived at the time of admission. Foundation courses may not be used as option or elective courses.
5100:604 Topical Seminar in the Cultural Foundations of Education 3
5100:620 Psychology of Instruction for Teaching and Learning 3
5100:642 Introduction to Classroom Assessment for Teacher 3
5100:695 Field Experience: Master’s (taken in conjunction with 5100:620) 1

Option in Adolescent to Young Adult (AYA) Education (grades 7-12): Integrated Language Arts Licensure (530701MSED)

• Educational Foundations Courses (10 credits):
5000:575 Instructional Technology Applications 3
5000:617 Licensure Seminar in Curricular and Instructional Studies (a) 3
5000:520 Advanced Instructional Techniques (taken in conjunction with 5000:521) 3
5000:521 Field Experience: Advanced Instructional Techniques 2
5000:619 Instructional and Management Practices (taken in conjunction with 5000:693-011) 3
5000:693 Field Experience: Master’s with Licensure (section 011) 1
5000:629 Reading Programs in Secondary Schools 3
5000:xxx 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) (9 credits): 5000:694 Field Experience: Classroom Instruction 8
5000:692 Field Experience: Colloquium 1

Minimum credits required for degree: 48

Option in Adolescent to Young Adult (AYA) Education (grades 7-12): Integrated Mathematics Licensure (530702MSED)

• Educational Foundations Courses (10 credits):
5000:575 Instructional Technology Applications 3
5000:617 Licensure Seminar in Curricular and Instructional Studies (a) 3
5000:520 Advanced Instructional Techniques (taken in conjunction with 5000:521) 3
5000:521 Field Experience: Advanced Instructional Techniques 2
5000:619 Instructional and Management Practices (taken in conjunction with 5000:693-011) 3
5000:693 Field Experience: Master’s with Licensure (section 011) 1
5000:629 Reading Programs in Secondary Schools 3
5000:xxx 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) (9 credits): 5000:694 Field Experience: Classroom Instruction (c) 8
5000:692 Field Experience: Colloquium 1

Minimum credits required for degree: 48

Option in Adolescent to Young Adult (AYA) Education (grades 7-12): Life Science Licensure (530610MSED)

• Educational Foundations Courses (10 credits):
5000:575 Instructional Technology Applications 3
5000:617 Licensure Seminar in Curricular and Instructional Studies (a) 3
5000:520 Advanced Instructional Techniques (taken in conjunction with 5000:521) 3
5000:521 Field Experience: Advanced Instructional Techniques 2
5000:619 Instructional and Management Practices (taken in conjunction with 5000:693-011) 3
5000:693 Field Experience: Master’s with Licensure (section 011) 1
5000:629 Reading Programs in Secondary Schools 3
5000:xxx Elective in curriculum or teaching practices approved by advisor 2

• Area of Concentration (9):

5000:550 Nature, History, and Philosophy of Science 3
3010:595 FieldLab Studies in Environmental Science 3

Select 3 credits at 500-level or above in teaching field or biology 3

• Field Experience (Student Teaching) (9 credits): 5000:694 Field Experience: Classroom Instruction 8
5000:692 Field Experience: Colloquium 1

Minimum credits required for degree: 48

Option in Adolescent to Young Adult (AYA) Education (grades 7-12): Life and Earth Sciences Licensure (530506MSED)

• Educational Foundations Courses (10 credits):
5000:575 Instructional Technology Applications 3
5000:617 Licensure Seminar in Curricular and Instructional Studies (a) 3
5000:520 Advanced Instructional Techniques (taken in conjunction with 5000:521) 3
5000:521 Field Experience: Advanced Instructional Techniques 2
5000:619 Instructional and Management Practices (taken in conjunction with 5000:693-011) 3
Option in Adolescent to Young Adult (AYA) Education (grades 7-12): Life Sciences and Chemistry Licensure (530500MSED)

- Educational Foundations Courses (10 credits)
- Curricular and Instructional Studies (20 credits):
  - 5500:575 Instructional Technology Applications
  - 5500:617 Licensure Seminar in Curricular and Instructional Studies (a)
  - 5500:520 Advanced Instructional Techniques (taken in conjunction with 5500:521)
  - 5500:521 Field Experience: Advanced Instructional Techniques
  - 5500:619 Instructional and Management Practices (taken in conjunction with 5500:693-011)
  - 5500:693 Field Experience: Master’s with Licensure (section 011)
  - 5500:629 Reading Programs in Secondary Schools
  - 5500:xxx Elective in curriculum or teaching practices approved by advisor

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

Minimum credits required for degree: 48

Option in Adolescent to Young Adult (AYA) Education (grades 7-12): Life Sciences and Physics Licensure (530507MSED)

- Educational Foundations Courses (10 credits)
- Curricular and Instructional Studies (20 credits):
  - 5500:575 Instructional Technology Applications
  - 5500:617 Licensure Seminar in Curricular and Instructional Studies (a)
  - 5500:520 Advanced Instructional Techniques (taken in conjunction with 5500:521)
  - 5500:521 Field Experience: Advanced Instructional Techniques
  - 5500:619 Instructional and Management Practices (taken in conjunction with 5500:693-011)
  - 5500:693 Field Experience: Master’s with Licensure (section 011)
  - 5500:629 Reading Programs in Secondary Schools
  - 5500:xxx Elective in curriculum or teaching practices approved by advisor

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

Minimum credits required for degree: 48

Option in Adolescent to Young Adult (AYA) Education (grades 7-12): Physics Licensure (530612MSED)

- Educational Foundations Courses (10 credits)
- Curricular and Instructional Studies (20 credits):
  - 5500:575 Instructional Technology Applications
  - 5500:617 Licensure Seminar in Curricular and Instructional Studies (a)
  - 5500:520 Advanced Instructional Techniques (taken in conjunction with 5500:521)
  - 5500:521 Field Experience: Advanced Instructional Techniques
  - 5500:619 Instructional and Management Practices (taken in conjunction with 5500:693-011)
  - 5500:693 Field Experience: Master’s with Licensure (section 011)
  - 5500:629 Reading Programs in Secondary Schools
  - 5500:xxx Elective in curriculum or teaching practices approved by advisor

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

Minimum credits required for degree: 48

Option in Adolescent to Young Adult (AYA) Education (grades 7-12): Chemistry Licensure (530613MSED)

- Educational Foundations Courses (10 credits)
- Curricular and Instructional Studies (20 credits):
  - 5500:575 Instructional Technology Applications
  - 5500:617 Licensure Seminar in Curricular and Instructional Studies (a)
  - 5500:520 Advanced Instructional Techniques (taken in conjunction with 5500:521)
  - 5500:521 Field Experience: Advanced Instructional Techniques
  - 5500:619 Instructional and Management Practices (taken in conjunction with 5500:693-011)
  - 5500:693 Field Experience: Master’s with Licensure (section 011)
  - 5500:629 Reading Programs in Secondary Schools
  - 5500:xxx Elective in curriculum or teaching practices approved by advisor

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

Minimum credits required for degree: 48

Option in Adolescent to Young Adult (AYA) Education (grades 7-12): Earth Science Licensure (530611MSED)

- Educational Foundations Courses (10 credits)
- Curricular and Instructional Studies (20 credits):
  - 5500:575 Instructional Technology Applications
  - 5500:617 Licensure Seminar in Curricular and Instructional Studies (a)
  - 5500:520 Advanced Instructional Techniques (taken in conjunction with 5500:521)
  - 5500:521 Field Experience: Advanced Instructional Techniques
  - 5500:619 Instructional and Management Practices (taken in conjunction with 5500:693-011)
  - 5500:693 Field Experience: Master’s with Licensure (section 011)
  - 5500:629 Reading Programs in Secondary Schools
  - 5500:xxx Elective in curriculum or teaching practices approved by advisor

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

Minimum credits required for degree: 48

Option in Adolescent to Young Adult (AYA) Education (grades 7-12): Earth Science and Chemistry Licensure (530508MSED)

- Educational Foundations Courses (10 credits)
- Curricular and Instructional Studies (20 credits):
  - 5500:575 Instructional Technology Applications
  - 5500:617 Licensure Seminar in Curricular and Instructional Studies (a)
  - 5500:520 Advanced Instructional Techniques (taken in conjunction with 5500:521)
  - 5500:521 Field Experience: Advanced Instructional Techniques
  - 5500:619 Instructional and Management Practices (taken in conjunction with 5500:693-011)
  - 5500:693 Field Experience: Master’s with Licensure (section 011)
  - 5500:629 Reading Programs in Secondary Schools
  - 5500:xxx Elective in curriculum or teaching practices approved by advisor

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

Minimum credits required for degree: 48
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| 5500:521 | Field Experience: Advanced Instructional Techniques | 2 |
| 5500:619 | Instructional and Management Practices (taken in conjunction with 5500:693-011) | 3 |
| 5500:693 | Field Experience: Master’s with Licensure (section 011) | 1 |
| 5500:629 | Reading Programs in Secondary Schools | 3 |
| 5500:xxx | 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) (9 credits):**
  5500:694 Field Experience: Classroom Instruction | 8 |
  5500:692 Field Experience: Colloquium | 1 |

Minimum credits required for degree: 48

**Option in Adolescent to Young Adult (AYA) Education (grades 7-12): Earth Science and Physics Licensure (53060MSED)**

- **Educational Foundations Courses (10 credits):**
  5500:575 Instructional Technology Applications | 3 |
  5500:617 Licensure Seminar in Curricular and Instructional Studies (a) | 3 |
  5500:520 Advanced Instructional Techniques (taken in conjunction with 5500:521) | 3 |
  5500:521 Field Experience: Advanced Instructional Techniques | 2 |
  5500:619 Instructional and Management Practices (taken in conjunction with 5500:693-011) | 3 |
  5500:693 Field Experience: Master’s with Licensure (section 011) | 1 |
  5500:629 Reading Programs in Secondary Schools | 3 |
  5500:xxx 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) (9 credits):**
  5500:694 Field Experience: Classroom Instruction | 8 |
  5500:692 Field Experience: Colloquium | 1 |

Minimum credits required for degree: 48

**Option in Multi-Age (grades P-12) Education: Visual Arts Licensure (530601MSED)**

- **Curricular and Instructional Studies (19 credits):**
  5500:575 Instructional Technology Applications | 3 |
  5500:617 Licensure Seminar in Curricular and Instructional Studies (a) | 3 |
  5500:619 Instructional and Management Practices (taken in conjunction with 5500:693-011) | 3 |
  5500:693 Field Experience: Master’s with Licensure (section 011) | 1 |
  5500:555 Literacy for Multiage Licensure | 3 |
  7100:510 Methods of Teaching Elementary Art (Fall Only) | 3 |
  7100:511 Methods of Teaching Secondary Art (Spring Only) | 3 |
  7100:593 Advanced Seminar in Art Education | 3 |
  7100:594 Selected Topics: Art Education | 6 |
  7100:5xx Advanced Art Elective | 6 |

- **Field Experience (Student Teaching) (12 credits):**
  5500:694 Field Experience: Classroom Instruction | 6 |
  5500:694 Field Experience: Classroom Instruction | 5 |
  7100:512 Student Teaching Colloquium | 1 |

Minimum credits required for degree: 56

**Option in Multi-Age (grades P-12) Education: Physical Education Licensure (530614MSED)**

- **Educational Foundations Courses (10 credits):**
  5500:575 Instructional Technology Applications | 3 |
  5500:617 Licensure Seminar in Curricular and Instructional Studies (a) | 3 |
  5500:619 Instructional and Management Practices (taken in conjunction with 5500:693-011) | 3 |
  5500:693 Field Experience: Master’s with Licensure (section 011) | 1 |
  5500:555 Literacy for Multiage Licensure | 3 |

- **Area of Concentration (9):**
  5500:547 Instructional Techniques for Children in Physical Education | 3 |
  5550:546 Instructional Techniques for Secondary Physical Education | 3 |
  5550:552 Foundations of Sport Science, Physical and Health Education | 3 |
  5550:550 Organization and Administration of Physical Health Education, Intramural and Athletics | 3 |

- **Electives (6 credits):**
  Select six credits in 5550 or 5500:600 Concepts of Curriculum and Instruction | 3 |
  5500:605 Seminar in Trends and Issues in Curriculum and Instruction | 3 |

- **Field Experience (Student Teaching) (10 credits):**
  5550:595 Practicum: Student Teaching | 8 |
  5550:594 Student Teaching Colloquium | 2 |

Minimum credits required for degree: 48

**Option in Special Education: Mild/Moderate Intervention Specialist Licensure (561204MSED)**

- **Educational Foundations Courses (10 credits):**
  5500:575 Instructional Technology Applications | 3 |

- **Area of Concentration (26 credits):**
  5610:540 Individuals with Exceptionalities: Educational and Societal Issues | 3 |
  5610:547 Developmental Characteristics of Moderate/Intensive Educational Needs | 4 |
  5610:567 Management Strategies | 3 |
  5610:604 Collaboration and Consultation | 3 |
  5610:563 Assessment in Special Education | 3 |
  5610:552 Special Education Programming: Secondary/Transition | 3 |
  5610:551 Special Education Programming: Moderate/Intensive I | 3 |
  5610:557 Special Education Programming: Moderate/Intensive II | 4 |

- **Field Experience: Student Teaching and Practicum (14 credits) or Master’s Project and Practicum (6 credits):**
  5610:690 Student Teaching: Special Education | 11 |
  5610:570 Practicum | 3 |
  5610:694 Master’s Project | 3 |
  5610:570 Practicum | 3 |

Minimum credits required for degree: 45-53

**Option in Special Education: Moderate/Intensive Intervention Specialist Licensure (561205MSED)**

- **Educational Foundations Courses (10 credits):**
  5500:575 Instructional Technology Applications | 3 |

- **Area of Concentration (27 credits):**
  5610:540 Individuals with Exceptionalities: Educational and Societal Issues | 3 |
  5610:548 Developmental Characteristics of Moderate/Intensive Educational Needs | 4 |
  5610:567 Management Strategies | 3 |
  5610:604 Collaboration and Consultation Skills for Special Educators | 3 |
  5610:563 Assessment in Special Education | 3 |
  5610:552 Special Education Programming: Secondary/Transition | 3 |
  5610:553 Special Education Programming: Moderate/Intensive I | 4 |
  5610:554 Special Education Programming: Moderate/Intensive II | 4 |

- **Field Experience: Student Teaching and Practicum (14 credits) or Master’s Project and Practicum (6 credits):**
  5610:690 Student Teaching: Special Education | 11 |
  5610:570 Practicum | 3 |
  5610:694 Master’s Project | 3 |
  5610:570 Practicum | 3 |

Minimum credits required for degree: 46-54

**Option in Special Education: Early Childhood Intervention Specialist Licensure (561206MSED)**

- **Educational Foundations Courses (10 credits):**
  5500:575 Instructional Technology Applications | 3 |

- **Area of Concentration (26 credits):**
  5610:540 Individuals with Exceptionalities: Educational and Societal Issues | 3 |
  5610:548 Developmental Characteristics of Moderate/Intensive Educational Needs | 4 |
  5610:567 Management Strategies | 3 |
  5610:604 Collaboration and Consultation Skills for Special Educators | 3 |
  5610:563 Assessment in Special Education | 3 |
  5610:552 Special Education Programming: Secondary/Transition | 3 |
  5610:553 Special Education Programming: Moderate/Intensive I | 4 |
  5610:554 Special Education Programming: Moderate/Intensive II | 4 |

- **Field Experience: Student Teaching and Practicum (14 credits) or Master’s Project and Practicum (6 credits):**
  5610:690 Student Teaching: Special Education | 11 |
  5610:570 Practicum | 3 |
  5610:694 Master’s Project | 3 |
  5610:570 Practicum | 3 |

Minimum credits required for degree: 46-54

- **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 appro-

*Prerequisite: Admission to the Master’s with Licensure program and teacher education program
private specialized professional associations and the Ohio Board of Regents. For additional information about specific program requirements please call (330) 972-7750.

Student Portfolio

Students admitted to their selected College of Education program will complete a student portfolio. Specific key assessments for the portfolio are often completed as part of a course, clinical experience, or field experience, and must be judged accept-
able by the instructor before credit is awarded for the experience connected to that particular portfolio entry.

Clinical and Field-Based Experiences

All teacher education candidates, including those in the master’s with licensure pro-
grams, are required to participate satisfactorily in clinical and field-based experi-
cences prior to recommendation for licensure. These integrated and developmental clinical and field-based experiences are designed to provide teacher education stu-
dents with opportunities to apply theory and skills related to their areas of licensure.

Field-based experiences are planned in diverse settings and provide comprehensive early and ongoing field-based opportunities in which candidates may observe, assist, tutor, instruct, and/or conduct research. Field experiences may occur in off-campus educational settings.

Student teaching is a full-time opportunity that provides candidates with an inten-
tive and extensive culminating clinical experience in an approved public or pri-
vate school for either twelve weeks (adolescent to young adult) or sixteen weeks (in-
tervention specialist or multi-age). Candidates are immersed in the learning commu-
nity and are provided opportunities to develop and demonstrate competence in the professional roles for which they are preparing. Placements are made in appropri-
ate sites at the discretion of the Office of Student Teaching and Field Experiences in consultation with program faculty and district leaders. All students must have approval of the Student Teaching Committee to be placed for student teaching.

Educational Foundations and Leadership

The Principalship (570104MA) (570104MS)

The Department of Educational Foundations and Leadership offers a 30 hour Mas-
ter’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 special-
ized options. Requirements of the Principalship Master’s Degree Program in Educational Administration are listed below.

Admission Requirements

No supplemental materials in addition to submission of the graduate application and official transcripts are required for admission. Applications to the master’s pro-
gram in Principalship must be completed and submitted at least six weeks (domes-
tic) or six months (international) before the beginning of the term for which admission is sought in order to allow for adequate processing time.

Degree Requirements:

• Foundation Studies (9)
  5100:600 Philosophies of Education  3
  or
  5100:604 Cultural Foundations of Education  3
  5100:624 Educational Psychology  3
  5100:640 Using Research to Inform Practice  3

• Educational Leadership Core (21)
  5170:601 Organizational Leadership  3
  5170:604 School Contexts and Community Involvement  3
  5170:607 School Law  3
  5170:610 Supervision of Instruction  3
  5170:620 School Culture and Governance  3
  5170:615 Student Services and Disability Law  3
  5170:720 Seminar: Capstone  3

  Total: 30 credits

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.

The Principalship master’s degree program and the post-master’s licensure courses have been aligned with the Educational Leadership Constituents Council (ELCC) standards specific key assessments embedded in coursework and must be completed to demonstrate that students meet these standards.

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.

Higher Education Administration

(570102MA) (570102MS)

All applicants to the program should have previously earned a bachelor’s degree.

Admission Requirements

Persons wishing to pursue a master’s degree in Educational Administration-Higher Education Option must apply to the Graduate School for admission to the program.

In addition to the completed application to the Graduate School, applicants should have a minimum 2.75 GPA, completion of the Graduate Record Exam (GRE) within the past five years with a minimum combined verbal and quantitative score of 280 and a 3.5 analytical writing score. Applications are accepted on a rolling basis.

Degree Requirements

• Foundation courses (3 credits):
  5100:640 Using Research to Inform Practice  3

• Required courses (33 credits):
  5190:515 Administration in Higher Education  3
  5190:521 Law and Higher Education  3
  5190:526 Student Services and Higher Education  3
  5190:527 The American College Student  3
  5190:530 Higher Education Curriculum and Program Planning  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
  5190:610 Diversity Issues in Higher Education  1
  5190:615 Historical Foundations of American Higher Education  3
  5190:620 Finance and Higher Education  3
  5190:626 Policy, Assessment, and Accountability in Higher Education  3

  Total Hours Required: 36

• Electives (9 to 12 credits):
  5190:525 Topical Seminar  3
  5190:590 Workshop  3-6
  5190:635 Instructional Strategies and Techniques for the College Instructor

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

Educational Foundations (M.A.)

Specialized Options:

• Instructional Technology
• Assessment 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 pro-
gram of study will be determined jointly by the student and advisor. The program consists of:

• College Core Foundation Studies (nine credits)
• Program Requirements for the specialization selected above (minimum of 15 credits)
• Outside Department (minimum of six credits except for Instructional Technology option)
• Electronic portfolio for Instructional Technology and Assessment and Evaluation
• Election of master’s thesis (5100:699), or master’s problem (5100:698), or an additional six semester credits of coursework. Students choosing to do a mas-
ter’s thesis or master’s problem require 30 semester credits to graduate. Students choosing to do only coursework require 36 semester credits to graduate (except for Assessment and Evaluation which requires 30 semester credits to graduate).

Admission Requirements

No supplemental materials in addition to submission of the graduate application and official transcripts are required for admission to the specialized options in Edu-
cational Foundations.

Instructional Technology Option (30 credits) (510001MA)

The graduate program in Educational Foundations emphasizing Instructional Tech-
nology is an accredited, fully online program. The program has been designed to assist its students in becoming competent, employable professionals, capable of making a significant contribution to the field. The graduate curriculum of 30 semes-
ter hours provides students with exposure to a wide range of emerging technolo-
gies, while still ensuring the basic competencies required of all practitioners. The program directly addresses the rapidly accelerating changes in the field of inter-
active and Web 2.0 technologies while being rooted in instructional design princi-
ples. The potential students are predominately K-12 educators working in the field or recent graduates, although students interest in instructional design from busi-
ness, industry, banking, and other training fields can apply if they have a background in education. Students are required to complete an ePortfolio demonstrating their application of instructional technology in the field as well as their expertise in their graduate classes.
Master’s degree graduates of the Instructional Technology program have found employment as technology facilitators and coaches 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. An endorsement for K-12 teachers in Technology Facilitation is available and is embedded into the coursework of this graduate degree program.

- Foundation Studies (9 credits)
  5100:600 Philosophies of Education 3
  5100:604 Cultural Foundations of Education 3
  5100:624 Educational Psychology 3
  5100:640 Using Research to Inform Practice 3

- Required Core Courses (15 credits)
  5150:610 Introduction to Instructional Technology 3
  5150:615 Planning for Technology 3
  5150:632 Web-Based Learning Systems (required for Technology Facilitation Endorsement) 3
  5150:633 Multimedia/Hypermedia 3
  5150:638 Integrating and Implementing Technology 3

- Electives (choose 6 credits)
  5150:642 Seminar: Educational Psychology 3
  5150:657 Data Collection Methods for Educators 3
  5150:653 Master’s Project in Assessment and Evaluation: Part 1 3

K-12 Computer Technology Endorsement

The Graduate K-12 Computer Technology (Technology Facilitation Endorsement) is intended for teachers who wish to serve as a technology integration facilitator or technology coach for colleagues in their schools and districts.

The endorsement is obtained through an application process to the Ohio Department of Education and upon approval will be added to your teaching license.

This endorsement is only available to individuals who currently have or who are simultaneously getting an initial Ohio license/certificate e.g., in Early Childhood, Middle Level Science, Adolescent/Young Adult Social Studies, 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.

Specific key assessments in coursework must be completed to demonstrate that students meet these standards. This endorsement follows the ISTE TF standards for Technology Facilitation. This endorsement is designed to prepare teachers to be effective users of technology in teaching practice of their colleagues at building and district levels. It is not intended to develop skills in computer repair, network maintenance or computer programming languages.

- Assessment and Evaluation Option (30 credits) (510004MA)

The graduate program in Educational Foundations emphasizing Assessment and Evaluation prepares teachers and other educators to be leaders in the area of school-based assessment and evaluation. Students in the program will develop skills in assessing a variety of student outcomes and in conducting classroom, school or building-level, and district-level evaluations.

- Foundation Studies (9 credits)
  5100:600 Philosophies of Education 3
  5100:624 Seminar: Educational Psychology 3
  5100:640 Using Research to Inform Practice 3

- Required Courses (21 hours)
  5100:640 Introduction to Classroom Assessment 3
  5100:655 Data-Driven Decision Making for Educators 3
  5100:652 Introduction to Educational Evaluation 3
  5100:653 Practical Applications of Educational Evaluation 3
  5100:654 Master’s Project in Assessment and Evaluation: Part 1 3
  5100:655 Master’s Project in Assessment and Evaluation: Part 2 3

- A portfolio is required.

College of Business Administration

Ravi Krovi, Ph.D., Dean
James J. Divoky, D.B.A., Associate Dean
William Hauser, Ph.D., Interim Assistant Dean and Director of Graduate Programs

Masters Degrees

The College of Business Administration (CBA) offers graduate programs which lead to the degrees of Master of Business Administration, Master of Science in Accountancy, Master of Taxation, and Master of Science in Management. 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. Programs in graduate studies were begun in 1958. All CBA undergraduate and graduate programs are accredited by the Association to Advance Collegiate Schools of Business (AACSB).

The CBA seeks to fulfill the educational and professional needs of its 500 graduate students, business organizations, and the community. Most of the graduate programs offered are flexible evening programs designed to serve students who are fully employed professionals and wish to pursue a master’s program on a part-time basis. Students often choose to enroll full-time to complete a master’s program more quickly.

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 1,050 or more based on the overall undergraduate grade point average (GPA)(A=4.0) times 200 plus the Graduate Management Admissions Test (GMAT) score.
- Hold a domestic baccalaureate degree from a regionally accredited college or university and have a total index score of 1,100 or more 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 500 on the GMAT.
- Students who have taken the GRE, MCAT, or LSAT may request consideration for admission based upon those entrance exam scores. To be considered the applicant should score at or above the 50th percentile on each section of the exam. Applicants holding either a master’s, doctoral, or juris doctor degree from an American university may request consideration for admission based on the graduate degree. The individual’s total application will be reviewed, and the graduate admissions committee reserves the right to require the GMAT for admission of the applicant.

An admission interview will be required of students wishing to be admitted to the MBA program coming directly from an undergraduate program with no professional work experience.

Students admitted on a provisional basis must achieve a composite index of 1,150 based on foundation course GPA times 200 plus GMAT score.

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

In rare instances, the applicant who has taken the GMAT but does not meet requirements may be considered for admission. Also, those applicants previously denied admission may, upon presentation of new information, be reconsidered. In either case, the applicant must petition the CBA Graduate Admissions Committee in writing and provide those reasons relevant to the situation which demonstrate the likelihood of success. In all cases, 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. Students admitted with “provisional” status who have not attained an overall 3.0 GPA upon completion of 12 graduate credits will be dismissed from
the program. Students admitted as non-degree seeking are restricted to enrolling in a maximum of nine credits of Gateway 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 is administered worldwide and the applicant should register for it sufficiently in advance to the filing of the graduate application to avoid delay of evaluation of the application for admission. Those who have taken the GMAT more than five years ago are normally required to retake the exam.

The CBA Graduate Admissions Committee meets monthly and considers all completed applications on hand at the time of each meeting. Applicants will be informed of admission decisions once the dean of the Graduate School has acted upon the recommendation of the CBA Admissions Committee.

Degree 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 program descriptions.
• Complete all course and program requirements of applicable master’s program.
Questions regarding these Policies, Procedures, and Requirements may be sent via e-mail to grad.cba@uaakron.edu. Further information may be found at the College of Business Administration website: mba.uaakron.edu.

Transfer Policy
The College of Business Administration will permit nine credits of comparable graduate credits to be transferred in a graduate business program. These credits must be pre-approved by the CBA Director of Graduate Programs. 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 MBA is to be obtained; (2) the desired program (degree requirements) is specifically approved in advance by the CBA Director of Graduate Programs; and (3) no fewer than 21 new credits are earned for the second degree.

MBA Program Description
The MBA program is the principle graduate program of The University of Akron’s College of Business Administration. The objective of the MBA program is to provide a diverse group of men and women with the skills, multi-stakeholder strategic perspective, and innovative spirit required to lead in organizations that operate within a global business environment characterized by intense competition and increasing levels of complexity and uncertainty. The MBA is intended to be a generalist degree with emphasis on multi-functional knowledge rather than areas of specialization. Students should not expect to conduct heavily specialized study of a particular functional area within the MBA program. Students who typically experience the highest value added from an MBA program are those individuals with professional work experience and/or non-business undergraduate or graduate degrees. Graduates of The University of Akron’s MBA program should possess:
The analytical and conceptual skills needed to identify and cope successfully with ambiguous and unstructured business problems;
A solid foundation in relevant business functions, with emphasis on the integration of the functions and an understanding of how multiple business functions are linked in the formulation and execution of business strategy;
A strong ethical perspective, an appreciation of workplace and marketplace 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 within which businesses operate and an understanding of the forces that drive competition and sustainability within the global economy.

In order to accomplish these goals, the graduate faculty of the College of Business Administration is committed to providing a high quality graduate business school experience. That experience will have a strong professional and real-world focus, characterized by collaborative work and emphasis on the practice of management. The faculty is intent on creating a stimulating academic environment with a balance between theory and application. Faculty strive to create a classroom setting that is varied, interesting, and permeated by the concepts of globalization, professional integrity and ethics, leadership, and planned change.

There are many skills students must acquire throughout an MBA program in addition to technical competencies within particular functional areas. These skills include communication and interpersonal skills, analytical reasoning and critical thinking skills, and leadership skills. These skills enable students to develop their professional identity and are woven into the program as follows:

Communication
1. Ability to present views and concepts clearly in writing;
2. Ability to objectively critique and judge the value of written work;
3. Ability to present views and concepts clearly through oral communication.

Collaborative work and interpersonal skills
4. Ability to understand group dynamics and work effectively with people from diverse backgrounds;
5. Ability to manage and resolve conflict;
6. Ability to organize and delegate project tasks.

Critical thinking and creative and effective problem solving
7. Ability to solve structured and unstructured problems;
8. Ability to deal effectively with imposed pressures and deadlines.

The basics for this group of skills may be acquired in prior bachelor degree programs. A variety of opportunities are provided to students throughout the program to develop these skills. A student’s progress is to be documented and evaluated by self-evaluation, peer evaluation, and faculty evaluation.

• Gateway Courses
All are required unless waived at the time of admission. Gateway Courses may not be used as concentration or action-based learning courses.

- 3250:600 Foundation of Economic Analysis (available as an online course)
- 6200:601 Financial Accounting
- 6400:602 Managerial Finance
- 6400:655 Government and Business
- 6700:695 Internship in Business

The Gateway Internship is required for students with no prior professional experience and does not count toward the degree requirements.

All courses beyond the Gateway Courses require demonstrated proficiencies in Excel, writing, and statistics.

- Professional Courses (6 credits):
  - 6700:689 Leading and Influencing
  - 6700:691 Professional Integrity
  - 6700:693 Negotiations in the Workplace
  - 6500:601 Business Analytics and Information Strategy

- MBA Core Courses (18 credits):
  - 6200:610 Process Analysis and Cost Management
  - 6400:674 Strategic Financial Decision Making
  - 6500:652 Managing People in Organizations
  - 6500:670 Management of Supply Chains and Operations
  - 6600:620 Strategic Marketing
  - 6800:605 International Business Environments

- Concentration Courses (9 or 12 credits):
  Students select 9 or 12 credits (depending on the concentration requirements) in one of the following fields of concentration: business analytics; finance; health-care management; international business; management; global technological innovation; strategic marketing; or supply chain management. Students may design an inter-disciplinary concentration that meets his or her career objectives. This self-designed concentration must be planned and approved by the CBA Director of Graduate Programs upon the student’s enrollment in the MBA program.

- Integrative Course (3 credits):
  6500:695 Organizational Strategy

- Action-Based Learning Requirement:
Each student is required to fulfill an action-learning requirement. This course requirement may be fulfilled by approved concentration courses which consist of real-world projects and other activities in which students are engaged in action-based learning. Other action-based learning ventures that will fulfill this program requirement include, but are not limited to, internships (excluding the Gateway Internship), study abroad programs, independent studies, and special topic courses designated as fulfilling this program requirement.

Required Professional, Core, and Integrative courses will not fulfill this program requirement.

- Program Summary

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gateway Courses</td>
<td>12</td>
</tr>
<tr>
<td>Professional Courses</td>
<td>6</td>
</tr>
<tr>
<td>MBA Core Courses</td>
<td>18</td>
</tr>
<tr>
<td>Concentration Courses</td>
<td>9 or 12</td>
</tr>
<tr>
<td>Integrative Course</td>
<td>3</td>
</tr>
<tr>
<td>Action-Based Learning (if not fulfilled in a concentration course)</td>
<td>0-3</td>
</tr>
<tr>
<td>Total Program</td>
<td>48-51</td>
</tr>
</tbody>
</table>

If the Gateway Courses are all waived and the Action-Based Learning requirement is fulfilled in a concentration course within a 9 credit concentration, the MBA program is 36 credits.
Concentration in Business Analytics (650209MBA)

- Required (9 credits):
  6500:571 Management Project 3
  6500:644 Knowledge Management and Business Intelligence 3
  6500:663 Data Analysis for Managers 3

Concentration in Finance (640000MBA)
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

- Choose three credits from the following:
  6400:616 Financial Risk Modeling 3
  6400:650 Techniques of Financial Modeling 3
  6400:690 Selected Topics in Finance 3
  6400:697 Independent Study in Finance 3

Concentration in Global Technological Innovation (630000MBA)
In a highly inter-dependent global economy technological innovations are emerging as the disruptive drivers of enterprise growth and survival. In this program students explore technology and innovation as a value adding system. This will prepare them as a valuable resource to help small, medium, and well-established large enterprises to launch their product, process, and service innovations faster. The program also prepares students to plan and launch new ventures and enterprises based on innovations.

- Required (9 credits):
  6500:608 Entrepreneurship 3
  6500:665 Management of Technology 3
  6500:675 Global Supply Chain Management 3

Concentration in Health Care (650006MBA)

- Required (9 credits):
  6500:681 Introduction to Health Care Management 3
  6500:682 Health Services Operations Management 3
  6500:683 Health Services Systems Management 3

Interdisciplinary Concentration (603000MBA)
This self-designed concentration must be planned and approved by the CBA Director of Graduate Programs upon the student's enrollment in the MBA program. This concentration is intended for students with specific interdisciplinary career interests. The Interdisciplinary Concentration may include courses from colleges outside of the College of Business Administration.

Concentration in International Business (680000MBA)
This academic program views international business in the broad context of all business transactions devised and carried out across national borders to satisfy the organizational and personal goals of firms and individuals. International business studies incorporate all of the functional business operations of accounting, finance, management, and marketing; as such, it is an integrative field of study within an international framework. Students will integrate issues and trends in the global business environment and apply this insight to decision making.

- Required (3 credits):
  6500:675 Global Supply Chain Management 3

- Choose six credits from the following:
  6200:680 International Accounting 3
  6500:658 Managing a Global Workforce 3
  6800:630 International Marketing Policies 3
  6800:690 Seminar: International Business 3
  6800:697 Independent Study: International Business 1-3

International Business students must also satisfy the foreign language requirement: demonstrate reading and conversational proficiency in a language in addition to English.

Concentration in International Business for International Executives (680003MBA)

- 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 3
  6200:680 International Accounting 3
  6400:538 International Banking 3
  6400:561 International Business Finance 3
  6400:691 International Market Investments 3
  6500:656 Management of International Operations 3
  6500:658 Managing a Global Workforce 3
  6600:660 Comparative Systems of Employee and Labor Relations 3

International Business students must ALSO select one of the following options:

1. Foreign Language Option: demonstrate reading and conversational proficiency in a language other than English.

2. Cross-Cultural Option: select one course (3 credits) from the following courses:*  
   3250:550 Comparative Economic Systems 3
   3250:560 Economics of Developing Countries 3
   3250:670 International Monetary Economics 3
   3250:671 International Trade 3
   3350:538 World Metropolitan Areas 3
   3350:550 Development Planning 3
   3350:633 Comparative Planning 3
   3400:516 Modern India 3
   3400:573 Latin America: The Twentieth Century 3
   3400:575 Mexico 3
   3700:505 Politics in the Middle East 3
   3700:512 Global Environmental Politics 3

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

Concentration in Management (650000MBA)

- Required (9 credits):
  Choose 9 graduate credits from 6500. No more than 3 credits at the 500 level.

Concentration in Strategic Marketing (660000MBA)
The Strategic Marketing concentration offers an overview of critical marketing functions. The required courses focus on management of information and overall brand identity. Students may choose a professional selling or e-commerce and communication application.

- Choose nine credits from the following:
  6600:615 Cross-Media Database Marketing 3
  6600:625 Brand Management 3
  6600:630 Customer Relationship Management 3
  6600:635 E-Commerce and Interactive Marketing 3
  6600:640 Business Research Methods 3
  6600:681 Sales Management 3

*Note: Students should take 6600:640 prior to 6600:625.

Concentration in Supply Chain Management (650202MBA)
Supply chain management (SCM) is the process of planning, implementing, and controlling the operations of the supply chain as efficiently as possible. The overall goal of supply chain management is to impact the organization’s bottom line in a positive way while delivering the best services to customers at the lowest possible cost. Supply chain management professional duties may expand beyond the acquisition of materials, services, and equipment into such areas as planning and policy making, motivation, evaluation, product development, and control. Supply chain management careers include working as a buyer, contract negotiator, inventory manager, import/export goods manager, or a logistics manager.

Students with a Supply Chain concentration may not take more than six credits of 500-level courses.

- Required (9 credits):
  6500:675 Global Supply Chain Management 3
  6600:677 Supply Chain Sourcing 3
  6500:680 Supply Chain Logistics Management 3

Accelerated BS Applied Mathematics/MBA (603001MBA)
After successful completion of this accelerated five year BS/MBA program students will receive a bachelor’s degree in applied mathematics and a master’s of business administration. Students of this program will be supervised by faculty advisers in applied mathematics and advising staff in the College of Business Administration and are expected to finish the core course requirements and most of the electives for the bachelor’s degree in the first three years of the program. Students are asked to formally apply to the accelerated program through the Graduate School during
the third year of their bachelor’s degree. Upon acceptance, students will be expected to complete the remaining electives of the bachelor’s degree and the requirements for the CBA flexible MBA program in the last two years of study while registering for at least nine graduate credits in each semester of the last two years of the program. Students will be eligible to apply for a graduate assistantship in these last two years of the program.

- **MBA Core Requirements (27 credits):**
  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200:610</td>
<td>Process Analysis and Cost Management</td>
<td>3</td>
</tr>
<tr>
<td>6400:674</td>
<td>Strategic Financial Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>6500:601</td>
<td>Business Analytics and Information Strategy</td>
<td>3</td>
</tr>
<tr>
<td>6500:652</td>
<td>Managing People in Organizations</td>
<td>2</td>
</tr>
<tr>
<td>6500:670</td>
<td>Management of Supply Chains and Operations</td>
<td>3</td>
</tr>
<tr>
<td>6500:695</td>
<td>Organizational Strategy</td>
<td>1</td>
</tr>
<tr>
<td>6600:620</td>
<td>Strategic Marketing</td>
<td>3</td>
</tr>
<tr>
<td>6700:689</td>
<td>Leading and Influencing</td>
<td>1</td>
</tr>
<tr>
<td>6700:691</td>
<td>Professional Integrity</td>
<td>1</td>
</tr>
<tr>
<td>6700:693</td>
<td>Negotiations in the Workplace</td>
<td>1</td>
</tr>
<tr>
<td>6800:605</td>
<td>International Business Environments</td>
<td>1</td>
</tr>
</tbody>
</table>

Special Topics course required are: Leading and Influencing; Professional Integrity; and Negotiation

- **Electives chosen from the following courses (9 credits):**
  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3470:569</td>
<td>Reliability Models</td>
<td>3</td>
</tr>
<tr>
<td>3470:665</td>
<td>Regression</td>
<td>3</td>
</tr>
<tr>
<td>3470:675</td>
<td>Response Surface Methodology</td>
<td>3</td>
</tr>
<tr>
<td>3470:562</td>
<td>Applied Regression and ANOVA</td>
<td>4</td>
</tr>
<tr>
<td>3470:651</td>
<td>Probability and Statistics</td>
<td>4</td>
</tr>
<tr>
<td>3470:652</td>
<td>Advanced Mathematical Statistics</td>
<td>3</td>
</tr>
<tr>
<td>3450:537</td>
<td>Economic Forecasting</td>
<td>3</td>
</tr>
<tr>
<td>3450:538</td>
<td>Advanced Econometrics II</td>
<td>3</td>
</tr>
<tr>
<td>3450:633</td>
<td>Methods of Applied Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>3450:730</td>
<td>Advanced Numerical Solution of Partial Differential</td>
<td>3</td>
</tr>
</tbody>
</table>

Other graduate courses (500-level and above) could be used as electives if approved by the Director of the Graduate Programs prior to enrolling. Concentration plans must be approved by the Director prior to course selection.

### Master of Science in Accountancy (620004MSA: Accounting) (620005MSA: Accounting Information Systems)

The Master of Science in Accountancy is an advanced professional degree that offers students the opportunity to develop substantive knowledge, skills, and abilities in accounting. The program offers students flexibility to combine their accounting backgrounds with coursework in information systems and finance. It also allows students without undergraduate degrees in accounting to combine their diverse backgrounds with a graduate degree in accounting. Students may pursue a professional accountancy option or an accounting information systems option.

### Program Learning Goals

- Develop advanced knowledge and understanding of accounting concepts, the regulatory environment, and professional practice issues and challenges;
- Enhance their critical thinking skills and develop the ability to apply advanced knowledge of accounting concepts, principles and practices in innovative ways;
- Develop the ability to research accounting issues and write research reports that incorporate qualitative and quantitative data analysis and integrate information from multiple sources;
- Demonstrate effective written and oral communication skills;
- Understand and appreciate the role of information technology in contemporary accounting, research, and decision-making; and
- Understand and appreciate the significance of ethics, professionalism, and social responsibility in accounting.

### Admission Requirements

The MSA curriculum consists of 30 semester credits. Admission to the program is open to the following individuals:

1. Individuals with undergraduate degrees in accounting from a regionally accredited institution or international equivalent.
2. Individuals with a non-accounting undergraduate business degree from a regionally accredited institution or international equivalent.
3. Individuals with a non-business undergraduate degree from a regionally accredited institution or international equivalent.

All students must meet a satisfactory score on the GMAT in order to be accepted into the program. Students with accounting degrees from AACSB accredited business schools are not required to complete foundation courses provided that they earn an overall GPA in accounting of 2.5 or better. Students who do not satisfy this criterion may be required to complete selected foundation courses specified by the chair of the School of Accountancy.

### The Program

Individuals with a non-accounting undergraduate business degree from a regionally accredited institution or international equivalent or individuals with a non-business degree from a regionally accredited institution or international equivalent must complete all Pre-MSA foundation courses and Pre-MSA financial reporting courses listed below. Students who have completed similar courses at the undergraduate or graduate level may apply for waivers. Applications for waivers will be reviewed on a case-by-case basis, considering such factors as the student’s background, work experience, institution, grades earned, and date when similar courses were taken. Documented guidance on sequencing MSA courses available through the School of Accountancy.

#### Pre-MSA Foundation Courses (12 credits):

- All foundation courses must be taken prior to courses in the MSA program. An exception to this policy may be made by the chair of the School of Accountancy for students who have received waivers from foundation courses.
  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200:603</td>
<td>Accounting Decision Support Systems</td>
<td>3</td>
</tr>
<tr>
<td>6400:602</td>
<td>Managerial Finance</td>
<td>3</td>
</tr>
<tr>
<td>6400:622</td>
<td>Business Law and Regulation</td>
<td>3</td>
</tr>
<tr>
<td>6500:601</td>
<td>Business Analytics and Information Strategy</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Pre-MSA Financial Reporting Courses (12 credits):

- All Pre-MSA Financial Reporting Courses with the exception of 6200:540 (Assurance Services and Professional Responsibilities) must be completed prior to taking courses in the MSA program.
  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200:621</td>
<td>Corporate Accounting and Financial Reporting I</td>
<td>3</td>
</tr>
<tr>
<td>6200:622</td>
<td>Corporate Accounting and Financial Reporting II</td>
<td>3</td>
</tr>
<tr>
<td>6200:632</td>
<td>Financial Reporting and Analysis I or equivalent</td>
<td>3</td>
</tr>
<tr>
<td>6200:645</td>
<td>Data Networks and Quality Assurance</td>
<td>3</td>
</tr>
<tr>
<td>6200:659</td>
<td>Assurance Services and Data Mining</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Program Requirements

- **All Pre-MSA Foundation Courses with the exception of 6200:540 (Assurance Services and Professional Responsibilities) must be completed prior to taking courses in the MSA program.**

- **All Pre-MSA Financial Reporting Courses with the exception of 6200:540 (Assurance Services and Professional Responsibilities) must be completed prior to taking courses in the MSA program.**

#### Group A: Accounting and Assurance Core (12 - 15 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200:615</td>
<td>Enterprise Systems and Internal Control</td>
<td>3</td>
</tr>
<tr>
<td>6200:637</td>
<td>Contemporary Accounting Issues</td>
<td>3</td>
</tr>
<tr>
<td>6200:658</td>
<td>Enterprise Risk Assessment and Assurance</td>
<td>3</td>
</tr>
<tr>
<td>6200:660</td>
<td>Accounting and Assurance Project (capstone course)</td>
<td>3</td>
</tr>
<tr>
<td>6200:520</td>
<td>Advanced Financial Reporting and Analysis*</td>
<td>3</td>
</tr>
</tbody>
</table>

*All courses in this group are required, except for 6200:520, which is not required for students in the AIS option. Students who have completed a similar advanced accounting course at the undergraduate level must take a different course.*

#### Group B: Taxation Core (3 - 6 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200:627</td>
<td>Federal Taxation</td>
<td>3</td>
</tr>
<tr>
<td>6200:531</td>
<td>Business Entity Taxation*</td>
<td>3</td>
</tr>
<tr>
<td>6200:632</td>
<td>Tax Research</td>
<td>3</td>
</tr>
<tr>
<td>6200:631</td>
<td>Corporate Taxation I</td>
<td>3</td>
</tr>
</tbody>
</table>

*Students are required to take a different taxation course if they have completed the equivalent of 6200:627 or 6200:531. Students are required to complete at least one course but no more than two courses.*

#### Group C: Accounting Electives (0 - 6 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200:554</td>
<td>Information Systems Security</td>
<td>3</td>
</tr>
<tr>
<td>6200:570</td>
<td>Governmental Accounting</td>
<td>3</td>
</tr>
<tr>
<td>6200:629</td>
<td>Tax Crimes and Forensics</td>
<td>3</td>
</tr>
<tr>
<td>6200:659</td>
<td>Assurance Services and Data Mining</td>
<td>3</td>
</tr>
</tbody>
</table>

These electives are open only to students who have not previously completed similar courses.

#### Group D: Information Systems Electives (0 - 12 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6500:520</td>
<td>Data Networks and Security</td>
<td>3</td>
</tr>
<tr>
<td>6500:643</td>
<td>Analysis and Design of Business Systems</td>
<td>3</td>
</tr>
<tr>
<td>6500:641</td>
<td>Business Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>6500:645</td>
<td>Software Development and Quality Assurance</td>
<td>3</td>
</tr>
<tr>
<td>6500:678</td>
<td>Project Management</td>
<td>3</td>
</tr>
</tbody>
</table>

The Chair of the School of Accountancy may approve or substitute other relevant information systems courses not listed in Group D above. Students pursuing the Accounting Information Systems Option must complete a minimum of 12 credits of information systems courses (i.e., Group D and accounting information systems courses from Group C).

#### Group E: Finance Electives (0 - 15 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6400:581</td>
<td>International Business Finance</td>
<td>3</td>
</tr>
<tr>
<td>6400:631</td>
<td>Financial Markets and Institutions</td>
<td>3</td>
</tr>
<tr>
<td>6400:645</td>
<td>Investment Analysis</td>
<td>3</td>
</tr>
<tr>
<td>6400:674</td>
<td>Strategic Financial Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>6400:678</td>
<td>Capital Budgeting</td>
<td>3</td>
</tr>
</tbody>
</table>

The Chair of the School of Accountancy may approve or substitute other relevant finance courses not listed in Group E above.
The Accelerated BS/MS Accounting (BS/MSA) program allows honors students and other outstanding accounting majors to complete the 150 credits of pre-CPA certification education required by the Accountancy Board of the State of Ohio and earn both a bachelor's and masters degree in accounting. Honors and other outstanding students will be targeted as soon as they identify accounting as a major and will be officially accepted into the accelerated program by the start of their senior year.

To receive official acceptance into the program, students must satisfy the following requirements:

- Provide two letters of recommendation from CBA faculty
- Earn at least a B in 6200:301 Cost Management and Control, 6200:320 Accounting Information Systems and Internal Control, 6200:321 Financial Reporting and Analysis I, and 6200:322 Financial Reporting and Analysis II. Students applying for acceptance into this program cannot repeat any of these four courses required for admission to make the minimum grade of a B.
- Earn an overall GPA of 3.0 or higher in accounting courses, in business courses, and in all University of Akron courses

BS/MSA students will be monitored closely and be given professional accounting advice through the School of Accountancy. Students must earn and maintain a 3.0 or better GPA (business, accounting, and overall) to stay in the program. Students who are not able to do so will complete the regular bachelor's program instead of the accelerated BS/MSA program.

All students in the program will complete 30 credits of graduate courses to fulfill the requirements for the masters degree. They will complete nine credits of 500-level graduate courses during their fourth (senior) year and the remaining 21 credits of 600-level graduate courses during their fifth year. The nine credits of 500-level graduate courses will count toward both their graduate and undergraduate degree programs. A total of 150 credits of graduate and undergraduate courses are required to complete the Accelerated BS/MSA program.

BS/MSA students may be eligible for graduate assistantships during their fourth and fifth years of the program only if they are registered for at least nine graduate credits in each semester. Honors students may be eligible for funding from the Honors College during the fourth year and receive a graduate assistantship during the fifth year.

BS/MSA students must complete a total of 30 graduate credits from the following groups of courses listed below. No more than nine credits can be 500-level (6200:5xx) courses. At least 12 credits must be 600-level accounting (6200:6xx) courses.

**Group A:** Accounting and Assurance Core (12 - 15 credits):
- 6200:615 Enterprise Systems and Internal Control 3
- 6200:637 Contemporary Accounting Issues 3
- 6200:658 Enterprise Risk Assessment and Assurance 3
- 6200:660 Accounting and Assurance Project (capstone course) 3
- 6200:520 Advanced Financial Reporting and Analysis
  - *All courses in this group are required except for 6200:520, which is not required for students in the AIS option. Students who have completed a similar advanced accounting course at the undergraduate level must take a different course.*

**Group B:** Taxation Core (3 - 6 credits):
- 6200:627 Federal Taxation 3
- 6200:531 Business Entity Taxation* 3
- 6200:628 Tax Research 3
- 6200:631 Corporate Taxation I 3

*Students are required to take a different taxation course if they have completed the equivalent of 6200:627 or 6200:531. Students are required to complete at least one course but no more than two courses in the taxation core.

**Group C:** Accounting Electives (0 - 6 credits):
- 6200:554 Information Systems Security 3
- 6200:570 Governmental Accounting 3
- 6200:629 Tax Crimes and Forensics 3
- 6200:659 Assurance Services and Data Mining 3

These electives are open only to students who have not previously completed similar courses.

**Group D:** Information Systems Electives (0 - 9 credits):
- 6500:520 Data Networks and Security 3
- 6500:641 Analysis and Design of Business Systems 3
- 6500:641 Business Database Systems 3
- 6500:645 Software Development and Quality Assurance 3
- 6500:678 Project Management 3

The Chair of the School of Accountancy may approve or substitute other relevant information systems courses not listed in Group D above. Students pursuing the Accounting Information Systems Option must complete a minimum of 12 credits of information systems courses (i.e., Group D and accounting information systems courses from Group C).

**Group E:** Finance Electives (0 - 9 credits):
- 6400:581 International Business Finance 3
- 6400:631 Financial Markets and Institutions 3
- 6400:645 Investment Analysis 3
- 6400:674 Strategic Financial Decision Making 3
- 6400:678 Capital Budgeting 3

The Chair of the School of Accountancy may approve or substitute other relevant finance courses not listed in Group E above.

The University of Akron 2015-2016

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**Master of Taxation (MTax)**

The Master of Taxation (MTax) Program is a professional degree designed to provide intensive training for individuals with an interest in developing specialized skills in the area of taxation. The program is intended for practicing accountants and attorneys who wish to further or pursue a career in taxation. However, other individuals with a four-year degree in business or accounting from a regionally accredited institution of higher learning (or international equivalent) may also find the program valuable and manageable. The program offers substantive technical and professional knowledge, skills, and abilities needed to function as a taxation specialist in the United States.

Students in the program will:

- develop substantive and comprehensive knowledge of federal taxation;
- understand the state and local taxation regimes of selected states, including the State of Ohio;
- develop abilities to research taxation issues, identify and solve taxation problems, and plan taxation strategies;
- develop the ability to contribute as a taxation specialist to strategic planning and decision-making in organizations;
- demonstrate effective written and oral presentation skills; and
- demonstrate ability to use information technology for researching and solving taxation problems.

The MTax curriculum consists of 30 semester credits. Admission to the program is open to the following individuals:

1. Certified Public Accountants and other accountants with equivalent credentials with at least a bachelor's degree.
2. Individuals with an undergraduate degree in accounting from a regionally accredited institution or international equivalent.
3. Individuals with a JD.
4. Individuals who plan to pursue the joint JD/MTax degree (JD students must complete the first year of law school if full-time or the second year of law school if part-time before they can take courses in the MTax program).
5. Individuals with an undergraduate degree in business from a regionally accredited institution or international equivalent.
6. Other individuals who demonstrate a high potential to succeed in the MTax program (based on GMAT scores, undergraduate GPA, letters of recommendation, and prior work experience) and who have earned at least a B average in 6200:601 Financial Accounting (or equivalent) and 6200:627 Federal Taxation (or equivalent).

Students who have at least two years of work experience and have an accounting certification (i.e. CPA, CMA, CIA, etc.) or have successfully passed the bar exam do not need to take the GMAT exam to be admitted to the program. All other students must earn a satisfactory score on the GMAT (LSAT for law students) prior to being admitted to the program. Foundation courses are not required for individuals in Categories 1 and 2.

Individuals in categories 3 and 5 must complete an introduction to financial accounting course and a federal income taxation course before they begin taking MTax courses. These courses may be taken at the graduate or undergraduate level. Students should plan to complete those courses in the summer or earlier prior to starting the required MTax courses.

Students are encouraged to begin the program in the fall. Full-time students who begin the program in fall will normally complete all requirements for graduation in two semesters. Part-time students who start in fall can complete all requirements for graduation within two years.

- **Required Master of Taxation Courses:**
  - 6200:628 Tax Research 3
  - 6200:630 Corporate Taxation I 3
  - 6200:632 Taxation of Transactions in Property 3
  - 9200:721 Taxation of Intellectual Property 3
  - 6200:641 Taxation of Partnerships 3
  - 6200:643 Tax Accounting 3
  - 6200:648 Tax Policy and Ethics 3
  - 6200:649 State and Local Taxation 3
  - 6200:651 International Taxation 3

**Total Credits of Required Courses**: 24
**Approved Taxation Electives**: 6
**Total Credits Required for MTax**: 30
**Accelerated BS Accounting/MTax (620008MT)**

The Accelerated BS Accounting/Master of Taxation program, the only one of its kind in the State of Ohio, offers students who wish to pursue a professional career in taxation the opportunity to complete both the BS Accounting (BSA) and Master of Taxation (MTax) in 150 semester credit hours. Students who complete the program are eligible to sit for the CPA examination in the State of Ohio and many other states. In addition to a broad undergraduate degree in accounting, Accelerated BSA/MTax students develop substantive technical and professional knowledge needed to function as taxation specialists in the United States.

The University of Akron also offers the highly attractive joint JD/MTax degree. This means that students with an interest in law will have the option to combine the Accelerated BS Accounting/MTax with the JD. With careful planning students may be able to complete the JD/MTax in as little as three years beyond the BS Accounting degree. An outline of the Accelerated BSA/MTax curriculum appears below. Because graduate taxation courses are offered only once per academic year, students must follow that outline in order to graduate in a timely manner.

Features of the MTax program include course taught by experts with significant tax experience, emphasis on tax practice, courses meet during the evening, and exceptional reputation among employers. Graduates of the program are highly recruited. Not all elective classes will be offered each year. Electives will be offered based on demand and faculty resource availability. 6200:628 Tax Research must be taken in the first semester that the class is available.

### Master of Science in Management

The Master of Science in Management program allows students to concentrate their advanced study in Information Systems Management, Supply Chain Management, or Technological Innovation. 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 engineering majors would benefit from the technological innovation option. The introductory coursework for this program is termed a foundation core and consists of 6 credits which may be waived if the student has completed prior study in the area. The remaining 30 credits of coursework consists of 12 credits of specialization coursework and 6 credits of electives. If all foundation courses are waived, the program is 30 credits in length. Students may waive the GMAT requirement if they have an acceptable GRE score and have two years of documented business experience.

### Fall Year I:

- **6200:628** Tax Research 3
- **6200:631** Corporate Taxation I 3
- **6200:641** Taxation of Partnerships 3
- **6200:643** Tax Accounting* 3

*Course counts toward both BSA and MTax.

### Spring Year I:

- **6200:632** Taxation of Transactions in Property 3
- **6200:648** Tax Policy and Ethics 3
- **6200:649** State and Local Taxation 3
- **6200:651** International Taxation 3

Students must have graduate status to take those courses in their senior year of the BSA. Graduate status is also required for other courses listed above, which students will take in the Accelerated BSA/MTax program.
**Accelerated MSM - ISM Program Option**

(650204MSM)

The MSM - Fast track Information Systems option has been designed for students in undergraduate information systems or related programs who are interested in pursuing graduate work with an information systems management emphasis. Additional requirements for students wishing to pursue this option include:

- Undergraduate degree in Information Systems (from AACSB accredited institution) or related fields with a Pre-MSM minor
- Undergraduate GPA of at least 3.0 with successful course completion in programming, database, and networking (B or better)
- Documented completion of an IS related internship (or other IS work experience) with a letter summarizing project and work scope from supervisor
- Letters of reference from undergraduate program director or faculty
- Undergraduate students who wish to count 6200:554 and 6500:520 toward their graduate degree may take these classes during their senior year and must receive a grade of B or better.
- Undergraduate degree must be completed at the most two years prior to planned date of program entry

**Management Core Courses (9 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6500:601</td>
<td>Business Analytics and Information Strategy</td>
<td>3</td>
</tr>
<tr>
<td>6500:675</td>
<td>Global Supply Chain Management</td>
<td>3</td>
</tr>
<tr>
<td>6500:678</td>
<td>Project Management</td>
<td>3</td>
</tr>
</tbody>
</table>

**Information Systems Core (12 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6500:640</td>
<td>Information Systems and IT Governance</td>
<td>3</td>
</tr>
<tr>
<td>6500:641</td>
<td>Business Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>6500:643</td>
<td>Analysis and Design of Business Systems</td>
<td>3</td>
</tr>
<tr>
<td>6500:644</td>
<td>Knowledge Management and Business Intelligence</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives (9 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6500:520</td>
<td>Data Networks and Security</td>
<td>3</td>
</tr>
<tr>
<td>6500:554</td>
<td>Information Systems Security</td>
<td>3</td>
</tr>
<tr>
<td>6500:571</td>
<td>Management Project</td>
<td>3</td>
</tr>
<tr>
<td>6500:645</td>
<td>Software Development and Quality Assurance</td>
<td>3</td>
</tr>
<tr>
<td>6500:651</td>
<td>Organizational Transformation</td>
<td>3</td>
</tr>
<tr>
<td>6500:652</td>
<td>Managing People in Organizations</td>
<td>3</td>
</tr>
<tr>
<td>6500:663</td>
<td>Data Analysis for Managers</td>
<td>3</td>
</tr>
<tr>
<td>6500:690</td>
<td>Selected Topics in Management</td>
<td>3</td>
</tr>
<tr>
<td>6700:695</td>
<td>Internship in Business</td>
<td>1-3</td>
</tr>
</tbody>
</table>

**Total** 30

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**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 accounting financial forensics (J.D./M.S.A.). These combinations are open to the student preparing for a career in such areas as corporate law, tax accounting, or legal practice in government. The amount of time required to complete a joint degree program is shorter than the required time 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 up to ten 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 (Gateway) courses (unless waived because of prior undergraduate credits earned), and 27 credits for M.B.A. advanced courses in the CBA plus nine credits transferred from the School of Law. The Master of Taxation program consists of 21 credits of advanced courses in the CBA plus 9 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 98 (J.D./M.Tax.), 105 (J.D./M.B.A.), or 142 (J.D./M.S.A.) credits is required, depending on the master’s program pursued. More credits may be required for the master’s degree if Gateway or Foundation courses are required.

Upon the approval of the director of Graduate Programs in Business, up to nine credits of School of Law courses may be applied toward the Masters of Taxation degree. Law courses from the following list may be applied to the MTax program:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>9200:641</td>
<td>Corporate Taxation (J.D./MTax)</td>
<td>3</td>
</tr>
<tr>
<td>9200:721</td>
<td>Taxation of Intellectual Property (J.D./MTax)</td>
<td>3</td>
</tr>
<tr>
<td>Other courses offered in the School of Law as approved by the Chair of the School of Accountancy and the MTax program coordinator</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Courses that will transfer as MTax elective courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>9200:639</td>
<td>Estate and Gift Taxation</td>
<td>3</td>
</tr>
<tr>
<td>9200:645</td>
<td>Non-profit Tax Entities</td>
<td>3</td>
</tr>
<tr>
<td>9200:675</td>
<td>Special Problems in Estate Planning</td>
<td>3</td>
</tr>
<tr>
<td>9200:680</td>
<td>Qualified Pension and Profit Sharing Plans</td>
<td>3</td>
</tr>
<tr>
<td>9200:684</td>
<td>Entities</td>
<td>3</td>
</tr>
<tr>
<td>9200:685</td>
<td>Wills, Trusts, and Estates</td>
<td>3</td>
</tr>
<tr>
<td>9200:686</td>
<td>Wills, Trusts, and Estates II</td>
<td>3</td>
</tr>
<tr>
<td>9200:684</td>
<td>Mergers and Acquisitions</td>
<td>3</td>
</tr>
</tbody>
</table>

Other courses offered in the School of Law as approved by the Chair of the School of Accountancy and the MTax program coordinator

J.D./M.B.A. students may transfer up to nine credits of School of Law courses into the M.B.A. program. Up to nine credit hours may be in their area of concentration and must be selected from the courses listed below. Related courses not listed under concentrations may transfer with approval of the director of graduate programs in Business Administration.

J.D./M.S.A. students may transfer up to nine credits of School of Law courses

**Law Courses to be used as MBA Concentration Courses**

Interdisciplinary Concentration (choose 9 credits)

Students may devise a personalized concentration consisting of any nine credits of the law courses listed for the concentrations. The choice of courses for the Interdisciplinary Concentration must be approved by the director prior to enrolling in the courses. Students must provide a career-related, programmatic rationale for the personalized concentration they have devised. If a joint degree student wishes to pursue one of the other MBA concentrations he/she is permitted to do so and should contact the Director of Graduate Programs for additional information.
College of Health Professions

David Gordon, M.D., Dean
Marlene S. Huff, Ph.D., Interim Associate Dean
Karin B. Jordan, Ph.D., Interim Associate Dean

Organization

The College of Health Professions, established in 2012, comprises graduate degree granting six schools: the School of Counseling; School of Nursing; the School of Nutrition and Dietetics; the School of Social Work; School of Speech-Language Pathology and Audiology; and the School of Sport Science and Wellness Education.

The college places a premium on learning by doing. Students work side by side with talented and caring faculty members and professionals throughout the community. The college focuses on graduating students prepared to excel as professionals in an evolving health care environment. Highly collaborative and interprofessional, this new college will be a model for health education and research in this region and beyond.

DOCTORAL DEGREE PROGRAMS

Doctor of Audiology Program (Au.D.)

(H70200AUD)

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, 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
- Graduate Record Examination scores
- Three letters of recommendation
- Personal statement of purpose as to why the applicant wishes to become an audiologist

All application material must be received by January 15.

Degree Requirements - Doctor of Audiology

The Au.D. curriculum is a continuous 44 month post-baccalaureate course of study designed to integrate classroom, laboratory, and clinical experiences. All students will attend full-time and take the same courses in appropriate sequence. The emphasis of the program is on the principles and practices underlying evaluation, treatment, and provision of hearing care and balance services.

For progression and graduation, students must meet the following degree requirements:

- Maintain an overall grade point average of 3.0
- Complete a minimum of 120 semester credits
- Accrue 2000 clock hours of clinical experience
- Meet the requirements for Ohio licensure in Audiology
- Pass academic and clinical competency-based examinations
- Complete the following required courses:

  7700:701 Basic and Applied Acoustics in Audiology 4
  7700:702 Anatomy and Physiology of the Peripheral Auditory & Vestibular System 3
  7700:703 Acoustic Phonetics 3
  7700:704 Critical Analysis of Research in Audiology 2
  7700:705 Auditory Disorders 2
  7700:706 Anatomy and Physiology Underlying Neuro-Otology 4
  7700:707 Psychocoacoustics 3
  7700:708 Critical Analysis of Research in Audiology II 2
  7700:709 Audiology Assessment 3
  7700:710 Industrial and Community Noise 3
  7700:711 Speech-Language Pathology for the Audiologist 3
  7700:712 Diagnosis of Auditory Disorders 3

  7700:713 Hearing Aid Technology 4
  7700:714 Gerontological Issues in Audiology 3
  7700:715 Central Auditory Processing: Evaluation and Management 2
  7700:717 Pediatric Audiology 3
  7700:719 Counseling in Audiology 3
  7700:721 Evaluation and Management of Balance Disorders 3
  7700:725 Medical Management of Auditory Disorders 2
  7700:726 Electrophysiological Techniques in Audiology 3
  7700:727 Multicultural Issues in Audiology 2
  7700:728 Seminar in Audiology 2
  7700:730 Practice Management in Audiology 1
  7700:731 Fourth Year Seminar* 1
  7700:732 Audiologic Treatment Across the Lifespan 4
  7700:747 Graduate Audiologist I 3
  7700:748 Graduate Audiologist II 3
  7700:749 Graduate Audiologist III 6
  7700:750 Graduate Audiologist IV 8
  7700:751 Graduate Audiologist V 8
  7700:752 Clerkship I 1
  7700:753 Clerkship II 1
  7700:754 Internship I 1
  7700:755 Internship II 1
  7700:756 Internship III 2
  7700:757 Internship IV 2
  7700:758 Implantable Technology 4
  7700:760 Hearing Aids Across the Lifespan 4
  7700:761 Advanced Electrophysiologic and Vestibular Measures 4
  7700:762 Principles of Precepting 1

* Students are required to register for two semesters of 7700:731 Fourth Year Seminar

Collaborative Ph.D. Program in Counseling Psychology

(56500PHD)

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 School of Counseling in the College of Health Professions. 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.

The School of Counseling offers a four-year, full-time Counseling Psychology program leading to a doctoral degree. Program emphasis is strongly placed on a scientist-practitioner model of training. Beyond the basic core areas of psychology students are expected to establish specific competencies in theory, research, and practice of Counseling Psychology. Academic preparation incorporates the study of theoretical approaches to counseling and psychotherapy, theory and practice of assessment, diversity issues in counseling psychology; supervision, vocational psychology, professional issues and ethics, statistics, and research design. Research and publication are strongly encouraged. Graduates typically seek teaching, research, and training positions in academia, as well as positions in counseling centers and other mental health agencies.

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

Admission Requirements

- 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.
- 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 field.
Applicants must submit a minimum of three letters of reference attesting to success in the field and probable academic success at the doctoral level.

Finalists are required to interview with program faculty, either in person or via telephone.

All application materials must be received by the department by December 1.

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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:648</td>
<td>Individual and Family Life-Span Development</td>
<td></td>
</tr>
<tr>
<td>5100:742</td>
<td>Statistics in Education</td>
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<tr>
<td>5100:743</td>
<td>Advanced Educational Statistics</td>
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<tr>
<td>5600:651</td>
<td>Techniques of Counseling</td>
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<tr>
<td>5600:675/676</td>
<td>Practicum in Counseling III</td>
<td></td>
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<tr>
<td>3750:610</td>
<td>Core I: Social Psychology</td>
<td></td>
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<tr>
<td>3750:620</td>
<td>Core II: Cognitive Psychology</td>
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<tr>
<td>3750:630</td>
<td>Core III: Individual Differences</td>
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<tr>
<td>3750:640</td>
<td>Core IV: Biopsychology</td>
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<tr>
<td>3750:650</td>
<td>Core V: Social-Cognitive Psychology</td>
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<tr>
<td>3750:750</td>
<td>Advanced Psychological Test and Measures</td>
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<tr>
<td>5600:702</td>
<td>Advanced Counseling Practicum I</td>
<td></td>
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<tr>
<td>5600:707</td>
<td>Supervision in Counseling Psychology</td>
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<tr>
<td>5600:709</td>
<td>Introduction to Counseling Psychology</td>
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<tr>
<td>5600:710</td>
<td>Theories of Counseling and Psychotherapy</td>
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<tr>
<td>5600:711</td>
<td>Vocational Behavior</td>
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<tr>
<td>5600:712</td>
<td>Principles and Practice of Intelligence Testing</td>
<td></td>
</tr>
<tr>
<td>5600:713</td>
<td>Professional, Ethical and Legal Issues in Counseling Psychology</td>
<td></td>
</tr>
<tr>
<td>5600:714</td>
<td>Evaluation of Mental Status</td>
<td></td>
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<tr>
<td>5600:715</td>
<td>Research Design in Counseling I</td>
<td></td>
</tr>
<tr>
<td>5600:717</td>
<td>Issues of Diversity in Counseling Psychology</td>
<td></td>
</tr>
<tr>
<td>5600:718</td>
<td>History and Systems in Psychology</td>
<td></td>
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<tr>
<td>5600:796</td>
<td>Counseling Psychology Practicum I</td>
<td></td>
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<tr>
<td>5600:796</td>
<td>Counseling Psychology Practicum II</td>
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<tr>
<td>3750/5600:xx</td>
<td>Required Electives</td>
<td></td>
</tr>
<tr>
<td>5600:899</td>
<td>Doctoral Dissertation (minimum)</td>
<td></td>
</tr>
</tbody>
</table>

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 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**

(56000PHD: Counselor Education and Supervision)

(56000PHD: Marriage and Family Counseling/Therapy)

The doctoral degree in Counselor Education and Supervision is designed as advanced training for students who hold a master’s degree in counseling or a related field. The degree has two tracks, each with a different emphasis: (1) Counselor Education and Supervision and (2) Marriage and Family Counseling/Therapy. Students in both tracks are expected to attain Advanced Practica, Internships, comprehensive examinations, and dissertation work. The minimum credit hour requirement for the Ph.D. in Counselor Education and Supervision is 100 to 120 depending on the track (Minimum of 100 credit hours for Counselor Education and Supervision and a minimum of 120 credit hours for Marriage and Family Counseling/Therapy).

The Counselor Education and Supervision track is accredited by the Council for Accreditation of Counseling and Related Education Programs (CACREP) and the Marriage and Family Counseling/Therapy track is accredited by the Commission on Accreditation of Marriage and Family Therapy Education (COAMFTE).

**Admission Requirements**

- Graduate School Application
- Official undergraduate and graduate transcripts
- Official Graduate Record Examination (GRE) score report
- Three letters of recommendation
- School of Counseling Application Supplement Form
- Professional resume/vita

All application materials are due in the School of Counseling no later than January 15. Doctoral students are only admitted one time per year, beginning each fall semester.

**Counselor Education and Supervision Track (100 credits):**

<table>
<thead>
<tr>
<th>Research and Statistics (15 credits):</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:742 Statistics in Education</td>
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<tr>
<td>5100:743 Advanced Educational Statistics</td>
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<tr>
<td>5600:744 Qualitative Methods I</td>
</tr>
<tr>
<td>5600:715 Research Design in Counseling I</td>
</tr>
<tr>
<td>5600:726 Doctoral Research Proposal in Counselor Education</td>
</tr>
</tbody>
</table>

**Counselor Education Core Courses (43 credits):**

| 5600:702 Advanced Counseling Practicum | 4 |
| 5600:702 Advanced Counseling Practicum | 4 |
| 5600:737 Clinical Supervision I        | 4 |
| 5600:738 Clinical Supervision I        | 4 |
| 5600:710 Theories of Counseling and Psychotherapy | 4 |
| 5600:725 Doctoral Professional Seminar in Counselor Education | 3 |
| 5600:785 Doctoral Internship           | 3 |
| 5600:785 Doctoral Internship           | 3 |
| 5600:723 Legal and Ethical Issues in Counselor Education | 4 |
| 5600:730 Use of Assessment Data        | 4 |
| 5600:724 Pedagogy in Counselor Education and Supervision | 3 |
| 5600:728 Advanced Diversity in Counselor Education | 3 |

**Dissertation (12 credits):**

| 5600:899 Doctoral Dissertation     | 1-20 |

**Master’s Degree Requirements (30 credits minimum):**

| 5600:600 Seminar in Counseling     | 1 |
| 5600:643 Counseling. Theory and Philosophy | 3 |
| 5600:647 Career Development and Counseling Across the Lifespan | 3 |
| 5600:651 Techniques of Counseling  | 4 |
| 5600:653 Group Counseling          | 4 |
| 5600:664 Multicultural Counseling  | 3 |
| 5600:660 Counseling Children       | 3 |
| 5600:648 Individual and Family Development Across the Lifespan | 3 |
| 5600:645 Tests and Appraisals in Counseling | 3 |
| 5600:661 Research and Program Evaluation in Counseling | 3 |
| 5600:675 Practicum in Counseling I | 6 |
| 5600:685 Internship                | 3 |

Coursework in all of the master’s degree requirement areas must be completed before registering for doctoral-level coursework. Fulfillment of master’s degree requirements may total more than the minimum 30 credits included in the doctoral degree.

**Marriage and Family Counseling/Therapy Track (120 credits):**

<table>
<thead>
<tr>
<th>Course Requirements (18 credits):</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:705 Social-Philosophical Foundations</td>
</tr>
<tr>
<td>5100:635 Emerging Technologies for Instruction</td>
</tr>
<tr>
<td>5100:742 Statistics in Education</td>
</tr>
<tr>
<td>5100:743 Advanced Educational Statistics</td>
</tr>
<tr>
<td>5600:715 Research Design in Counseling I</td>
</tr>
<tr>
<td>5600:716 Research Design in Counseling II</td>
</tr>
</tbody>
</table>

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

| 5600:702 Advanced Counseling Practicum | 12 |
| 5600:710 Theories of Counseling and Psychotherapy | 4 |
| 5600:669 System Theory in Family Therapy | 3 |
| 5600:725 Doctoral Professional Seminar in Counselor Education | 3 |
| 5600:730 Topical Seminar: Use of Assessment Data | 4 |
| 5600:737 Clinical Supervision I        | 4 |
| 5600:738 Clinical Supervision II       | 4 |
| XXXX Cognates (minimum of 3 credits taken outside of the College ) | 6-10 |
| 5600:785 Doctoral Internship           | 6 |
| 5600:785 Internship Marriage and Family | 6 |
| 5600:667 Marital Therapy               | 3 |
| Minimum Total Credit Hours Required   | 120 |

Students enrolled in the Marriage and Family Doctoral Track must complete the following requirements:

| 5600:720 Topical Seminar: Topical Issues in Marriage and Family Therapy | 3 |
| 5600:667 Marital Therapy | 3 |

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

| 5600:643 Counseling Theory (Individual) | 3 |
| 5600:655 Marriage and Family Theory and Techniques | 3 |
| 5600:645 Assessment                 | 3 |
| 5600:647 Career Counseling          | 3 |
| 5600:651 Techniques of Counseling    | 3 |
| 5600:653 Group Counseling           | 4 |
| 5100:640 Techniques of Research      | 3 |
| 5600:646 Multicultural Counseling    | 3 |
| 5600:648 Individual and Family Development | 3 |
| 5600:664 DSM-IV                     | 3 |
Foundation coursework in Community, School, or Marriage and Family Counseling:

5600:675 Counseling Practicum (Community, School, or MFT) 5
5600:685 Counseling Internship (Community, School, or MFT) 3
5600:660 Counseling Children (Counselor Education Program only) 3

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 into the doctoral program in Counselor Education and Supervision. For further program details and specific admission requirements, contact the School of Counseling at (330) 972-7777 or 7775.

Doctor of Philosophy in Nursing (82000PHD)
The University of Akron and Kent State University offer a Ph.D. in Nursing, a single doctoral program with a single, unified doctoral nursing faculty and doctoral student body. The diploma will be issued from the student’s university of record and will recognize the Joint Doctor of Philosophy program. Courses will be cross listed and scheduled at each university.

Preparation Purpose and Description: Preparation of Scholars in Nursing
The Ph.D. in Nursing program is characterized by excellence through scholarship, integrity, and caring. The primary purpose of the program is to prepare 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 program through the Graduate School at The University of Akron or the Graduate College or School of Nursing at Kent State University. Completed applications should be returned to the addresses indicated on the application forms. Applications are accepted on a rolling basis and will be reviewed by the admissions committee.

Each applicant for admission into the Ph.D. in Nursing Program must meet the following criteria:

• An application to The University of Akron Graduate School.
• A completed Application Information Sheet for the Ph.D. program.
• Official evidence of scores on the Graduate Record Examination.
• Evidence of successful completion of a master’s degree in nursing or a closely related health field at an accredited program.
• Minimum graduate grade point average of 3.0 on a 4.0 scale. Official transcripts must be sent to the Graduate School.
• Official evidence of scores on the Graduate Record Examination taken within five years of application.
• Current resume or curriculum vita.
• Three letters of reference from professionals or professors who can adequately evaluate the applicant and the applicant’s previous work or potential for success. Two of the letters are strongly preferred from Ph.D. prepared nurses.

• A two-page, single-spaced admission essay responding to the following questions:
  • Why do you want to pursue a Ph.D. in Nursing?
  • What are your professional goals?
  • How have you been involved in research, publications, and professional presentations?
  • How have you been involved in professional organizations?
  • What are your research interests?
  • Why are you interested in these research areas?
  • How could research, and specifically your research, in these areas advance science?
  • How would research, and specifically your research, in these areas advance nursing?
• 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.

• At the request of the 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.
• Register for courses within one year of acceptance into the program otherwise 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 competence 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 customized to student interest, subject to advisor approval. Target dates for successfully completing the qualifying examination and the completion of the dissertation will be developed early in the program plan. Students may change advisors for academic or dissertation purposes, subject to the approval of the program directors.

For progression and graduation, students must meet the following degree requirements:

• 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 written preliminary examination after first year of full-time coursework and/or 24 credits, qualifying examination, and dissertation requirements;
• successfully complete and orally defend a dissertation based upon original investigation and critical scholarship (30 credits).

Students who do not meet the criteria for successful progression and graduation will be notified in writing and dismissed from the program.

Program Description and Curriculum
The Ph.D. in Nursing is a post master's degree, requiring 72 semester credit hours including the dissertation. It consists of five components, with selected customization to student interests. The nursing knowledge component examines knowledge and theory 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. Students must select at least one advanced research methods course to promote their research agenda, i.e., program evaluation, advanced qualitative or quantitative methods, or grantmanship. 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 component, the dissertation, which follows the successful completion of the qualifying examination. The course work in each of these five components follows.

Structure and content of nursing knowledge:

Five required courses (15 credits)
8200:810 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:

Four required methods/design courses (12 credits)
8200:824 Foundations of Scholarly Inquiry in Nursing 3
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:

Two required courses (6 credits)

Cognates:

Two required 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.)

Suggested Electives:

8200:892 Field Experience in Nursing 1-12
8200:895 Special Topics in Nursing 1-6
8200:896 Individual Investigation in Nursing 1-13
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

Students who need more than 30 credit hours to complete the dissertation will enroll in 8200:800 Doctoral Dissertation II.

Qualify for Candidacy for the Doctoral Dissertation

- All students in the program are required to successfully complete a qualifying candidacy examination before proceeding to conduct dissertation research. To be eligible for candidacy for the dissertation, students must complete 42 hours of required courses within 30 credit hours, maintain a minimum GPA of 3.0 on a 4.0 scale in the doctoral program, and complete 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 rational 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 demonstration of mastery scholarship and critical judgment in the theoretical and methodological 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 Nursing Ph.D. faculty, as must be two committee members. The remaining member must be selected from outside the program. Other qualifications of members will be consistent with the student's area of research and with the requirements for doctoral committees as stated in the policies and general catalogs of both universities.

Innovative Curriculum Pathways to the Ph.D. in Nursing Program for BSN Graduates and for Students Enrolled in MSN Option

The Innovative Pathways into the Ph.D. in Nursing Program is an accelerated program that allows individuals with a BSN and students enrolled in the RN-MSN program, direct admission into the Ph.D. 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 acceleration pathways differ at The University of Akron and Kent State University, individuals 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 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.

- 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 8200:618, 8200:825, 8200:830, and 8200:835, students receive a maximum of 12 hours of by-passed credit for master’s level courses.

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 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 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.

Students enrolled in The University of Akron RN-Option receive a maximum or six (6) by-passed credits after successfully completing six credit hours of doctoral level courses. By-passed credit is given for Nursing Inquiry I (8200:613) and Nursing Inquiry II (8200:618) after the student successfully completes Quantitative Research Methods (8200:825) and Qualitative Research Methods (8200:830) in accordance with applicable University of Akron policy. Students admitted to this innovative pathway are required to take the RN-BSN research course 8200:436, rather than receive by-passed credits for it.

Professional Doctor of Nursing Practice (820000DNP - Post MSN DNP)

Admission Requirements

- Current licensure as an advanced practice registered nurse (APRN).
- A master’s degree in nursing with an advanced practice focus from an accredited university with a cumulative grade point average of 3.0 on a 4.0 scale.
- Three letters of recommendation from individuals who can address the applicant’s potential to succeed in the DNP graduate program and who can attest to clinical expertise.
- Letter of verification of master’s degree clinical hours from the institution where the master’s degree was earned.
- Pre-admission interview.
- A 300 word essay describing professional goals and area of interest for the capstone project.

Applications to the Doctor of Nursing Practice must be submitted by March 1. Development of the curriculum is structured by four broad areas of knowledge described in the AACN’s Essentials of Doctoral Education for Advanced Practice Nursing (2006). Acquisition of knowledge within the areas of Scientific/Physiologic Foundation for Advanced Evidence Based Practice; Leadership Information Management; Practice Inquiry; and Advanced Specialty Practice, will be demonstrated by the student’s development of essential competencies. The following outcome competencies are expected.

Graduates of the program will:
- Use appropriate theories and concepts to identify health-related phenomena of interest.
- Design and deliver interventions that can withstand scientific analysis.
• Evaluate health care delivery and nursing practices using sound evaluation principles.
• Use evaluation and other methods to account for quality of care and patient safety for focus populations.
• Critically appraise and/or use sources informing best evidence, i.e., epidemiology, statistics, health data, and/or methodologies.
• Deliver and evaluate care processes and outcomes based on best evidence.
• Analyze and define critical choices among health care technologies and information systems toward the betterment of care processes and outcomes.
• Understand the dynamics of health care policy and financing at the organizational and national levels.
• Provide or assist in the leadership of collaborative, inter-professional teams in health care delivery.

Program Description
The University of Akron Professional Doctor of Nursing Practice (DNP) program requires a minimum of 71 graduate credit hours and 1,040 clinical hours for those students entering with a baccalaureate in nursing degree from an accredited program. Post-master’s entry requires: a) 37 credits of DNP core courses; b) 540 clinical practice hours; and c) transfer from the student’s master’s degree in nursing program a minimum of 34 credits of nursing and advanced practice role-specific coursework, which includes 500 clinical hours (or is taken as part of the DNP program).

The minimum passing grade for each course is a “B.” Students earning a grade less than “B” will be required to repeat the course the next time it is offered. A student will not be permitted to enroll in the next course until the course is repeated. A course can be repeated only one time in the DNP program. A second course grade below the grade of “B” will result in dismissal from the DNP program.

Core Courses (20 credits):
8200:603  Theoretical Basis for Nursing  3
8200:607  Policy Issues in Nursing  2
8200:608  Advanced Pathophysiology for Nurse Anesthetist  3
8200:612  Advanced Clinical Pharmacology  3
8200:613  Nursing Inquiry I  3
8200:618  Nursing Inquiry II  3
8200:604  Advanced Health Assessment  3
8200:610, 611, or 650 (Appropriate to specialty track)

Specialty Courses (12-34 credits):
S specialty courses vary according to the particular current MSN advanced practice concentration (includes 500-700 clinical hours).

DNP Courses (minimum of 37 credits and includes 540 clinical hours):
8200:710  Advanced Healthcare Statistics  3
5600:2015 (KSU) Fundamentals of Public Health Epidemiology  3
8200:714  Synthesis and Application of Evidence for Advanced Practice Nursing  3
8200:848  Program Evaluation in Nursing  3
8200:701  Advanced Seminar in Clinical Genomics and Health Information Management in Healthcare  3
8200:713  Advanced Leadership in Healthcare  3
8200:705  Clinical Scholar I  3
8200:706  Clinical Scholar II  3
8200:707  Clinical Scholar Residency  3
8200:708  Capstone Project I  2-6
8200:709  Capstone Project II  1-3

Admission Requirements
• Graduate School Application
• Official transcripts from institutions attended
• Three letters of recommendation.
• School of Counseling Application Supplement Form
• Interview will be required for applicants who meet admission criteria

Classroom Guidance for Teachers
(560008MA) (560008MS)
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
    or
    5100:624  Seminar: Educational Psychology  3
    or
    5600/5100:648 Individual and Family Development Across the Lifespan  3
  – Humanistic Foundations
    5100:600  Philosophies of Education  3
    or
    5100:604  Topical Seminar in the Cultural Foundations of Education  3
    or
    5600/5100:648 Multicultural Counseling  3

  – Research
    5100:640  Using Research to Inform Practice  3
    Minimum Foundation Credit Hours Required  9

• Required Program Courses
  5600:631  Elementary/Secondary School Counseling  3
  5600:647  Career Development and Counseling Across the Lifespan  3
  5600:645  Tests and Appraisal in Counseling  3
  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)  1
  5610:540  Developmental Characteristics of Exceptional Individuals  3
  or
  5610:604  Collaboration and Consultation Skills for Special Educators  3
  Minimum Credit Hours Required for Program Courses  19

• Area of Concentration
An area of concentration with a minimum of six credit 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 for Program  6
Minimum Semester Hours Required for Degree  35

Clinical Mental Health Counseling
(560005MA)
This course of study focuses on knowledge and skills related to clinical mental health counseling culminating in the opportunity to obtain professional counselor licensure and employment in the mental health field, such as mental health agencies, private practice, and college counseling centers.

• Educational Foundations (9 credits)
  5600:601  Research and Program Evaluation in Counseling  3
  5600:646  Multicultural Counseling  3
  5600:648  Individual and Family Development Across the Lifespan  3

• Required Core Courses (20 credits)
  5600:600  Professional Orientation and Ethics  2
  5600:635  Introduction to Clinical Counseling  2
  5600:643  Counseling Theory & Philosophy  3
  5600:645  Tests and Appraisal in Counseling  3
  5600:647  Career Development and Counseling Across the Lifespan  3
  5600:651  Techniques of Counseling  3
  5600:653  Group Counseling  4

Graduate Studies  67

MASTER'S DEGREE

Counseling
Admissions to the master’s programs in Classroom Guidance for Teachers, Marriage and Family Counseling/Therapy, and School Counseling will be twice a year (application deadline of March 15 for summer and fall semesters and October 1 for spring semester).

Applications to the master’s program in Clinical Mental Health Counseling are accepted on a rolling basis. Applicants are strongly urged to apply as early as possible. For applicants who have complete application materials on file and who are selected for an interview, admission interviews usually begin in January for fall admission cohort and September for spring admission cohort. New admits will not be accepted once the program reaches cohort capacity.

The Council for Accreditation of Counseling and Related Educational Programs (CACREP), a specialized accrediting body recognized by the Council of Higher Education Accreditation (CHEA), has conferred accreditation on the Clinical Mental Health, 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 (COAMFTE).
Students must receive a Pass grade on the Master’s Comprehensive Examination.

**School Counseling (560103MA) (560103MS)**

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:

- Application to Graduate School
- 2.75 undergraduate GPA
- Statement of good moral character
- Three letters of reference
- Departmental supplemental application

For those without a teaching license:

- Application to Graduate School
- 2.75 undergraduate GPA
- Statement of Good Moral Character
- Bureau of Criminal Investigation (BCI) check and FBI check
- 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:

- Developmental Guidance and Emotional Education 3
- Field Experience: Master’s 1
- One of the following: 5600:690, 5600:694, or 5600:695 (3 credit hours)
- One of the following: 5610:697 or 5610:698 (3 credit hours)

Foundations (select one course from each area)

- Behavioral Foundations
  - 5600:648 Individual and Family Development Across the Lifespan 3
- Humanistic Foundations
  - 5600:646 Multicultural Counseling 3
- Research
  - 5100:640 Techniques of Research 3

Minimum Foundation Hours Required 9

**Required Counseling Department Courses**

- Professional Orientation (select one course from each area)
  - 5600:600 Professional Orientation and Ethics 2
  - 5600:631 Elementary/Secondary School Counseling 3
  - 5600:659 Organization & Administration of Guidance Services Subtotal 7
- Counseling Theory
  - 5600:643 Counseling Theory & Philosophy 3
  - 5600:647 Career Development and Counseling Across the Lifespan Subtotal 6
- Appraisal
  - 5600:645 Tests and Appraisal in Counseling (prerequisite: 5600:601) 4
  - Subtotal 4
- Counseling Process (all required)
  - 5600:651 Techniques of Counseling 3
  - 5600:653 Group Counseling (prerequisites: 5600:651 and 5600:653) 4
  - 5600:675 Practicum in Counseling (prerequisite: 5600:675) 5
  - Subtotal 12

Minimum Department Hours Required 35

**Specialized Studies (both required)**

- 5610:540 Developmental Characteristics of Exceptional Individuals 3
- 5600:621 Counseling Youth At Risk 3

Subtotal 6

Total Semester Hours Required for Graduation 50

Students must receive a Pass grade on the Master’s Comprehensive Examination.

**Marriage and Family Counseling/Therapy (560009MA) (56009MS)**

This course of study leads to licensure as a marriage and family counselor/therapist and to employment in family-based mental health settings. Any changes in the agreed upon program must be approved by the student’s advisor.

**Admission Requirements**

- Hold an undergraduate major in speech-language pathology and certification through the American Speech-Language Hearing Association.

**Speech-Language Pathology and Audiology (H70006MA)**

**Admission Requirements - Speech-Language Pathology**

- Hold an undergraduate major in speech-language pathology or completed post-baccalaureate in speech-language pathology
- Complete requirements for admission and send to Graduate School:
**Program Requirements**

- **Core Courses:**
  - 7400:546 Culture, Ethnicity, and Family (online)  
  - 7760:500 Nutrition Communication and Education  
  - 5600:651 Techniques of Counseling  
  - 7700:551 Child in the Hospital (and lab)  
  - 7400:555 Practicum Experience in a Child Life Program  
  - 7700:584 Hospital Settings, Children, and Families (and lab)  

- **Electives:**
  - 7700:552 Children, Illness, and Loss  
  - 7700:595 Child Life Internship  

- **Cognate:**
  - 5600:622 Introduction to Play Therapy  

  Select three credits with approval of advisor within the Child Life Program OR from a cognate area outside of the program.

- **Thesis or Project (select one):**
  - 7760:694 Master’s Project  
  - 7760:699 Master’s Thesis in Health Professions  

**Nonthesis (Select nine credits from the following list; at least two courses must be 600-level):**

- 7400:501 American Families in Poverty (online)  
- 7400:504 Middle Childhood and Adolescence  
- 7400:540 Family Crisis  
- 7760:585 Seminar in Health Professions  
- 7400:596 Parent Education (online)  
- 7400:605 Developmental Parent-Child Interactions (online)  
- 7400:610 Child Development Theories  
- 7400:665 Development in Infancy and Early Childhood  
- 7760:695 Internship: Advanced Programming in Child Life

Total for Master’s Project or Master’s Thesis: 42  
Total for Nonthesis Option: 46

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**Sport Science and Wellness Education**

The student who expects to earn a master’s degree in the School of Sport Science and Wellness Education is expected to meet the criteria for admission of the Graduate School. Applications for all master’s degree programs in the School of Sport Science and Wellness Education must be completed and submitted at least six weeks (domestic) or six months (international) before the beginning of the term for which admission is sought in order to allow for adequate processing time.

**Exercise Physiology/Adult Fitness Option (555003MS)**

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.

**Admission Requirements**

In addition to the graduate application and official transcripts applicants must submit a statement of purpose and three letters of recommendation. Applications to the master’s program in Exercise Physiology/Adult Fitness must be completed and submitted at least six weeks (domestic) or six months (international) before the beginning of the term for which admission is sought in order to allow for adequate processing time.

**Degree Requirements**

- **Required Foundation Courses (6 credits):**
  - 5100:610 Introduction to Statistics in Human Services  
  - 5100:640 Using Research to Inform Practice  

- **Required Department Courses (22 credits):**
  - 5550:600 Biomechanics Applied to Sports and Physical Activity  
  - 5550:518 Cardiorespiratory Function  
  - 3100:565 Advanced Cardiovascular Physiology  
  - 5550:615 Current Topics in Exercise Physiology  
  - 5550:605 Physiology of Muscular Activity and Exercise  
  - 5550:505 Advanced Strength and Conditioning  
  - 5550:620 Laboratory Instrumentation Techniques in Exercise Physiology  
  - 5550:526 Nutrition in Sports  

- **Required Clinical Experience (2 credits minimum):**
  - 5550:659 Field Experience: Master’s  
  - 5550:698 Master’s Problem  
  - 5550:699 Master’s Thesis  

- **Electives (3 credit minimum) - select at least one course from the list below:**
  - 5550:522 Sports Planning and Promotion  
  - 5550:538 Cardiac Rehab Principles  
  - 5550:601 Sports Administration and Supervision  
  - 5550:609 Motivational Aspects of Physical Activity  
  - 5550:612 General Medical Aspects  
  - 5550:660 Special Topics in Physical Education

**Sport Science/Coaching Option (555109MS)**

This sport science program option has been designed to meet the needs of individuals interested in advanced training to prepare for a career in the sport indus-
try. Students are prepared to pursue career opportunities in high school, college and recreational sport, coaching and instruction. Additionally, students pursue opportunities related to a career in high school, college or professional sport administration or continue a career in teaching and coaching at the secondary level.

Admission Requirements

In addition to the graduate application and official transcripts applicants must submit a statement of purpose and three letters of recommendation. Applications to the master's program in Sport Science/Coaching must be completed and submitted at least six weeks (domestic) or six months (international) before the beginning of the term for which admission is sought in order to allow for adequate processing time.

Degree Requirements

• Required Foundation Courses (6 credits)
  5550:604 Current Issues in Sport and Physical Education 3
  5100:624 Seminar Educational Psychology and 3
  5100:640 Using Research to Inform Practice 3

• Required Courses (17 credits)
  5550:553 Principles of Coaching 3
  5550:562 Legal Aspects of Physical Activity 2
  5550:601 Sports Administration and Supervision 3
  5550:602 Motor Behavior Applied to Sport 3
  5550:603 Tactics and Strategies in the Science of Coaching 3
  5550:609 Motivational Aspects of Physical Activity 3

Choose one area of concentration in sport administration or coaching:

• Sport Administration (11-12 credits)
  5550:522 Sport Planning and Promotion 3
  5550:524 Sport Leadership 3
  5550:630 Business of Sport 3

• Coaching (10-12 credits)
  5550:540 Injury Management for Teachers and Coaches 2
  5550:528 Nutrition for Teachers and Coaches 3
  5550:605 Physiology of Muscular Activity and Exercise 3

• Electives (0-2 credits)
  5550:695 Field Experience: Master's 2 (minimum)
  5550:698 Master's Problem or
  5550:699 Master's Thesis 2 (minimum)

• Coaching (10-12 credits)
  5550:540 Injury Management for Teachers and Coaches 2
  5550:528 Nutrition for Teachers and Coaches 3
  5550:605 Physiology of Muscular Activity and Exercise 3

• Electives (0-2 credits)
  5550:695 Field Experience: Master's 2 (minimum)
  5550:698 Master's Problem or
  5550:699 Master's Thesis 2 (minimum)

Total Program for Coaching concentration 33-35

Social Work

(H75000MSW)

The Master of Social Work Program is a joint degree program administered by The University of Akron and Cleveland State University. The Joint MSW Program began in 1995. Distance learning technology, utilizing interactive video and audio systems, links faculty and students at the two institutions. The degree program is accredited by the Council on Social Work Education.

The curriculum of the Joint MSW Program is designed to prepare students for advanced level professional practice in social work. The program provides a rigorous intellectual base, an opportunity for effective skill development, and an educational perspective that views human diversity as desirable and enriching to society. 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 the application fee
• An official transcript from each college or university attended (must include content in liberal arts coursework) sent directly to the Graduate School.

The applicant must submit the following 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 personal or professional objectives;
  c) his/her views regarding diversity in society;
  d) a situation in which he/she was the recipient/provider of help, emotionally, socially, or economically, 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.
• Preferred Program Format Form.

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 all coursework taken prior to application for admission to the Joint MSW full-time or part-time program.
• 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. Students must indicate their intention to enroll by the deadline indicated in the letter of acceptance.

The Advanced Standing option is an accelerated track of the MSW program that is completed in 11 months. Enrollment for the Advanced Standing is highly competitive, and limited to applicants who have excelled in all elements of an undergraduate social work program accredited by the Council on Social Work Education. Students should indicate their preference for Advanced Standing in their application to the MSW program. The requirements for Advanced Standing include:

• A baccalaureate degree in social work completed within the last five years from a program accredited by the Council on Social Work Education.
• A minimum overall GPA of 3.2 and a minimum GPA in social work courses of 3.5 on a 4.0 scale;
• Demonstration of superior performance in field practicum as evidenced by submission of undergraduate field evaluations;
• For students graduating in May, acceptance will be contingent upon receipt of a final transcript and proof of BSW degree.

Applicants not accepted into Advanced Standing placement will be notified in writing of their option to enter the pool for admission into the full-time or part-time programs.

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. All individuals applying for a social work license in the state of Ohio are required to submit a criminal records check.

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 Education. The credits 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
  7750:675 Program Evaluation 3
  Two electives 6

Second Year Concentrations (Macro Practice):
- Fall Semester
  7750:603 Advanced Field Practicum 3
  7750:611 Dynamics of Racism and Discrimination 3
  7750:674 Community, Economic Systems and Social Policy Analysis 3
  7750:672 Community Organization and Planning 3
- Spring Semester
  7750:604 Advanced Field Practicum 3
  7750:671 Social Work Administration 3
  7750:674 Community, Economic Systems and Social Policy Analysis 3
  One elective 3

Part-Time Program
Professional Foundation:
- Fall Semester (First Year)
  7750:631 HSBE: Small Systems 3
  7750:646 Social Welfare Policy I 3
- Spring Semester (First Year)
  7750:632 HSBE: Large Systems 3
  7750:647 Social Welfare Policy II 3
- Fall Semester (Second Year)
  7750:622 Fundamentals of Research I 3
  7750:605 Social Work Practice with Small Systems 3
  7750:601 Foundation Field Practicum 3
- Spring Semester (Second Year)
  7750:623 Fundamentals of Research II 3
  7750:606 Social Work Practice with Large Systems 3
  7750:602 Foundation Field Practicum 3

Concentrations (Direct Practice):
- Fall Semester (Third Year)
  7750:611 Dynamics of Racism and Discrimination 3
  7750:683 Psychopathology and Social Work 3
- Spring Semester (Third Year)
  7750:675 Program Evaluation 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)
  7750:671 Social Work Administration 3
  One elective 3
- Fall Semester (Fourth Year)
  7750:672 Community Organization and Planning 3
  7750:603 Advanced Field Practicum 3
- Spring Semester (Fourth Year)
  7750:673 Strategies of Community Organization 3
  7750:675 Program Evaluation 3
  7750:604 Advanced Field Practicum 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
  7750:607 Advanced Practice with Small Systems I 3
  7750:603 Advanced Field Practicum 3
- Spring Semester
  7750:675 Program Evaluation 3
  7750:608 Advanced Practice with Small Systems II 3
  7750:604 Advanced Field Practicum 3
  Two electives 6

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
  7750:675 Program Evaluation 3
  7750:604 Advanced Field Practicum 3
  One elective 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.
Nursing

The School of Nursing 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 School of Nursing supports nursing research that contributes to the health and well-being of society. The school 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 School 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 is connected to others in the environment in biological, psychological, social, spiritual, cultural and other dimensions. The individual is unique and universal. The individual is a 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, non-disease and quality of life. People have the right to participate in decisions affecting and effecting personal health. Environment includes all living and nonliving dimensions with which the individual, family and community have interrelationships. The dynamic environmental interrelations define and establish rules for health and modes of action. Nursing is an art and a science. The discipline of nursing is concerned with individual, family and community and their responses to health within the context of the 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 a nurse generalist in a variety of settings. Faculty and student continually seek to refine the commitment to and understanding of the relationship between theory and practice. Students are encouraged to become self-directed, collaborative, interdependent and independent. These variables are the foundation for life-long learning and professional development.

Nursing education at the master's level builds upon baccalaureate nursing 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.

Master of Science in Nursing

Accreditation

The master's degree program at The University of Akron is accredited by the Commission on Collegiate Nursing Education (CCNE), 655 K Street, NW, Suite 23, Washington, DC 20001, (202) 887-6791.

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 program accredited by the National League for Nursing Accreditation Commission or Commission on Collegiate Nursing Education.*
- 3.00 GPA on a 4.00 scale for BSN and all previous nursing degrees.
- CCRN certification required prior to interview for the Nurse Anesthesia program.
- 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.
- Prerequisite course requirements: Undergraduate Statistics, Nursing Research, Basic Health Assessment and Computer Skills. Graduate Level Statistics.

Applicants for the clinical tracks are required to have a minimum of 12 months registered nurse experience current within the last five years. The RN experience must be relevant to the area of interest.

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

All application materials for the Nurse Anesthesia program must be received by August 1. Once accepted into the School of Nursing MSN program candidates may begin taking core courses. Candidates may be eligible to interview for the program in October. Students admitted into the program will begin anesthesia classes in June of the following year. A minimum of one year of adult critical care experience is required at the time of the October interview for the Nurse Anesthesia program.

Admission Procedures

The student should access the online graduate application through the Graduate School webpage. Questions regarding admissions may be directed to the School of Nursing Graduate Program Office (330) 972-7555.

The School of Nursing Graduate Admission and Progression Committee and the Assistant Director of Graduate Programs will review and make decisions for applications. The admit decision will be sent to the Graduate School. Applicants will receive notification of the admission decision via an e-letter from the Graduate School and a letter from the School of Nursing.

Applications received in the graduate office of the School of Nursing will be reviewed when the file is complete.

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

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, Family Psychiatric Mental 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, information management 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 8200:616 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 RNs 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 upper-division baccalaureate coursework. Students wishing to begin work on the Master’s degree RN/MSN option may do so while meeting the baccalaureate requirements and must apply to the graduate program in the fall or early spring prior to graduation. 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.
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:
8200:603 Theoretical Basis for Nursing 3
8200:606 Information Management in Advanced Nursing Practice 3
8200:607 Policy Issues in Nursing 2
8200:608 Pathophysiological Concepts of Nursing Care 3
8200:613 Nursing Inquiry I: Promoting a Spirit of Inquiry 3
8200:618 Nursing Inquiry II 3
8200:699 Master’s Thesis 1-6

Functional role courses selected by students based upon area of specialty.
(*) Nurse Anesthesia students take 8200:561 and 8200:562. Nursing Service Administration students may take Pathophysiological Concepts of Nursing Care or choose from an approved elective.

• Nurse Anesthesia
(820300MSN)
The Anesthesia Program (60 credit hours) is accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs (COA). The Nurse Anesthesia track meets certification requirements through American Association of Nurse Anesthetists’ Council on Certification of Nurse Anesthetists (CCNA).
8200:561 Advanced Physiological Concepts in Health Care I 3
8200:562 Advanced Physiological Concepts in Health Care II 3
8200:609 Advanced Pathophysiology for Nurse Anesthetists 3
8200:637 Nurse Anesthesia Residency I 4
8200:640 Scientific Components of Nurse Anesthesia 3
8200:641 Advanced Pharmacology for Nurse Anesthesia I 3
8200:642 Introduction to Nurse Anesthesia 2
8200:643 Advanced Health Assessment and Principles of Nurse Anesthesia I 4
8200:644 Advanced Pharmacology for Nurse Anesthesia II 3
8200:645 Advanced Health Assessment and Principles of Nurse Anesthesia II 4
8200:646 Advanced Pharmacology for Nurse Anesthesia II 4
8200:647 Professional Role Seminar 2
8200:648 Nurse Anesthesia Residency III 4
8200:649 Nurse Anesthesia Residency IV 4

• CRNA-MSN Anesthesia Option
8200:640 Scientific Components of Nurse Anesthesia 3
8200:641 Advanced Pharmacology for Nurse Anesthesia I 3
8200:642 Introduction to Nurse Anesthesia 2
8200:643 Advanced Health Assessment and Principles of Nurse Anesthesia I 4
8200:644 Advanced Pharmacology for Nurse Anesthesia II 3
8200:645 Advanced Health Assessment and Principles of Nurse Anesthesia II 4
8200:647 Professional Role Seminar 2

• Child and Adolescent Health Clinical Nurse Specialist
(820304MSN)
The Child and Adolescent Health Clinical Nurse Specialist track (45 credit hours) prepares the student to meet criteria for certification through American Nurses Credentialing Center (ANCC) to function as a Pediatric Clinical Nurse Specialist across the health continuum. Students in the Child/Adolescent Health specialties must achieve a B- or higher in core specialty courses: 8200:608, 8200:650, and 8200:656 and in all specialty clinical track courses.
7760:585 Seminar in Health Professions 1-3
8200:650 Advanced 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
8200:659 Child and Adolescent Health Nursing IV Practicum 2
8200:660 Child and Adolescent Health Nursing IV 3

• Child and Adolescent Acute Care Nurse Practitioner
(820401MSN)
The Child and Adolescent Acute Care Nurse Practitioner track (45 credit hours) focuses on the integration of evidenced based knowledge and skills in acute/critical care with children and adolescents with complex, acute, critical, and chronic health conditions. Emphasis is on advanced practice in emergency departments, sub-specialty clinics, acute areas of hospitals, and intensive care units with children with complex, acute, critical, and chronic health conditions. Students in the Child/Adolescent Health specialties must achieve a B- or higher in core specialty courses: 8200:608, 8200:650, and 8200:656 and in all specialty clinical track courses.
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
8200:655 Child and Adolescent Health Nursing III 3
8200:656 Pharmacology for Child and Adolescent Health Nursing 3
8200:658 Child and Adolescent Health Nursing-Acute Care III 3
8200:658 Child and Adolescent Health Nursing-Acute Care III Practicum 2
8200:658 Child and Adolescent Health Nursing-Acute Care IV 3
8200:658 Child and Adolescent Health Nursing-Acute Care IV Practicum 2

• Child and Adolescent Health Nurse Practitioner Primary Health Care
(820301MSN)
The Child and Adolescent Health Nurse Practitioner track (Primary Health Care) (45 credit hours) meets certification requirements through the American Nurses Credentialing Center (ANCC) and the Pediatric Council for Pediatric Nurse Practitioners and Nurses (PCBPNPN). Emphasis is on the primary health care needs of children and adolescents. Students in the Child/Adolescent Health specialties must achieve a B- or higher in core specialty courses: 8200:608, 8200:650, and 8200:656 and in all specialty clinical track courses.
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
8200:655 Child and Adolescent Health Nursing III Practicum 2
8200:655 Child and Adolescent Health Nursing III 3
8200:656 Pharmacology for Child and Adolescent Health Nursing 3
8200:657 Child and Adolescent Health Nursing III 3
8200:659 Child and Adolescent Health Nursing IV Practicum 2
8200:660 Child and Adolescent Health Nursing IV 3

• Child and Adolescent Health Nurse Practitioner (Primary/Acute Care)
(820300MSN)
The Child and Adolescent Health Nurse Practitioner track (Primary/Acute Care) (45 credit hours) focuses on the integration of evidenced based knowledge and skills in primary and acute care with children with complex, acute, critical, and chronic health conditions. Emphasis is on advanced practice in emergency departments, sub-specialty clinics, acute areas of hospitals, and intensive care units with children with complex, acute, critical, and chronic health conditions. Students in the Child/Adolescent Health specialties must achieve a B- or higher in core specialty courses: 8200:608, 8200:650, and 8200:656 and in all specialty clinical track courses.
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
8200:655 Child and Adolescent Health Nursing III Practicum 2
8200:655 Child and Adolescent Health Nursing III 3
8200:656 Pharmacology for Child and Adolescent Health Nursing 3
8200:657 Child and Adolescent Health Nursing III 3
8200:659 Child and Adolescent Health Nursing IV Practicum 2
8200:660 Child and Adolescent Health Nursing IV 3

• Child and Adolescent Health Nurse Practitioner (Primary/Acute Care)
(820300MSN)
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

**Program Requirements:**

- **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:**
  8200:670 Psychiatric Mental Health Synthesis APN IV 3
  8200:671 Adult/Gerontological Health Nursing CNS I 2
  8200:672 Adult/Gerontological Health Nursing CNS II 2
  8200:673 Adult/Gerontological Health Nursing CNS III 2
  8200:674 Adult/Gerontological Health Nursing CNS IV 2
  8200:675 Adult/Gerontological Health Nursing CNS V 2
  8200:676 Adult/Gerontological Health Nursing CNS VI 2
  8200:677 Adult/Gerontological Health Nursing CNS VII 2
  8200:678 Adult/Gerontological Health Nursing CNS VIII 2
  8200:679 Adult/Gerontological Health Nursing CNS IX 2
  8200:680 Clinical Management I 3
  8200:681 Clinical Management II 3
  8200:682 Clinical Management III 3

**Advanced Role Option**

- **Nursing Administration (36 credits)**
  (820370MSN)
  8200:630 Resource Management in Nursing Settings 3
  8200:632 Fiscal Management in Nursing Administration 3
  8200:633 Nursing Leadership in Nursing Organizations I 3
  8200:634 Nursing Leadership in Nursing Organizations II 3
  8200:635 Organizational Behavior in Nursing Settings 3
  8200:636 Practicum Nursing Administration I 2
  8200:639 Practicum Nursing Administration II 2

**Master of Public Health**

The Consortium of Eastern Ohio Master of Public Health (CEOMPH) program is a partnership between The University of Akron, Cleveland State University, Northern-early Ohio Medical University, Ohio University, and Youngstown State University. This nontraditional program is geared toward the working professional who would like to broaden his or her role in improving community health, enhance current job skills, or seek career advancement. Students are encouraged to move through the program as a cohort with core courses being taught on Saturday by interactive videoconferencing from one of our distance learning sites. Unique features of this program include the use of distance learning for the six core courses, including interactive videoconferencing and web-enhanced teaching. Elective courses may be taken at any of the partner universities. Core courses are taught on Saturday to accommodate working students. Student can choose electives toward their areas of interest. This MPH degree is a generalist degree. CEOMPH is accredited by the Council on Education and Public Health.

**Mission Statement**

The mission of the Consortium of Eastern Ohio Master of Public Health program is to provide accredited public health education designed for the working professional. It does this through a collaborative learning community, drawing on the collective resources of its five member institutions and partnering community agencies. The program strives to produce respected and competent professionals able to improve public health practice, especially in eastern Ohio.

**Values**

- Improving, preserving, and enhancing the health and well-being of the entire community.
- Engaging in collaborative behavior that models as well as educates.
- Achieving student excellence, including leadership, accountability, and ethical behavior.
- Protecting the environment, recognizing and reducing environmental health risks, and using resources prudently in our personal and professional lives.
- Promoting diversity in the public health workforce.
- Demonstrating cultural competence.
- Commitment to lifelong learning.

**Goals**

- Provide graduates with a foundation of public health skills and knowledge, including community assessment methods, analytic skills, research strategies, program implementation, evaluation, and policy development within an ethical and culturally sensitive perspective.
- Provide an MPH program that produces competent practitioners through collaboration among academicians, researchers, public health practitioners, and students from each member institution and the eastern Ohio community.
• Provide students with the knowledge and opportunities to apply public health concepts and skills to assess and improve the health status of residents of Ohio through research and service.

• Foster ongoing professional development of faculty and students and public health practitioners for the advancement of practice in the community.

• Assure at least an annual evaluation of overall program activity so that it continues to meet the needs of both students and the eastern Ohio community and is based on the most current concepts and skills in public health research and practice.

Admission

All application materials must be sent to Consortium of Eastern Ohio Master of Public Health office, 4209 State Route 44, P.O. Box 95, Rootstown, Ohio 44272-0095. Students must meet the following admission requirements:

• Submit completed application by January 15 of the year student is seeking to enter in the fall

• Possess a bachelor’s degree from an accredited college or university

• Provide official academic records from each institution of higher education attended. If the official record is not in English, an official translation must accompany the original language document.

• Minimum undergraduate GPA of 2.75 and minimum graduate GPA of 3.0 out of a 4.0 scale

• Three letters of recommendation from individuals familiar with applicant’s academic or professional background. Individuals who have not been involved in an academic institution for two years or more may submit letters of recommendation by supervisors from his/her place of employment. The letters should include an assessment of current work quality and ability to successfully complete graduate training. Letters should be addressed to the CEOMPH Admissions Committee at the above address.

• A cover letter (no more than two pages) explaining applicant’s educational and professional history; area of interest in public health, interest and motivation for seeking a MPH degree; and professional or academic career plans upon completion of the program.

• Successful completion of a college level mathematics or statistics course and college level social or natural science course.

• GRE scores taken within the last five years. Results from other equivalent standardized tests taken within the last five years may be used for admission. Accepted tests include DAT, GMAT, LSAT, MCAT, and PCAT.

• TOEFL scores taken within the last two years from graduates of foreign universities who are non-native English speakers. The minimum score must be 550 (paper-based) or 213 (computer-based) or 79-80 with read/speak/listen=17, write=14 (internet-based)

• Two years of work experience in a relevant field is highly recommended, but not required.

• $45 non-refundable application fee. Students with international credentials must pay a total of $90.

• International students must also complete an INTERNATIONAL STUDENT DOCUMENTATION PACKET, Declaration and Certification of Finances (DCF), and meet the requirements.

• Applications are considered at additional times throughout the summer. For administrative purposes, students will be enrolled at one of the four universities: UA, CSU, OU, or YSU. If accepted, the Consortium of Eastern Ohio Master of Public Health (CEOMPH) Admissions Committee will assign students an “enrollment university,” based on his/her preference. Questions may be addressed in writing to the above address or applicants may contact the MPH Program office by telephone at (330) 325-6179, fax (330) 325-5907, or e-mail at pubhlth@neomed.edu. The Program Coordinator at The University of Akron may be reached at (330) 972-5930 or (330) 972-7555.

Curriculum

The MPH program contains five core areas basic to public health: social and behavioral sciences, epidemiology, biostatistics, health services administration, and environmental health sciences.

• Core courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>8300:601</td>
<td>Public Health Concepts</td>
<td>3</td>
</tr>
<tr>
<td>8300:602</td>
<td>Social and Behavioral Sciences in Public Health</td>
<td>3</td>
</tr>
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<td>8300:603</td>
<td>Epidemiology in Public Health</td>
<td>3</td>
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<td>8300:604</td>
<td>Biostatistics in Public Health</td>
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<td>8300:605</td>
<td>Health Services Administration in Public Health</td>
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</tr>
<tr>
<td>8300:606</td>
<td>Environmental Health Sciences in Public Health</td>
<td>3</td>
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• Generalist Track (required):

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<tr>
<td>8300:608</td>
<td>Public Health Practice and Issues</td>
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</tr>
<tr>
<td>8300:610</td>
<td>Grant Writing for Public Health Practice</td>
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• Additional program requirements:

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<tr>
<td>8300:698</td>
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<td>8300:699</td>
<td>Capstone Project II</td>
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Electives (12 credits):

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<td>8300:695</td>
<td>Independent Study</td>
<td>1-3</td>
</tr>
<tr>
<td>8300:680-689</td>
<td>Special Topics</td>
<td>1-5</td>
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<tr>
<td></td>
<td>Total</td>
<td>42</td>
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</tbody>
</table>

A portfolio and exit presentation are also required of each student for graduation.
College of Polymer Science and Polymer Engineering

Eric J. Amis, Ph.D., Dean
Mark D. Foster, Ph.D., Associate Dean of Programs, Policies, and Engagement
Robert A. Weiss, Ph.D., Associate Dean for Research

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. Whitty, 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 and became the Institute of Polymer Science in 1964. A Ph.D. program in Polymer Chemistry was introduced in 1956. In 1967, a Department of Polymer Science was formed in the College of Arts and Sciences, awarding M.S. and Ph.D. degrees in Polymer Science.

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.

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 meets 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, and the Institute of Polymer Science and Polymer Engineering. The Department of Polymer Science emphasizes polymer synthesis, the physical chemistry, physics and mechanical behavior and technology of polymers, and many of their applications. The Department of Polymer Engineering emphasizes 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 members in the two departments is common and provides a unique environment and capability for solving modern-day problems. This provides a stimulating environment for students to obtain multidisciplinary training.

ADMISSION REQUIREMENTS

Admission to the graduate programs in the college is 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 3.0 or better may apply. Students holding a degree in biology or natural sciences will be expected to take additional courses on the undergraduate level in calculus, organic chemistry, thermodynamics, and physics. For highly qualified students lacking no more than one of the required courses a provisional admission may be given for one semester, followed by full admission upon completion of the undergraduate course.

In addition to the graduate application and official transcripts applicants must submit three letters of recommendation, a statement of purpose, and GRE scores.

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

All application materials must be received by December 15 for early consideration. The final deadline for all applicants is February 1.

DEPARTMENT OF POLYMER ENGINEERING

Students with an undergraduate degree in engineering disciplines, materials science, 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 polymer engineering courses. For such students, depending upon their background, a provisional admission may be given followed by full admission upon successful completion of a series of required remedial courses.

In addition to the graduate application and official transcripts applicants must submit three letters of recommendation and GRE general test scores.

A student with a M.S. in Mechanical or Chemical Engineering from another university can be admitted to the Ph.D. program. Three letters of recommendation are required as well as GRE general test scores.

Applications are processed throughout the year for fall semester admission; however, priority consideration is given to those applicants whose materials are received by January 15 each year.

DOCTOR OF PHILOSOPHY

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

Doctor of Philosophy in Polymer Science

(987010PHD)

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 84 credits (exclusive of Master of Science thesis credit). Credits for participation in either Polymer Science or Polymer Engineering seminars do not apply toward the degree. At least 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 17 credits among the following core courses (2 credits each) in polymer science:

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

• Complete a course of study prescribed by the student’s advisory committee based on the committee’s judgment of the student’s background and on the result of any special examinations it might impose. This course will consist of a minimum of, but usually more than, 36 credits in graduate courses, or their equivalent, plus sufficient Ph.D. research credits to make a total of 84 credits (exclusive of Master of Science thesis credit). Credits for participation in either Polymer Science or 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 17 credits among the following core courses (2 credits each) in polymer science:
Doctor of Philosophy in Polymer Engineering (984010PHD)

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 PhD 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:

- Complete courses as developed in a plan of study approved by the student’s advisor and the department chair. 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 of the 60 credits must be dissertation research.
- Polymer engineering core (12 credits):
  - 9841:611 Fundamentals of Polymer Structure Characterization 3
  - 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 Polymer Chemistry and Thermodynamics 3
- Polymer Engineering 600-level electives (9 credits):
  - 9841:601 Polymer Engineering Seminar 1
  - 9841:623 Analysis and Design of Polymer Processing Operations II 3
  - 9841:650 Introduction to Polymer Engineering 3
  - 9841:651 Polymer Engineering Laboratory 3
  - 9841:661 Polymerization Reactor Engineering 3
  - 9841:675 Carbon-Polymer Nanotechnology 3
  - 9841:880 Polymer Coatings 3

The Committee recommends 9841:651 to be compulsory for all full-time Ph.D. students, but it may be exempted as an elective for part-time students who are currently employed in polymer and related industries.

Doctoral students are also required to take 9841:601 four (4) times. While the one credit earned in this course will count only one time toward degree requirements, all grades will be counted and calculated into the student’s GPA.

- Mathematics electives (3 credits):
  - 3450:xxx Approved Mathematics 3
- Technical electives (2 credits):
  - 3450:xxx Approved Mathematics 3
  - 4300:681 Advanced Engineering Materials 3
  - 4600:622 Continuum Mechanics 3
  - 9840:xxx Approved Polymer Engineering 3
  - 9871:613 Polymer Science Laboratory 3
  - 9871:674 Polymer Structure and Characterization 2
  - 9871:675 Polymer Thermodynamics 2

- Polymer Engineering 700-level electives (10 credits):
  - 9841:7xx Electives 10

Electives may be taken from other departments such as polymer science, chemical engineering, mechanical engineering, physics, mathematics, computer science, or other engineering departments with the advisor’s approval.

- 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 (e.g., computer skill/statistics) is required for the Ph.D. degree in Polymer Engineering, using either Plan A, B, or C (see section under “Language Requirements” as described in this publication).
  - 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 (at his/her own expense) or graduate level courses 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 six one-hour qualifying examinations within three semesters after admission into the program. The examinations shall cover graduate courses that the student has completed and basic undergraduate topics.
  - Each doctoral student must (1) pass a candidacy exam and (2) must present his/her research proposal for approval by the advisory committee within three years of entry into the program.
  - 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.
  - 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.

Masters Degree

Students may pursue Master of Science degrees in either Polymer Science or Polymer Engineering. Admission requirements to the master’s program are the same as those for the doctoral program as listed on page 86 of this bulletin.

Master of Science in Polymer Science (987010MS)

- A minimum of 24 credits in appropriate courses in biology, chemistry, mathematics, physics, polymer science and engineering as prescribed by the advisory committee:
  - Completion of 11 of credits in the following required core courses in polymer science: 9871:601 Polymer Concepts; 613 Polymer Science Laboratory; 631 Physical Properties of Polymers I; 674 Polymer Structure and Characterization; 701 Polymer Technology.
  - Completion of 13 credit hours of elective courses appropriate to each student’s area of interest.
  - Completion of a research project (9871:699) and the resulting 6 credits.
  - Attendance at and participation in seminar-type discussions scheduled by the department. Credits for participation in either polymer science or polymer engineering seminars do not apply toward the degree.
  - Demonstrated competence in computer skills.
  - At least 12 credits of graduate coursework and all theses credits must be completed at the University.
  - Pass one cumulative exam.
**BS Natural Sciences-Polymer Chemistry/MS Polymer Science**

(987012MS)

In Northeast Ohio there is a growing demand for professionals trained in polymer chemistry. The polymer industry is one of the major industrial sectors of the economy of Ohio. The BS/MS Polymer Chemistry program was instituted to prepare students for jobs in this area. The program provides a quality undergraduate science degree coupled with a graduate degree from one of the premier polymer programs in the country.

Students who are admitted to this program can complete the undergraduate phase of the course of study in three years and then immediately begin graduate studies in polymer science. Under rare circumstances, a student can complete the undergraduate phase in four years after approval of his/her advisors. A student not proceeding to the graduate program in polymer science may complete the degree requirements for the BS Natural Sciences (Polymer Chemistry Concentration).

Students earn a bachelor’s degree in Natural Sciences from the Buchtel College of Arts and Sciences that is heavily weighted toward chemistry. They will be assigned an advisor in the Department of Chemistry and a co-advisor in the Department of Polymer Science, who will advise them throughout their undergraduate program. Once the undergraduate degree is completed students begin studies to earn a Master’s of Science from the College of Polymer Science and Polymer Engineering that will require two years of courses and research. The graduate degree requirements for the master’s portion of this accelerated program are the same requirements as those for the traditional master’s program in polymer science.

**BE/MS Program with BE in Polymer Materials and Engineering at Beijing University of Chemical Technology and MS Polymer Science at UA**

(987013MS)

This five-year program involves initial completion of three years of BE coursework in Polymer Materials and Engineering at BUCT followed by two years of graduate coursework and research in the Department of Polymer Science at The University of Akron. BUCT will award the BE degree in Polymer Materials and Engineering to the students of this program after completion of the fourth year of coursework at The University of Akron.

Students will be admitted in the MS program at The University of Akron after completing the third year of BE coursework. Students must be admitted into both the BE/MS program will consult the faculty counselors both at BUCT and The University of Akron during their study at BUCT. The Graduate School at The University of Akron will handle their admission using a special category, and the admission committee of the Department of Polymer Science will evaluate the applications of potential students for the second year. The graduate degree requirements for the master’s portion of this accelerated program are the same requirements as those for the traditional master’s program in polymer science.

**Master of Science in Polymer Engineering**

(984010MSPE)

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

Students in Polymer Engineering will earn the degree of Master of Science in Polymer Engineering. Requirements for the degree are as follows:

- Complete courses as developed in a plan of study approved by the student’s advisor and the department chair. A minimum of 30 credits of graduate coursework must be earned. A total of 24 credit hours of lecture courses and 6 credit hours of research must be completed.
- Polymer engineering core (12 credits):
  - 9841:611 Fundamentals of Polymer Structure Characterization
  - 9841:621 Rheology of Polymeric Fluids
  - 9841:622 Analysis and Design of Polymer Processing Operations I
  - 9841:631 Engineering Properties of Solid Polymers
  - 9841:641 Polymer Chemistry and Thermodynamics
- Polymer engineering 600-level electives (6 credits):
  - 9841:601 Polymer Engineering Seminar
  - 9841:623 Analysis and Design of Polymer Processing Operations II
  - 9841:650 Introduction to Polymer Engineering
  - 9841:651 Polymer Engineering Laboratory
  - 9841:661 Polymerization Reactor Engineering
  - 9841:675 Carbon-Polymer Nanotechnology
  - 9841:680 Polymer Coatings

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.

Master’s students are also required to take 9841:601 two (2) times. While the one credit earned in this course will count only one time toward degree requirements, both grades will be counted and calculated into the student’s GPA.

- Technical electives (6 credits):
  - 3450:xxx Approved Mathematics
  - 4300:681 Advanced Engineering Materials
  - 4600:622 Continuum Mechanics
  - 9841:601 Approved Polymer Engineering
  - 9871:613 Polymer Science Laboratory
  - 9871:674 Polymer Structure and Characterization

- Thesis (6 credits):
  - 9841:699 Master’s Thesis

- 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 (at his/her own expense) or graduate level courses 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.

- Each candidate must pass an oral examination in defense of the thesis.

- Submit the written master’s thesis to the Graduate School by the required deadlines.

**BS/MS Program in Applied Mathematics/Polymer Engineering**

(984021MSPE)

This is an accelerated five-year BS/MS program. After successfully completing this program, a student will receive a bachelor’s degree in applied mathematics as well as a master’s degree in polymer engineering. Under the supervision of faculty advisors in applied mathematics and polymer engineering, a student in the program will finish the core course requirements and most of the electives for the bachelor’s degree in the first three years. During the third year of the baccalaureate degree a student will formally apply to the program through the Graduate School. Upon acceptance a student will be cleared to 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. A student will be eligible for a graduate assistantship only in these last two years and must be registered for at least nine graduate credits in each of those semesters.

Graduate coursework will include:

- 3450:539 Advanced Engineering Mathematics II
- 9841:550 Engineering Properties of Polymers
- 9841:601 Polymer Engineering Seminar
- 9841:611 Fundamentals of Polymer Structure Characterization
- 9841:621 Rheology of Polymeric Fluids
- 9841:622 Analysis and Design of Polymer Processing Operations I
- 9841:641 Polymer Chemistry and Thermodynamics
- 9841:650 Introduction to Polymer Engineering
- 9841:651 Polymer Engineering Laboratory
- 9841:661 Polymerization Reactor Engineering
- 9841:68x Electives
- 9841:699 Master’s Thesis

*These courses will be applied to the requirements of both the bachelor’s and master’s degree.

**Master’s students are required to take 9841:601 two (2) times. While the one credit earned in this course will count only one time toward the degree requirement, both grades will be counted into the student’s GPA.

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 in applied mathematics or the Natural Sciences divisional major instead of the five-year accelerated plan.
### 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

(820007GC)

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>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8200:691</td>
<td>Acute Care Nurse Practitioner I</td>
<td>4</td>
</tr>
<tr>
<td>8200:692</td>
<td>Clinical Management II</td>
<td>3</td>
</tr>
<tr>
<td>8200:693</td>
<td>Acute Care Nurse Practitioner II</td>
<td>4</td>
</tr>
<tr>
<td>8200:695</td>
<td>Acute Care Nurse Practitioner III</td>
<td>4</td>
</tr>
<tr>
<td>8200:696</td>
<td>Clinical Reasoning</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

#### ADULT/GERONTOLOGICAL HEALTH NURSING CLINICAL NURSE SPECIALIST

(820104GC)

The Post-MSN certificate program of 10-12 credit hours is designed for those nurses with a Master’s Degree in Nursing who want to complete the additional coursework required to sit for national certification as a Clinical Nurse Specialist in Medical Surgical Nursing or Gerontological Nursing. The Post-MSN Adult/Gerontological Health Nursing CNS Certificate Program prepares nurses to assume advanced practice positions in a variety of complex health systems environments providing leadership in interdisciplinary care. Post-MSN students who do not have a clinical master’s degree will be assessed on an individual basis and may be required to take additional clinical coursework to achieve competencies required to be eligible to sit for certification.

#### Program of Study

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8200:606</td>
<td>Pathophysiological Concepts</td>
<td>3</td>
</tr>
<tr>
<td>8200:610</td>
<td>Advanced Adult/Gerontological Assessment</td>
<td>3</td>
</tr>
<tr>
<td>8200:612</td>
<td>Advanced Clinical Pharmacology</td>
<td>3</td>
</tr>
</tbody>
</table>
Post MSN Adult/Gerontological Health Nursing CNS Certificate Program Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8200:677</td>
<td>Adult/Gerontological Health Nursing CNS II</td>
<td>2</td>
</tr>
<tr>
<td>8200:678</td>
<td>Adult/Gerontological Health Nursing CNS III Practicum</td>
<td>2</td>
</tr>
<tr>
<td>8200:673</td>
<td>Adult/Gerontological Health Nursing CNS IV</td>
<td>1</td>
</tr>
<tr>
<td>8200:679</td>
<td>Adult/Gerontological Health Nursing CNS IV Practicum</td>
<td>3</td>
</tr>
<tr>
<td>8200:636</td>
<td>Adult/Gerontological Health Nursing CNS Residency</td>
<td>2-4</td>
</tr>
</tbody>
</table>

Total 10-12 credit hours contingent on individual program plan and completion of clinical hours required for certification.

**ADULT/GERONTOLOGICAL NURSE PRACTITIONER (82009GC)**

The Post-MSN certificate program is designed to prepare Adult/Gerontological Clinical Nurse Specialists who are seeking preparation in the role of nurse practitioner as providers of primary health care to adults and older adults. Upon completion of the 15 credit program, the student is eligible to sit for Nurse Practitioner certification examination.

**Admission Criteria**

- Hold an MSN degree from a professionally accredited nursing program (clinical master’s preferred).
- Have a minimum GPA of 3.0 on a 4.0 scale for MSN program.
- Minimum of 2-3 years recent clinical experience in adult or gerontological health care.
- Complete an application to The University of Akron Graduate School.
- Submit a 300 word essay describing professional goals.
- Submit a resume outlining prior education and work related experiences.
- Complete the following prerequisite courses: Advanced Pathophysiology, advanced assessment, advanced clinical pharmacology.
- Completion of an interview with the Adult/Gerontological Health Nursing faculty.

**Program of Study**

Students must complete a minimum of 735 clinical hours for eligibility to sit for certification.

**Required Courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8200:627</td>
<td>Adult/Gerontological Health Nursing NP I Practicum</td>
<td>2</td>
</tr>
<tr>
<td>8200:628</td>
<td>Adult/Gerontological Health Nursing NP II Practicum</td>
<td>2</td>
</tr>
<tr>
<td>8200:629</td>
<td>Adult/Gerontological Health Nursing NP III Practicum</td>
<td>2</td>
</tr>
<tr>
<td>8200:623</td>
<td>Adult/Gerontological Health Pracuticum NP</td>
<td>2</td>
</tr>
<tr>
<td>8200:690</td>
<td>Clinical Management I</td>
<td>3</td>
</tr>
<tr>
<td>8200:692</td>
<td>Clinical Management II</td>
<td>3</td>
</tr>
<tr>
<td>8200:694</td>
<td>Clinical Management III</td>
<td>3</td>
</tr>
</tbody>
</table>

Total 17 credits

**ADVANCED CERTIFICATE IN FAMILY CONFLICT AT THE CENTER FOR CONFLICT MANAGEMENT (300010GC)**

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:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3700:622</td>
<td>Seminar in Alternatives to Violence at Home and Abroad</td>
<td>3</td>
</tr>
<tr>
<td>3850:555</td>
<td>Family Violence</td>
<td>3</td>
</tr>
<tr>
<td>7400:585-007 Seminar: General Mediation Training</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>7400:585-007 Seminar: Divorce Mediation Training</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Elective Courses:** (choose two):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3700:690</td>
<td>Special Topics (conflict related)</td>
<td>1-3</td>
</tr>
<tr>
<td>9200:638**</td>
<td>Family Law</td>
<td>3</td>
</tr>
<tr>
<td>9200:694**</td>
<td>Alternative Dispute Resolution</td>
<td>3</td>
</tr>
</tbody>
</table>

**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 ROLE SPECIALIZATIONS IN NURSING MANAGEMENT AND BUSINESS (820101GC)**

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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8200:630</td>
<td>Resource Management in Nursing Settings</td>
<td>3</td>
</tr>
<tr>
<td>8200:632</td>
<td>Fiscal Management in Nursing Administration</td>
<td>3</td>
</tr>
<tr>
<td>8200:634</td>
<td>Nursing Leadership in Organizations II</td>
<td>3</td>
</tr>
<tr>
<td>8200:635</td>
<td>Organizational Behavior in Nursing Settings</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total credit hours** 12

**APPLIED POLITICS (370005GC)**

John C. Green, Ph.D., Director

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

**Requirements**

Persons are eligible for admission to the Certificate Program in Applied Politics if they have been admitted to study as full-time students, special, or non-degree in any department of the University. Students who are pursuing a graduate degree in other departments at the University may be admitted to the Master’s level certificate program upon the recommendation of the chair/director of the department/school in which they are enrolled. The student shall schedule courses with the assistance of an advisor at the earliest possible time.

**Core Courses (required –12 credits):**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3700:570</td>
<td>Campaign Management I</td>
<td>3</td>
</tr>
<tr>
<td>3700:571</td>
<td>Campaign Management II</td>
<td>3</td>
</tr>
<tr>
<td>3700:672</td>
<td>Seminar: Political Influence and Organizations</td>
<td>3</td>
</tr>
<tr>
<td>3700:695</td>
<td>Internship in Government and Politics</td>
<td>3</td>
</tr>
</tbody>
</table>

*To complete the certificate, students must submit a seminar paper and selected from the electives list to the Director of the Center for approval as a scholarly investigation of the issues surrounding global conflict.
Electives: (required – 6 credits):

Three credits selected from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3700:540</td>
<td>Survey Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>3700:572</td>
<td>Campaign Finance</td>
<td>3</td>
</tr>
<tr>
<td>3700:574</td>
<td>Political Opinion, Behavior and Electoral Policies</td>
<td>3</td>
</tr>
<tr>
<td>3700:577</td>
<td>Lobbying</td>
<td>3</td>
</tr>
<tr>
<td>7600:575</td>
<td>Political Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Three credits of additional course work from above or from approved courses from Political Science, Communication, Public Administration, or other departments.

Certificate

Upon completion of their degree, M.A. in Political Science students who have completed certificate requirements will be awarded an M.A. degree in Political Science with a Certificate in Applied Politics. Majors in other disciplines will be given a Certificate in Applied Politics and have the certificate noted on their transcript.

ASIAN STUDIES GRADUATE CERTIFICATE (340001GC)

Dr. Gang Zhao, Director
Department of History, (330) 972-2160 or gzha@uakron.edu

The graduate certificate in Asian Studies offers students a multidisciplinary course of study that will provide them with in-depth training in a special area that may be particularly useful as they pursue careers in such fields as Academia, Law, Public History, Education, Business, or Medicine where they will practice their profession abroad or use their international experience to expand their understanding of these regions as they work with topics on or populations from diverse societies in Asia. The certificate complements any graduate major and is also appropriate for students with a graduate degree who might like to return to the university for mid-career training.

Requirements

Two years of an Asian language (or equivalent), which serves as the program’s core requirement plus four courses of approved electives. A minimum 3.0 grade point average in the courses that will fulfill the certificate. The student must be in good academic standing in his/her major department if enrolled in a degree program.

Language Core:

The entering student who does not have proficiency in an Asian language will have to satisfy the language requirement by demonstrating competency in the equivalent of a fourth-semester level of his/her chosen language at the FS-1 level (U.S. Department of State) or equivalent level. Currently The University of Akron offers the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3500:101</td>
<td>Beginning Chinese</td>
<td>4</td>
</tr>
<tr>
<td>3500:102</td>
<td>Beginning Chinese II</td>
<td>4</td>
</tr>
<tr>
<td>3500:201</td>
<td>Intermediate Chinese</td>
<td>3</td>
</tr>
<tr>
<td>3500:202</td>
<td>Intermediate Chinese II</td>
<td>3</td>
</tr>
<tr>
<td>3560:101</td>
<td>Beginning Japanese</td>
<td>4</td>
</tr>
<tr>
<td>3560:102</td>
<td>Beginning Japanese II</td>
<td>4</td>
</tr>
<tr>
<td>3560:201</td>
<td>Intermediate Japanese</td>
<td>3</td>
</tr>
<tr>
<td>3560:202</td>
<td>Intermediate Japanese II</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Courses:

Complete four of the following courses. At least one must be outside the student’s major department. Exceptions or substitutions require approval from the Director. Credits will be provided with Director’s approval for study and certain experiences abroad in Asian countries.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3370:695</td>
<td>Field Studies in Geology*</td>
<td>3</td>
</tr>
<tr>
<td>3400:500</td>
<td>Women in Revolutionary China</td>
<td>3</td>
</tr>
<tr>
<td>3400:501</td>
<td>Japan and the Pacific War, 1895-1945</td>
<td>3</td>
</tr>
<tr>
<td>3400:516</td>
<td>Modern India</td>
<td>3</td>
</tr>
<tr>
<td>3400:596</td>
<td>Special Studies (in Asian History)</td>
<td>3</td>
</tr>
<tr>
<td>3400:610</td>
<td>Comparative Studies in World Civilization</td>
<td>4</td>
</tr>
<tr>
<td>3400:640</td>
<td>Reading Seminar: China</td>
<td>4</td>
</tr>
<tr>
<td>7100:501</td>
<td>Special Topics**</td>
<td>3</td>
</tr>
</tbody>
</table>

*Field Studies in Geology abroad counts for double credits.

**Recent 500-level Selected Topics in the School of Art have included “The Art of India,” “The Art of China,” “The Art of Korea and Japan,” and “The Art of Buddhist Japan.”

Courses with comparative content are encouraged. Any course that has significant Asian content (and for which the student has presented substantial written work on an Asian topic) may count toward the certificate program with the Director’s approval. Students should consult with the Director for help planning an appropriate course of study.

BUSINESS DUAL ENROLLMENT CERTIFICATE (602003GC)

This certificate enables secondary school teachers to teach dual enrollment courses in business. Applicants must have a valid State of Ohio teaching license.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6200:601</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>6400:655</td>
<td>Government and Business</td>
<td>3</td>
</tr>
<tr>
<td>6500:608</td>
<td>Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>6500:652</td>
<td>Managing People in Organizations</td>
<td>3</td>
</tr>
<tr>
<td>6600:620</td>
<td>Strategic marketing</td>
<td>3</td>
</tr>
<tr>
<td>6800:605</td>
<td>International Business Environments</td>
<td>3</td>
</tr>
</tbody>
</table>

CASE MANAGEMENT FOR CHILDREN AND FAMILIES (H40202GC)

Pamela A. Schulze, 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:

Be formally admitted to The University of Akron as a postbaccalaureate, graduate or non-degree graduate student.

Make written application to the program and receive written notification of admission from The Center for Family Studies.

Requirements

Core:

Students 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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7400:561</td>
<td>Case Management for Children and Families I</td>
<td>3</td>
</tr>
<tr>
<td>7400:562</td>
<td>Case Management for Children and Families II</td>
<td>3</td>
</tr>
<tr>
<td>7400:563</td>
<td>Practicum in Cross-Systems Case Management for</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Children and Families</td>
<td></td>
</tr>
</tbody>
</table>

Electives:

Students must successfully complete six credits of coursework selected from the various departmental courses listed below.

• Family and Consumer Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7400:501</td>
<td>American Families in Poverty (online)</td>
<td>3</td>
</tr>
<tr>
<td>7400:504</td>
<td>Middle Childhood and Adolescence (online)</td>
<td>3</td>
</tr>
<tr>
<td>7400:540</td>
<td>Family Crisis (online)</td>
<td>3</td>
</tr>
<tr>
<td>7400:546</td>
<td>Culture, Ethnicity and the Family (online)</td>
<td>3</td>
</tr>
<tr>
<td>7400:652</td>
<td>Family in Life-Span Perspective</td>
<td>3</td>
</tr>
<tr>
<td>7400:610</td>
<td>Child Development Theories</td>
<td>3</td>
</tr>
<tr>
<td>7400:651</td>
<td>Family and Consumer Law</td>
<td>3</td>
</tr>
<tr>
<td>7400:665</td>
<td>Development in Infancy and Early Childhood</td>
<td>3</td>
</tr>
</tbody>
</table>

• Home-Based Intervention

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>1620:503</td>
<td>Home-Based Intervention Theory</td>
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<tr>
<td>1620:504</td>
<td>Home-Based Intervention Techniques and Practice</td>
<td>3</td>
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</tbody>
</table>

CHILD AND ADOLESCENT HEALTH NURSE PRACTITIONER (820006GC)

The Post-MSN Child and Adolescent Health Nurse Practitioner certificate program is designed for those nurses who hold the Master of Science in Nursing degree and are seeking preparation for the role of the pediatric nurse practitioner. Upon completion of the 17 credit hour program, the students are eligible to sit for the pediatric nurse practitioner certification examination.

Admission

Admission criteria include the following:

Hold an MSN degree from a professionally accredited nursing program.

Minimum of a 3.0 GPA on a 4.0 scale for the master’s degree program.

A minimum of one year of clinical experience in a pediatric setting.

Complete an interview with the program coordinator.
Completion of the following prerequisite courses: Pathophysiological Concepts, Advanced Pediatric/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
8200:656 Pharmacology for Child and Adolescent Health Nursing 3
8200:658 Child and Adolescent NP Internship (required 4 credits) 1-4
Total 17

CHILD AND ADOLESCENT HEALTH NURSING-ACUTE CARE
(820103GC)

The Post-MSN Child and Adolescent Health Nursing-Acute Care certificate program is designed for those pediatric nurses who hold the MSN and are seeking preparation as pediatric acute care nurse practitioners. Post MSN students will be assessed on an individual basis and may be required to complete additional courses from the Child and Adolescent Health Nursing track in order to achieve the competencies required to sit for certification as a pediatric acute care nurse practitioner.

CAH Post-MSN Prerequisite Courses:
7400:585 Nutrition for the Pediatric Nurse Practitioner 2
8200:608 Pathophysiological Concepts of Nursing Care 3
8200:650 Advanced Pediatric/Adolescent Assessment 3
8200:656 Pharmacology for Child and Adolescent Health Nursing 3

CAH Post-MSN Certificate Program Courses:
8200:685 CAH Acute Care III 3
8200:686 CAH Acute Care III Practicum 2
8200:687 CAH Acute Care IV 3
8200:688 CAH Acute Care IV Practicum 2
Total 10

*One credit hour requires 75 hours of supervised clinical practice. Students may be required to complete additional acute care clinical hours to achieve required competencies to sit for certification and the CAH NP Residency.

COMPOSITION
(330002GC)

Lance Svehla, Ph.D., Director

Requirements

To be eligible for the certificate in composition, a person must be admitted to the University as a graduate student (with either full or provisional status). An eligible person interested in the program should contact the program director. Five courses in composition are required.

Required Courses (6 credits):
3300:673 Theories of Composition 3
3300:674 Research Methodologies in Composition 3
3300:676 Theory and Teaching of Basic Composition 3

Electives (9 credits from the following list chosen with certificate director):
3300:574 African American English 3
3300:577 Sociolinguistics 3
3300:578 Grammatical Structures of English 3
3300:589 Seminar in English 3
3300:600 Teaching College Composition Practicum 3
3300:625 Autobiographical Writing 3
3300:650 The New Rhetorics 3
3300:651 The Pragmatists 3
3300:660 Cultural Studies: Theory and Practice 3
3300:670 Modern Linguistics 3
3300:679 Scholarly Writing 3
3300:689 Seminar in English 2-3

DIVORCE MEDIATION
(H40201GC)

Pamela A. Schulze, 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 or be currently working toward a law degree, master’s degree, or doctoral degree in a behavioral science (e.g. psychology, social work, marriage and family therapy, counseling, child development, or family development) or other related discipline. Applicants planning to pursue the certificate must apply to the Center for Family Studies and the Graduate School for admission as non-degree students if not currently in a degree-seeking program. 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

Accounting:
6200:601 Financial Accounting 3
9200:621 Accounting for Lawyers 3

Family:
5600:655 Marriage and Family Therapy: Theory and Techniques 3
5600:667 Marital Therapy 3
7400:607 Family Dynamics 3

E-LEARNING
(510006GC)

This certificate program in e-Learning requires a minimum of 16 credit hours and is a fully accredited online program. 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. Courses are delivered in online, face-to-face, and blended formats that model e-Learning delivery modes. Applicants wishing to pursue only the certificate program must apply to the graduate school for admission as a non-degree student.

Requirements (16 credits):
5400:501 Learning with Technology 1
5150:631 Instructional Design 3
5150:632 Web-based Learning Systems 3
5150:633 Multimedia/Hypermedia 3
5150:639 Strategies for Online Teaching and Learning 3
5150:635 Emerging Technologies for Instruction 3
5150:638 Integrating and Implementing Technology 3
5150:696 Master’s Technology Project 2-3
Total 16

EDUCATIONAL ASSESSMENT AND EVALUATION
(510004GC)

The certificate in Educational Foundations emphasizing Educational Assessment and Evaluation prepares teachers and other educators to be leaders in the area of school-based assessment and evaluation. Students will develop skills in assessing a variety of student outcomes and in conducting classroom, school or building-level, and district-level evaluations. The certificate is offered fully online. Eighteen credit hours are required to earn the certificate. The following skill-set describes the overall goals of the program.

- Designing and implementing formative and summative assessments;
- Analyzing and interpreting assessment data to improve teaching and learning;
Electives (minimum of 14 credits):

- Applying evaluation theory and diverse approaches in authentic situations;
- Implementing assessment and evaluation to impact practices at the classroom, school, and district level;
- Locating, analyzing, interpreting, and using multiple data sources to make data-evidenced decisions.

Required Courses:

- 3400:593 Special Studies: Women, Film, and History (4 credits)
- 3700:512 Global Environmental Politics (3 credits)
- 3850:686 Population (3 credits)
- 4200:563 Pollution Control (3 credits)
- 4200:760 Advanced Pollution Control (3 credits)
- 4300:523 Chemistry for Environmental Engineers (3 credits)
- 4300:526 Environmental Engineering Design (3 credits)
- 4300:527 Water Quality Modeling and Management (3 credits)
- 4300:528 Hazardous and Solid Wastes (3 credits)
- 4300:620 Sanitary Engineering Problems (2 credits)
- 4300:621 Environmental Engineering Principles (4 credits)
- 4300:631 Soil Remediation (3 credits)
- 4300:731 Bioremediation (3 credits)
- 9200:661 Environmental Law (3 credits)

ENVIRONMENTAL ENGINEERING (430009GC)

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 an Environmental Engineering Certificate by completing a total of 18 credit hours.

- 4300:523 Chemistry for Environmental Engineers (3 credits)
- 4300:526 Environmental Engineering Design (3 credits)
- 4300:527 Water Quality Modeling and Management (3 credits)
- 4300:621 Environmental Engineering Principles (4 credits)
- 4300:623 Physical/Chemical Treatment Processes (3 credits)
- 4300:624 Biological Wastewater Treatment Processes (3 credits)
- 4300:631 Soil Remediation (3 credits)

ENVIRONMENTAL STUDIES (337004GC)

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. For advising please contact the Department of Geology and Environmental 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):

- 3370:580 Seminar in Environmental Studies (2 credits)

Electives (minimum of 14 credits):

- 3100:500 Food Plants (2 credits)
- 3100:521 Tropical Field Ecology (4 credits)
- 3100:526 Wetland Ecology (4 credits)
- 3100:660 Environmental Ecology (3 credits)
- 3100:624 Advanced Aquatic Ecology (4 credits)
- 3350:505 Geographic Information Systems (3 credits)
- 3350:507 Advanced Geographic Information Systems (3 credits)
- 3350:547 Remote Sensing (3 credits)
- 3350:549 Advanced Remote Sensing (3 credits)
- 3350:595 Soil and Water Field Studies (3 credits)
- 3370:511 Glacial Geology (3 credits)
- 3370:570 Geochemistry (3 credits)
- 3370:574 Groundwater Hydrology (3 credits)
- 3370:580 Seminar in Environmental Studies (2 credits)
- 3370:661 Geologic Record of Past Global Change (3 credits)
- 3370:674 Advanced Groundwater Hydrology (3 credits)
- 3400:571 American Environmental History (3 credits)
- 3470:561 Applied Statistics I (4 credits)
- 3700:512 Global Environmental Politics (3 credits)
- 3850:686 Population (3 credits)
- 4200:563 Pollution Control (3 credits)
- 4200:760 Advanced Pollution Control (3 credits)
- 4300:523 Chemistry for Environmental Engineers (3 credits)
- 4300:526 Environmental Engineering Design (3 credits)
- 4300:527 Water Quality Modeling and Management (3 credits)
- 4300:528 Hazardous and Solid Wastes (3 credits)
- 4300:620 Sanitary Engineering Problems (2 credits)
- 4300:621 Environmental Engineering Principles (4 credits)
- 4300:631 Soil Remediation (3 credits)
- 4300:731 Bioremediation (3 credits)
- 9200:661 Environmental Law (3 credits)

FAMILY NURSE PRACTITIONER CERTIFICATE FOR CERTIFIED PNPs (820106GC)

The Post-MSN Family Nurse Practitioner Certificate program is designed for those nurses who hold the master’s degree in Child and Adolescent Health or Pediatric Nursing, are certified as Pediatric Nurse Practitioners, and are seeking preparation to practice as a family nurse practitioner. Upon completion of the 16-18 credit hour program, students are eligible to sit for the family nurse practitioner certification examination.

Prerequisites:

- 5600:648 Individual and Family Development Across the Life-Span (3 credits)
- 8200:602 Advanced Adult/Gerontological Assessment/FNP (2 credits)
- 8200:612 Advanced Clinical Pharmacology (3 credits)

Required Courses:

- 8200:620 Adult/Gerontological Health Nursing I (2 credits)
- 8200:622 Adult/Gerontological Health Nursing III (2 credits)
- 8200:625 Primary Care of the OB Patient for the Family Nurse Practitioner I (2 credits)
- 8200:690 Clinical Management I (3 credits)
- 8200:692 Clinical Management II (3 credits)
- 8200:694 Clinical Management III (3 credits)
- 8200:626 Adult/Gerontological NP Residency (consisting of 225-300 clinical hours) (1-4 credits)

FAMILY NURSE PRACTITIONER CERTIFICATE FOR ADULT AND/OR GERONTOLOGICAL NPs (820107GC)

The Post-MSN Family Nurse Practitioner Certificate program is designed for those nurses who hold the master’s degree in Adult and/or Gerontological Nursing, are certified as Adult or Gerontological Nurse Practitioners, and are seeking preparation to practice as a family nurse practitioner. Upon completion of the 17-18 credit hour program, students are eligible to sit for the family nurse practitioner certification examination.

Prerequisites:

- 5600:648 Individual and Family Development Across the Life-Span (3 credits)
- 8200:616 Advanced Pediatric/Adolescent Assessment/FNP (2 credits)
- 8200:617 Advanced Pharmacology: Child/Adolescent Health Nursing/FNP (2 credits)
- 8200:625 Primary Care of the OB Patient for the Family Nurse Practitioner I (2 credits)
- 8200:651 Child and Adolescent Health Nursing I (3 credits)
- 8200:655 Child and Adolescent Health Nursing II (3 credits)
- 8200:658 CAH NP Residency (consisting of 225-300 clinical hours) (1-4 credits)

GRADUATE CERTIFICATE IN GENDER CONFLICT AT THE CENTER FOR CONFLICT MANAGEMENT (300014GC)

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 credits)
- 3850:547 Sociology of Sex and Gender (3 credits)

Electives:

- 3700:502 Politics and the Media (3 credits)
- 3700:622 Seminar in Alternatives to Violence at Home and Abroad (3 credits)
- 3850:646 Social Inequalities (3 credits)
- 3850:510 Social Structures and Personality (3 credits)
- 3850:541 Sociology of Law (3 credits)
- 3850:555 Family Violence (3 credits)
- 3850:753 ST: Gender and Crime (3 credits)
- 3320:516 Anthropology of Sex and Gender (3 credits)
- 3320:563 Social Anthropology (3 credits)
- 3300:589 Seminar in English: Subversive Women (3 credits)
- 3300:589 Seminar in English: British Women Writers (3 credits)
- 3300:589 Special Studies: Women, Film, and History (4 credits)
- 3400:669 Reading Seminar in American History Since 1877 (US Women’s History) (4 credits)
GRADUATE CERTIFICATE IN CROSS-CULTURAL NEGOTIATION
(370013GC: South and East Asia Track)
(370014GC: Middle Eastern Track)

South and East Asian Track

Conflict Core (6 credits):
3700:622 Alternatives to Violence at Home and Abroad 3
6600:575 Business Negotiations 3

Language Core (6 credits):
Complete second year Chinese or Japanese Language; or complete second language work in another South or East Asian Language at an institution approved by the Director; or an equivalent approved by the Director.

Electives (9 credits):
3250:560 Economics of Developing Countries 3
3250:561 Principles of International Economics 3
3400:516 Modern India 3
3400:500 Women in Revolutionary China 3
3400:610 Graduate Reading Seminar: Comparative Studies: World Civilization 3
3700:610 Seminar in International Politics 3
3700:620 Seminar in Comparative Politics 3
3850:555 Family Violence 3
3850:521 Racial and Ethnic Relations 3
5500:590 China for Educators 3
6600:630 International Marketing Policies 3
7600:550 Communication in Conflict 3
7600:645 Intercultural Communication Theory 3
9200:684* Alternative Dispute Resolution 3
3700:695 Internship (Student Conference on Cross-Cultural Negotiation or related project involving language immersion with approval of Director) 3-6

*Law School classes are offered on a space availability basis only.

Middle Eastern Track

Conflict Core (6 credits):
3700:622 Alternatives to Violence at Home and Abroad 3
6600:575 Business Negotiations 3

Language Core (6 credits):
Complete second year language work on a Middle Eastern Language at an institution approved by the Director; or an equivalent approved by the Director.

Electives (9 credits):
3250:560 Economics of Developing Countries 3
3250:561 Principles of International Economics 3
3400:516 Modern India 3
3400:500 Women in Revolutionary China 3
3400:610 Graduate Reading Seminar: Comparative Studies: World Civilization 3
3700:610 Seminar in International Politics 3
3700:620 Seminar in Comparative Politics 3
3850:555 Family Violence 3
3850:521 Racial and Ethnic Relations 3
5500:590 China for Educators 3
6600:630 International Marketing Policies 3
7600:550 Communication in Conflict 3
7600:645 Intercultural Communication Theory 3
9200:684* Alternative Dispute Resolution 3
3700:695 Internship (Student Conference on Cross-Cultural Negotiation or related project involving language immersion with approval of Director) 3-6

*Law School classes are offered on a space availability basis only.

Students must select their electives from only one of the above two tracks and electives must include courses taken from more than two departments. Students are encouraged to speak with the Director, who can approve substitution courses for these elective credits from among special topics classes or other classes that the student persuasively demonstrates to be consistent with the program objectives. Please note: There are no substitutions for the Conflict Core classes.

GRADUATE CERTIFICATE IN GEOGRAPHIC INFORMATION SCIENCES
(335008GC)

NOTE: The Graduate Certificate in Geographic Information Sciences is administered by the Department of Geosciences.

Program
The geographic information sciences (GISci) integrate concepts, methods, and tools for collecting, analyzing, and visualizing spatial data, including physical, environmental, social, and economic information. An education in this rapidly growing professional and scientific field leads to careers in the public and private sectors as GIS scientists, as geographic information systems (GIS) analysts, programmers, or technicians, or as cartographers or remote sensing analysts.

This graduate certificate can be taken by degree-seeking students in geology, biology, business, engineering, computer science, emergency management, anthropology, political science, public administration, geography, and other related disciplines. It can also be taken as a freestanding certificate by non-degree seekers such as professionals who want to enhance their knowledge and skills as well as by anyone who wants to learn about this rapidly advancing scientific and practical field.

Requirements
Geotechniques Requirements (9 credits):
3350:505 Geographic Information Systems 3
3350:540 Cartography 3
3350:547 Remote Sensing 3

Geotechniques Electives (9 credits):
3350:507 Advanced Geographic Information Systems 3
3350:541 Global Positioning Systems (GPS) 3
3350:542 Cartographic Theory and Design 3
3350:544 Applications in Cartography and Geographic Information Systems 3
3350:545 GIS Database Design 3
3350:546 GIS Programming and Customization 3
3350:549 Advanced Remote Sensing 3
3350:581 Research Methods in Geography and Planning 3
3350:583 Spatial Analysis 3
3350:596 Field Research Methods 3

GEOTECHNICAL ENGINEERING
(430008GC)

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 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.

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
(300006GC)
Harvey L. 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 graduate curriculum committee 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, Northeast Ohio Medical University (NEOMED).

**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

<table>
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<th>Core</th>
<th>Electives**</th>
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</thead>
<tbody>
<tr>
<td>Required (12):</td>
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<tr>
<td>6500:656 Management of Global Supply Chain and Operations 3</td>
<td>3006:686 Retirement Specialist 2</td>
</tr>
<tr>
<td>6500:665 Management of Technology 3</td>
<td>3006:690 Workshop – Women: Middle and Later Years 2</td>
</tr>
<tr>
<td>6600:608 Entrepreneurship 3</td>
<td>3700:580 Policy Problems: Aging (Offered every other year) 2</td>
</tr>
<tr>
<td>6500:652 Managing People in Organizations 3</td>
<td>3750:620 Psychology Core II: Developmental, Perceptual, Cognitive 2</td>
</tr>
<tr>
<td>6500:658 Managing a Global Workforce 3</td>
<td>3750:727 Psychology of Adulthood and Aging 4</td>
</tr>
<tr>
<td>6600:625 Brand Management 3</td>
<td>3850:681 Cross Cultural Perspectives in Aging 3</td>
</tr>
<tr>
<td>6500:683 Health Services Systems Management (with permission) 3</td>
<td>6500:678 Social Gerontology 3</td>
</tr>
<tr>
<td>7400:541 Health Services Systems Management (with permission) 3</td>
<td>5400:541 Educational Gerontology Seminar 3</td>
</tr>
<tr>
<td>7100:524 Neurogenic Speech and Language Disorders 3</td>
<td>5400:661 Current Issues in Higher Education: Life-Span and Community Education 3</td>
</tr>
<tr>
<td>7150:550 Social Needs and Services for Later Adulthood and Aging 3</td>
<td>6500:683 Health Services Systems Management (with permission) 3</td>
</tr>
</tbody>
</table>

*From student’s home department.

**GLOBAL INNOVATION AND TECHNOLOGY MANAGEMENT**

(650107GC)

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 Global Innovation and Technology Certificate Program may enroll only in those courses required for completion of the certificate.

Persons wanting to enroll in a CBA graduate certificate program must already be accepted into a graduate or professional degree program or already possess a graduate or professional degree.

**Required Courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6500:656</td>
<td>Management of Global Supply Chain and Operations</td>
<td>3</td>
</tr>
<tr>
<td>6500:665</td>
<td>Management of Technology</td>
<td>3</td>
</tr>
<tr>
<td>6600:601</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>6600:620</td>
<td>Strategic Marketing</td>
<td>3</td>
</tr>
</tbody>
</table>

**RECOMMENDED ELECTIVES:**

Select three credits from the following for which the proper prerequisites have been met:

- 6200:610 Process Analysis and Cost Management 3
- 6400:602 Managerial Finance 3
- 6500:601 Business Analytics and Information Strategy 3
- 6500:608 Entrepreneurship 3
- 6500:652 Managing People in Organizations 3
- 6500:658 Managing a Global Workforce 3
- 6600:625 Brand Management 3

**HIGHER EDUCATION**

(590900GC)

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 (12):**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>5100:703</td>
<td>Seminar: History and Philosophy of Higher Education</td>
<td>3</td>
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<tr>
<td>5100:515</td>
<td>Administration in Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:600</td>
<td>Advanced Administrative Colloquium in Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:601</td>
<td>Internship in Higher Education</td>
<td>2</td>
</tr>
<tr>
<td>5100:602</td>
<td>Internship in Higher Education Seminar</td>
<td>1</td>
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<td>Total</td>
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**Electives (6):**

<table>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>5100:521</td>
<td>Law and Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:526</td>
<td>Student Services in Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:527</td>
<td>The American College Student (B)</td>
<td>3</td>
</tr>
<tr>
<td>5100:530</td>
<td>Higher Education Curriculum and Program Planning</td>
<td>3</td>
</tr>
<tr>
<td>5100:620</td>
<td>Finance in Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:626</td>
<td>Policy, Assessment, and Accountability in Higher Education</td>
<td>3</td>
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<tr>
<td></td>
<td>Total hours required:</td>
<td>18</td>
</tr>
</tbody>
</table>

**HOME-BASED INTERVENTION THERAPY**

(H40200GC)

Pamela A. Schulze, Ph.D., Coordinator

**Program**

This certificate program is a special course of study that complements undergraduate and graduate degree programs in various departments and colleges throughout the University. Individuals who already hold undergraduate or graduate degrees may also pursue the certificate. 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 from 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 3-6

**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
  - 3650:620 General Systems Theory 3
  - 5600:943 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
  - 7400:622 Family in Life-Span Perspective 3
  - 7400:655 Developmental Parent-Child Interactions (online) 3
  - 7400:610 Child Development Theories 3
- Therapeutic Theory
  - 5600:651 Techniques in Counseling 3
  - 5600:677 Marital 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
  - 3750:530 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
  - 5600:650 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
  - 7400:501 American Families in Poverty (online) 3
  - 7400:504 Middle Childhood and Adolescence (online) 3
  - 7400:506 Family Financial Management (online) 3
  - 7400:540 Family Crisis (online) 3
  - 7400:542 Human Sexuality 3
  - 7400:546 Culture, Ethnicity, and the Family (online) 3
  - 7400:590 Workshop in Family and Consumer Sciences: Family and Divorce 2
  - 7400:596 Parent Education (online) 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
  - 6500:600 Staffing and Employment Regulation 3
  - 6500:654 Management of Organizational Conflict 3

**LITERATURE**

**330010GC**
Hillary Nunn, Ph.D., Coordinator
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 in 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.

**MIDDLE EASTERN STUDIES GRADUATE CERTIFICATE**

**(340002GC)**
Dr. Janet Klein, Director
Department of History, (330) 972-2562 or klein@uakron.edu

The graduate certificate in Middle Eastern Studies offers students a multidisciplinary course of study that will provide them with in-depth training in a special area that may be particularly useful as they pursue careers in such fields as Academia, Law, Public History, Education, Business, or Medicine where they will practice their profession abroad or use their international experience to expand their understanding of these regions as they work with topics on or populations from diverse societies in the Middle East. The certificate complements any graduate major and is also appropriate for students with a graduate degree who might like to return to the university for mid-career training.

**Requirements**

Two years of a Middle Eastern language (or equivalent), which serves as the program’s core requirement plus four courses of approved electives. A minimum 3.0 grade point average in the courses that will fulfill the certificate. The student must be in good academic standing in his/her major department if enrolled in a degree program.

**Language Core:**

The entering student who does not have proficiency in a Middle Eastern language will have to satisfy the language requirement by completing two years of a Middle Eastern language offered by The University of Akron or any other accredited institution. Students may also fulfill the language requirement by demonstrating competency in the equivalent of a fourth-semester level of his/her chosen language at the FS-1 level (U.S. Department of State) or equivalent level. Currently The University of Akron offers the following:

- 3500:101 Beginning Arabic 4
- 3500:152 Beginning Arabic II 4
- 3500:201 Intermediate Arabic 3
- 3500:202 Intermediate Arabic II 3

**Elective Courses:**

Complete four of the following courses. At least one must be outside the student’s major department. Exceptions or substitutions require approval from the Director. Credits will be provided with the Director’s approval for study and certain experiences abroad in Middle Eastern countries.

- 3200:501 Egyptology I* 3
- 3230:572 Selected Topics** 3
- 3400:589 Ottoman State and Society 3
- 3400:596 Selected Studies (in the Middle East) 3
- 3400:596 Race, Nation, and Class in the Middle East 3
- 3400:599 Women and Gender in the Middle East 3
- 3400:612 Graduate Reading Seminar: The Middle East 4
- 4700:605 Politics in the Middle East 3

*Only one ancient world course will count toward the certificate.

**Recent 500-level Selected Topics in the Department of Classical Studies, Anthropology and Archaeology have included “Cultures of the Arab World.”

Courses with comparative content are encouraged. Any course that has significant Middle-Eastern content (and for which the student has presented substantial written work on a Middle Eastern topic) may count toward the certificate program with the Director’s approval. Students should consult with the Director for help planning an appropriate course of study.

**MOTION AND CONTROL SPECIALIZATION**

**(460006GC)**

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
- 4600:444/544 Robot, Design, Control and Application
- 4600:670 Integrated Flexible Manufacturing Systems

### NEW MEDIA TECHNOLOGIES (510005GC)
This certificate program in New Media Technologies requires a minimum of 18 credit hours. The certificate in New Media Technologies has been designed to assist students in becoming competent, employable professionals capable of making a significant contribution to the field. The program 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 new media technologies.

#### Electives:
- 5150:590 Workshop: Instructional Technology
- 5150:631 Instructional Design
- 5150:632 Web-Based Learning Systems
- 5150:633 Hypermedia/Multimedia

### NUCLEAR ENGINEERING (430010GC)
This certificate program provides practicing professionals an opportunity to expand their knowledge base in nuclear 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**
This certificate is designed for students with a B.S. in Civil Engineering or a closely related field.

#### Required Courses:
- 4300:500 Introduction to Nuclear Power Generation and Simulation
- 4300:501 Nuclear Reactor Engineering and Balance of Plant Systems
- 4300:502 Nuclear Process and Radioactive Waste Management, Safeguards and Security
- 4300:503 Nuclear Thermohydraulics, Simulation and Advanced Reactor Engineering

#### Electives:
Students must complete at least six additional credit hours from any of the engineering disciplines.

### NURSE ANESTHESIA (820102GC)
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, advanced pharmacology, advanced health assessment and principles of anesthesia, and professional role issues. Graduates of the program are prepared to deliver all types of peroperative 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. CCRN certification.
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 program is competitive and is decided by voting of the Admission Committee members.
9. Prerequisite: 3470:661 Statistics for Life Sciences

### Program of Study:
- 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/Pain Management) 4
- 8200:647 Professional Role Seminar 2
- 8200:649 Residency IV (Senior Seminar) 4

**Total: 18**

### NURSING EDUCATION (820100GC)
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 (H40203GC)

#### Pamela A. Schulze, Ph.D., Coordinator

**Program**
The 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 degree-seeking 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.
- 7400:596 Parent Education (online) 3
- 7400:655 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 (online) 3
  - 7400:504 Middle Childhood and Adolescence (online) 3
  - 7400:540 Family Crisis (online) 3
  - 7400:546 Culture, Ethnicity and the Family (online) 3
  - 7400:622 Family in Life-Span Perspective 3
  - 7400:610 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
3850:512 Socialization Child to Adult 3
3850:677 Family Analysis 3

Educational Foundations
5100:648 Individual and Family Development Across the Lifespan 3
5100:721 Learning Processes 3

Educational Guidance and Counseling
5600:646 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
5610:540 Developmental Characteristics of Exceptional Individuals 3
5610:559 Communication and Consultation with Parents and Professionals 3

Multicultural Education (Curricular and Instructional Studies)
5500:571 Characteristics of Culturally Diverse Populations 3

Educational Administration
5170:604 School-Community Relations 3

FAMILY PSYCHIATRIC/MENTAL HEALTH NURSE PRACTITIONER (POST MSN)
(820105GC)
The Post-MSN Family Psychiatric/Mental Health Nurse Practitioner certificate program is designed to prepare advanced practice nurses certified as Psychiatric and Mental Health Nurse Practitioners with the competencies required to sit for national certification as a Family Psychiatric and Mental Health Nurse Practitioner. The 13 credit hour program that includes at least 500 hours of supervised practice is built upon a core of advanced assessment, pathophysiology, and advanced psychoneuroimmunology and the Psychiatric Mental Health Nurse Practitioner track.

Required Courses
5600:648 Individual and Family Development 3
8200:605 Child and Family Interventions for Psychiatric Nurse Practitioners 3
8200:650 Advanced Pediatric/Adolescent Assessment 3
8200:663 Psychiatric Mental Health Internship (Required) 1-4

Elective Courses:
(Elective Courses are not required. If the Post MSN student wishes to take additional coursework, the following courses are recommended)
8200:606 Pathophysiological Concepts 3
8200:610 Advanced Adult/Cerebrological Assessment 3
8200:611 Advanced Mental Health Assessment Across the Lifespan 3

PUBLIC ADMINISTRATION AND URBAN STUDIES
(398007GC: Public Management)
(398008GC: Non-Profit Management)
(398010GC: Policy Analysis)
(398011GC: Program Evaluation)
(398012GC: Urban Affairs)

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 non-degree graduate students within the department or students who are fully admitted to other graduate programs of the University and meet the experiential requirements are eligible for the certificates.

Program
There are six 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. 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 Citizenship Participation 3
3980:626 Grantmanship 3
3980:650 Strategic Management in Public and Non-profit 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
3980:650 Strategic Management in Public and Non-profit Sectors (required) 3
3980:652 Fund Raising and Resource Management (required) 3
3980:663 Non-profit Management (required) 3
3980:680 Special Topics 3

Local and Regional Development
3980:602 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
3980:674 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
3980:671 Program Evaluation in Urban Studies (required) 3
3980:673 Computer Applications in Public Organizations 3
3980:674 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
(300013GC)
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 Naz Germany 3
3400:554 The Civil War and Reconstruction, 1850-1877 4

Internship
3 credits from Sociology, Political Science, Anthropology, or History
**TEACHING ENGLISH AS A SECOND LANGUAGE**

(330003GC)

Wei Zhang, Ph.D., Director

Requirements
This program is intended for both native and non-native speakers of English who seek training in the teaching of English as a second language (ESL) and wish to obtain an initial qualification to teach ESL/EFL (English as a foreign language) in educational settings other than public schools in Ohio or in countries outside the United States. For Ohio qualification in teaching ESL in the Ohio public school system, see the TESOL Endorsement requirements in this bulletin under the College of Education.

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 norm 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 (paper-based), 213 (computer-based), or 79 (internet-based) or a valid IELTS score of 6.5 or higher.

The awarding of this certificate is not contingent upon completion of a degree program. A minimum grade point average of 3.0 is required. Graduate students must apply for the certificate program through the Graduate School.

All students who wish to pursue the TESL certificate should meet with the program director to discuss the program and availability of courses.

The certificate requires the completion of a minimum of 18 credit hours of course work, including five core courses and one elective course.

Core Requirements (15 credits)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3300:566</td>
<td>Linguistics and Language Arts</td>
<td>3</td>
</tr>
<tr>
<td>3300:573</td>
<td>Theoretical Foundations and Principles of ESL</td>
<td>3</td>
</tr>
<tr>
<td>3300:578</td>
<td>Grammatical Structures of English</td>
<td>3</td>
</tr>
<tr>
<td>5500:543</td>
<td>Techniques of Teaching English as a Second Language</td>
<td>4</td>
</tr>
<tr>
<td>3300:577</td>
<td>Sociolinguistics</td>
<td>3</td>
</tr>
<tr>
<td>3300:586</td>
<td>Learner English</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives (3 credits)**
Choose one of the following courses:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3300:570</td>
<td>History of English Language</td>
<td>3</td>
</tr>
<tr>
<td>3300:572</td>
<td>Syntax</td>
<td>3</td>
</tr>
<tr>
<td>3300:577</td>
<td>Sociolinguistics</td>
<td>3</td>
</tr>
<tr>
<td>3300:587</td>
<td>Field Experience: Teaching Second Language Learners</td>
<td>3</td>
</tr>
<tr>
<td>3580:505</td>
<td>Spanish Linguistics: Phonology</td>
<td>4</td>
</tr>
<tr>
<td>5500:541</td>
<td>Teaching Language Literacy to Second Language Learners</td>
<td>4</td>
</tr>
<tr>
<td>7700:530</td>
<td>Aspects of Normal Language Development</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives (9 credits)**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3001:580</td>
<td>Feminist Theory</td>
<td>3</td>
</tr>
<tr>
<td>3230:516</td>
<td>Anthropology of Sex and Gender</td>
<td>3</td>
</tr>
<tr>
<td>3300:553</td>
<td>American Women Poets</td>
<td>3</td>
</tr>
<tr>
<td>3300:589</td>
<td>Seminar in English</td>
<td>2-3</td>
</tr>
<tr>
<td>3400:569</td>
<td>African American Women's History</td>
<td>3</td>
</tr>
<tr>
<td>3400:599</td>
<td>Women and Gender in Middle Eastern Societies</td>
<td>3</td>
</tr>
<tr>
<td>3850:547</td>
<td>Sociology of Sex and Gender</td>
<td>3</td>
</tr>
<tr>
<td>3850:555</td>
<td>Family Violence</td>
<td>3</td>
</tr>
<tr>
<td>3850:639</td>
<td>Sociology of Gender</td>
<td>3</td>
</tr>
<tr>
<td>7400:501</td>
<td>American Families in Poverty</td>
<td>3</td>
</tr>
<tr>
<td>7400:546</td>
<td>Culture, Ethnicity, and Family</td>
<td>3</td>
</tr>
<tr>
<td>7600:508</td>
<td>Women, Minorities, and News</td>
<td>3</td>
</tr>
<tr>
<td>7600:546</td>
<td>Women, Minorities, and Media</td>
<td>3</td>
</tr>
<tr>
<td>7750:656</td>
<td>Social Work Practice with Gays and Lesbians</td>
<td>3</td>
</tr>
</tbody>
</table>

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

**NOTES**

1. Course should be taken concurrently with the certificate.

2. Certification is valid for five years.

3. Students should have successfully completed 3300:371 or 3300:566 prior to taking 3300:573.

**TRANSPORTATION ENGINEERING**

(430007GC)

This certificate 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:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4000:564</td>
<td>Highway Design</td>
<td>3</td>
</tr>
<tr>
<td>4300:565</td>
<td>Pavement Engineering</td>
<td>3</td>
</tr>
<tr>
<td>4300:566</td>
<td>Traffic Engineering</td>
<td>3</td>
</tr>
<tr>
<td>4300:663</td>
<td>Advanced Transportation Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>4300:664</td>
<td>Advanced Transportation Engineering II</td>
<td>3</td>
</tr>
<tr>
<td>4300:665</td>
<td>Traffic Detection and Data Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Total 15

**WOMEN’S STUDIES**

(300110GC)

For information, contact Women’s Studies, located in Olin Hall 247, (330) 972-7481.

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 multiple disciplines. Students are challenged to explore diverse viewpoints and to expand the scope of their intellectual endeavors to include gender issues and debates.

Admission
Hold a Bachelor’s Degree with a minimum 2.75 grade point average.

Requirements (6 credits)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3001:580</td>
<td>Feminist Theory</td>
<td>3</td>
</tr>
<tr>
<td>3600:555</td>
<td>Philosophy of Feminism</td>
<td>3</td>
</tr>
<tr>
<td>3001:589</td>
<td>Internship in Women’s Studies</td>
<td>3</td>
</tr>
<tr>
<td>3001:593</td>
<td>Individual Studies on Women</td>
<td>3</td>
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</table>

Electives (9 credits)

<table>
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<tr>
<th>Course Number</th>
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<tr>
<td>3001:585</td>
<td>Special Topics in Women’s Studies</td>
<td>1-3</td>
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<tr>
<td>3230:516</td>
<td>Anthropology of Sex and Gender</td>
<td>3</td>
</tr>
<tr>
<td>3300:553</td>
<td>American Women Poets</td>
<td>3</td>
</tr>
<tr>
<td>3300:589</td>
<td>Seminar in English</td>
<td>2-3</td>
</tr>
<tr>
<td>3400:569</td>
<td>African American Women’s History</td>
<td>3</td>
</tr>
<tr>
<td>3400:599</td>
<td>Women and Gender in Middle Eastern Societies</td>
<td>3</td>
</tr>
<tr>
<td>3850:547</td>
<td>Sociology of Sex and Gender</td>
<td>3</td>
</tr>
<tr>
<td>3850:555</td>
<td>Family Violence</td>
<td>3</td>
</tr>
<tr>
<td>3850:639</td>
<td>Sociology of Gender</td>
<td>3</td>
</tr>
<tr>
<td>7400:501</td>
<td>American Families in Poverty</td>
<td>3</td>
</tr>
<tr>
<td>7400:546</td>
<td>Culture, Ethnicity, and Family</td>
<td>3</td>
</tr>
<tr>
<td>7600:508</td>
<td>Women, Minorities, and News</td>
<td>3</td>
</tr>
<tr>
<td>7600:546</td>
<td>Women, Minorities, and Media</td>
<td>3</td>
</tr>
<tr>
<td>7750:656</td>
<td>Social Work Practice with Gays and Lesbians</td>
<td>3</td>
</tr>
</tbody>
</table>
SECTION 5. Graduate Courses

Course Numbering Index*

Interdisciplinary Programs

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<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>College/Department</th>
</tr>
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<tbody>
<tr>
<td>1800</td>
<td>Divorce Mediation</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>1820</td>
<td>Home-Based Intervention Therapy</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>3000</td>
<td>Cooperative Education</td>
<td>College of Business Administration</td>
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Buchtel College of Arts and Sciences

<table>
<thead>
<tr>
<th>Course Number</th>
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<tbody>
<tr>
<td>3100</td>
<td>Biology</td>
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</tr>
<tr>
<td>3110</td>
<td>Biology/NEOMED</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>3150</td>
<td>Chemistry</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>3200</td>
<td>Classics</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>3230</td>
<td>Anthropology</td>
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<tr>
<td>3240</td>
<td>Archaeology</td>
<td>College of Business Administration</td>
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<tr>
<td>3250</td>
<td>Economics</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>3300</td>
<td>English</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>3350</td>
<td>Geography and Planning</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>3370</td>
<td>History</td>
<td>College of Business Administration</td>
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<tr>
<td>3400</td>
<td>History</td>
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<tr>
<td>3450</td>
<td>Mathematics</td>
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<tr>
<td>3460</td>
<td>Computer Science</td>
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<tr>
<td>3470</td>
<td>Statistics</td>
<td>College of Business Administration</td>
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<tr>
<td>3490</td>
<td>Engineering Applied</td>
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<tr>
<td>3500</td>
<td>Modern Languages</td>
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<tr>
<td>3501</td>
<td>Arabic</td>
<td>College of Business Administration</td>
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<tr>
<td>3502</td>
<td>Chinese</td>
<td>College of Business Administration</td>
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<tr>
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<td>Latin</td>
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<tr>
<td>3520</td>
<td>French</td>
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College of Engineering

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<tr>
<td>4100</td>
<td>General Engineering</td>
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<tr>
<td>4200</td>
<td>Chemical Engineering</td>
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<tr>
<td>4300</td>
<td>Civil Engineering</td>
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</tr>
<tr>
<td>4400</td>
<td>Electrical Engineering</td>
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College of Education

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<tr>
<td>5100</td>
<td>Educational Foundations and Leadership</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>5150</td>
<td>Instructional Technology</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>5170</td>
<td>General Administration</td>
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</tr>
<tr>
<td>5190</td>
<td>Higher Education Administration</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>5400</td>
<td>Teaching and Training</td>
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College of Business Administration

<table>
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<th>Course Title</th>
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<tbody>
<tr>
<td>6200</td>
<td>Accountancy</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>6300</td>
<td>Entrepreneurship</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>6400</td>
<td>Finance</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>6500</td>
<td>Management</td>
<td>College of Business Administration</td>
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</table>

College of Health Professions

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>College/Department</th>
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<tbody>
<tr>
<td>5550</td>
<td>Physical Education</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>5560</td>
<td>Outdoor Education</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>5570</td>
<td>Health Education</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>5600</td>
<td>Educational Guidance</td>
<td>College of Business Administration</td>
</tr>
<tr>
<td>5620</td>
<td>School Psychology</td>
<td>College of Business Administration</td>
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</table>

College of Polymer Science and Polymer Engineering

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>College/Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>9841</td>
<td>Polymer Engineering</td>
<td>College of Business Administration</td>
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</table>

Interdisciplinary Programs

DIVORCE MEDIATION 1800:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>601</td>
<td>DIVORCE MEDIATION</td>
<td>3 credits</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: Admission to graduate certificate program in Divorce Mediation. Overview of divorce mediation process includes guidelines for negotiating separation and divorce agreements, division of personal and real property, support, custody, and future plans.</td>
<td></td>
</tr>
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</table>

HOME-BASED INTERVENTION THERAPY 1820:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>503</td>
<td>HOME-BASED INTERVENTION THEORY</td>
<td>3 credits</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
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</table>

HOMESTAY INTERVENTION TECHNIQUES AND PRACTICE 504:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>504</td>
<td>HOMESTAY INTERVENTION TECHNIQUES AND PRACTICE</td>
<td>3 credits</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: Provides intervention techniques and skill areas required for home-based intervention and training opportunities for matching techniques with specific family problems.</td>
<td></td>
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</table>

HOME-BASED INTERVENTION INTERNSHIP 505:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>505</td>
<td>HOME-BASED INTERVENTION INTERNSHIP</td>
<td>3-5 credits</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: Provides 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.</td>
<td></td>
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COOPERATIVE EDUCATION 3000:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>501</td>
<td>COOPERATIVE EDUCATION</td>
<td>0 credits</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: must complete 12 graduate credit hours with at least a 3.0 overall grade point average. (May be repeated.) For cooperative education students only. Work experience in business, industry, or governmental agency. Comprehensive performance evaluation and written report required. Graded credit/noncredit.</td>
<td></td>
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</tbody>
</table>

WOMEN’S STUDIES 3001:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>580</td>
<td>FEMINIST THEORY</td>
<td>3 credits</td>
</tr>
<tr>
<td></td>
<td>A summary of feminist theory to familiarize students with the main currents in contemporary feminist theory and the origins and evolution of that thought.</td>
<td></td>
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</tbody>
</table>

SPECIAL TOPICS IN WOMEN’S STUDIES 585:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>585</td>
<td>SPECIAL TOPICS IN WOMEN’S STUDIES</td>
<td>1-3 credits</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: permission of Director of Women’s Studies. This class provides supervised experience and on-the-job training in an organization, agency, corporation or group dealing with women’s issues.</td>
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WORKSHOP 590:

<table>
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<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>590</td>
<td>WORKSHOP</td>
<td>1-3 credits</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: permission of Director of Women’s Studies. This class provides supervised experience and on-the-job training in an organization, agency, corporation or group dealing with women’s issues.</td>
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INDIVIDUAL STUDIES ON WOMEN 593:

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<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>593</td>
<td>INDIVIDUAL STUDIES ON WOMEN</td>
<td>1-3 credits</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: permission of Director of Women’s Studies. This class provides supervised experience and on-the-job training in an organization, agency, corporation or group dealing with women’s issues.</td>
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</table>

INSTITUTE FOR LIFE-SPAN DEVELOPMENT & GERONTOLOGY 3006:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>680</td>
<td>INTERDISCIPLINARY SEMINAR IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY</td>
<td>3 credits</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: permission. The certificate program student only. Explores interdisciplinary issues in life-span development and gerontology. Guest speakers from various disciplines and services which have life-span development and gerontology components and from government and community facilities and services.</td>
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</table>

RETIRED SPECIALIST 586:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>586</td>
<td>RETIREMENT SPECIALIST</td>
<td>1-3 credits</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: permission of Director of Women’s Studies. This class provides supervised experience and on-the-job training in an organization, agency, corporation or group dealing with women’s issues.</td>
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WORKSHOP 590:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>590</td>
<td>WORKSHOP</td>
<td>1-3 credits</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: permission of Director of Women’s Studies. This class provides supervised experience and on-the-job training in an organization, agency, corporation or group dealing with women’s issues.</td>
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</table>

PRACTICUM IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY 695:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>695</td>
<td>PRACTICUM IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY</td>
<td>3 credits</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: permission. Supervised experience in research or community agency work.</td>
<td></td>
</tr>
</tbody>
</table>

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

3300-057 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; 310 refers to the Department of English. The second set of digits (057) 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
Arts and Sciences

BIOLOGY 3100:

506 PRINCIPLES OF SYSTEMATICS 3 credits
The science of identifying, naming, and classifying the diversity of life. Topics include: nomenclature, types, techniques of data collection, and methods of phylogenetic reconstruction.

512 ADVANCED ECOLOGY 3 credits
Advanced study of the ecology of individuals, populations, communities, and conservation/applied ecology. Active participation/discussion of primary literature in ecology is required.

516 FIELD ECOLOGY 4 credits
Introduction to sampling methods, design of experiments and observations, and computer techniques. Some local natural history. Laboratory.

521 TROPICAL FIELD BIOLOGY 4 credits
Ecology of coral reefs, tide pools, mangroves, intertidal zones, terrestrial flora and fauna, island biogeography. Taught at a field station in the tropics.

522 CONSERVATION BIOLOGY 3 credits
Explores the factors affecting biodiversity and how to develop practical approaches to resolve complicated conservation issues.

523 POPULATION BIOLOGY 3 credits
Discussion of animal and plant ecology and evolutionary biology from a species and population level perspective. Includes topics in population ecology and population genetics.

526 WETLAND ECOLOGY 4 credits
Wetland ecology: principles and conservation. Field studies will be conducted at Bath Nature Preserve. Laboratory. Field trips involved; minor transportation costs.

527 LIMNOLOGY 4 credits
This course explores the diversity of aquatic life and key biotic characteristics of freshwater ecosystems with emphasis on the Great Lakes. Includes field trips.

529 BIOLOGY OF BEHAVIOR 3 credits
Biological basis of behavior: ethological theory; function, causation, evolution and adaptiveness of behavior. May be taken without 423/529.

530 BIOLOGY OF BEHAVIOR LABORATORY 1 credit
Individualized, directed laboratory study provided to the student with firsthand experience in observing, describing and interpreting animal behavior.

533 COMMUNITY/Ecosystem Ecology 3 credits
History of the ecosystem concept; components, processes, and dynamics of communities and ecosystems; analysis and design of ecosystem experiments. Laboratory.

536 PATHOGENIC BACTERIOLOGY 4 credits
Study of major groups of bacteria which produce infections in humans. Biochemical properties of microorganisms which engender virulence and nature of host resistance. Laboratory.

537 IMMUNOLOGY 4 credits
Nature of antigens, antibody response, and antigen-antibody reactions. Site and mechanism of antibody formations, hypersensitivity, immunologic tolerance and immune diseases considered. Laboratory.

539 ADVANCED IMMUNOLOGY 3 credits
Immunity is studied conceptually and historical and current perspective. Topics include T cells, B cells, antigen presentation, HIV, and transplantation.

540 MYCOLOGY 4 credits
Structure, life history, classification of representative fungi with emphasis on the importance of fungi to humans. Laboratory.

542 PHYCOLOGY 4 credits
Examination of the major groups of algae with emphasis on life histories and their relationship to algal form and structure. Laboratory.

544 FIELD MARINE PHYCOLOGY 3 credits
Collection and identification of tropical marine algae on San Salvador Island, The Bahamas. Discussion of characteristics and ecology of major groups of Caribbean algae. Laboratory.

553 GENERAL ENTOMOLOGY 3 credits
Structure, physiology, life cycles, economic importance characteristics of orders and major families of insects. Laboratory and parallel lectures.

557 INVERTEBRATE ZOOLOGY 4 credits
Invertebrate groups, their classification, functional morphology, adaptive radiation and life history and a phylogenetic approach is used. Laboratories parallel lectures.

560 PARASITOLOGY 4 credits
Principles of parasitism; host parasite interactions; important human and veterinary parasitic diseases; and control measures. Laboratories parallel lectures.

565 KCHT/HYDROLOGY 4 credits
Study of fishes; incorporates aspects of evolution, anatomy, physiology, natural history, and commercial exploitation of fishes. Laboratory incorporates field-based exercises and fish taxonomy.

566 ORNITHOLOGY 4 credits
Introduction to biology of birds: classification, anatomy, physiology, behavior, ecology, evolution, natural history and field identification. Laboratory. Field trips involved; minor transportation costs.

567 HERPETOLOGY 4 credits
Survey of the diversity, ecology and evolution of amphibians and reptiles. Special emphasis is given to Ohio species. Laboratory.

568 VERTEBRATE ZOOLOGY 4 credits
Biology of vertebrates, except birds – evolution, ecology, behavior, systematics and anatomy. Laboratory with field trips.

561,2 HUMAN PHYSIOLOGY 4 credits
Biology of function of the human body with special emphasis on neuromuscular, cardiovascular, respiratory, renal and endocrine physiology. Laboratory.

565 ADVANCED CARDIOVASCULAR PHYSIOLOGY 3 credits
Study of biological mechanisms involved in heart attack, strokes, fluid balance, hypertension and heart disease. Controversial issues in each area will be examined and current research presented.

566 VERTEBRATE EMBRYOLOGY 4 credits
Lectures focus on development of model vertebrate organisms and cellular and molecular mechanisms underlying animal development. Laboratory focuses on frog and chick development.

567 COMPARATIVE VERTEBRATE MORPHOLOGY 4 credits
An introduction to the comparative morphology of major vertebrates. The laboratory consists of dissections of representative vertebrates.

568 THE PHYSIOLOGY OF REPRODUCTION 3 credits
Study of the physiological mechanisms of reproduction throughout the animal kingdom with special emphasis upon mammalian endocrinological control. Controversial issues in the field will be examined and current research presented.

569 RESPIRATORY PHYSIOLOGY 3 credits
Study of mechanisms determining gas exchange including mechanics, ventilation, blood flow, diffusion, and control systems. Emphasis is given to normal human lung function. (Clinical aspects are not considered in detail.)

570 LAB ANIMAL REGULATIONS 1 credit
Required of anyone working with animals, and covers government regulations, care of animals and a lab to teach basic animal handling and measurement techniques.

571 PHYSIOLOGICAL GENETICS 4 credits
The integrative study of how genetics and physiology influence complex systems from molecular to behavioral in plants and animals. Laboratory.

572 BIOLOGICAL MECHANISMS OF STRESS 3 credits
Study of mechanisms from molecular to behavioral of how stress influences body systems and signals. The latest research and experimental issues are discussed.

573 COMPARATIVE ANIMAL PHYSIOLOGY 3 credits
Study of respiration, circulation, digestion, metabolism, osmoregulation, and excretion in a variety of vertebrate and invertebrate animals. Adaptation to the environment is emphasized.

574 COMPARATIVE ANIMAL PHYSIOLOGY LABORATORY 1 credit
Laboratory experiments in animal physiology (respiration, circulation, metabolism, osmoregulation). Presentation of results in scientific format and as oral reports.

580 MOLECULAR BIOLOGY 3 credits
Fundamentals of molecular biology, including recombinant DNA technology, applications in biotechnology, medicine, and genetic engineering. Mechanisms of gene regulation.

581 ADVANCED GENETICS 3 credits
Nature of the gene; genetic codes; hereditary determinants; mutagenesis and genes in population. Lecture and seminar.

582 NEUROBIOLOGY 3 credits
History of neuroscience; organization, function and development of the central nervous system; electrophysiological properties of nerve cells; learning and memory; molecular basis for mental diseases.

585 CELL PHYSIOLOGY 4 credits
Explores molecular and biochemical aspects of energy metabolism, intracellular and intercellular signaling, growth and death of cells. Emphasizes up-to-date scientific literature and techniques.

594 WORKSHOP IN BIOLOGY 1-3 credits
May not be repeated. Prerequisite: permission of instructor. Group studies of special topics in biology. May not be used to meet undergraduate or graduate major requirements in biology. May be used for elective credit only.

597 BIOLOGICAL PROBLEMS 1-2 credits each
Prerequisite: permission. Honors-level work, usually consisting of laboratory investigations. A maximum of 4 credits may apply toward the major degree requirements.

598 EVOLUTIONARY BIOLOGY 3 credits
Advanced studies of topics in ecology and evolution, including population genetics, coevolution, metapopulations, and conservation genetics. Lecture/discussion format.

602 TOPICS IN INTEGRATIVE BIOLOGY 3 credits
Recurrent, critical review, presentation, discussion and debate of cutting edge biological research with an emphasis on understanding the integrative approach to biological investigation.

616 GRADUATE EVOLUTIONARY BIOLOGY 4 credits
A survey of theory and methods in evolutionary biology including: evolutionary genetics, natural selection, drift, mating systems, trait integration, plasticity, phylogenetics, and paleontology.

617 GRADUATE ECOLOGY 3 credits
Advanced training for students pursuing a professional/academic career in ecology or associated disciplines. Exploration of interactions at the organismal, population, community, and ecosystem levels.

618 EXPERIMENTAL APPROACHES IN FIELD ECOLOGY 4 credits
Prerequisite: Graduate status. Field oriented course intended to help students learn to formulate questions and hypotheses, design field studies, and analyze and interpret data, and prepare conclusions. Laboratory.

624 ADVANCED AQUATIC ECOLOGY 4 credits
Prerequisite: permission. This course examines interactions between aquatic organisms and their environment across freshwater and marine systems. It includes primary literature, field trips, and student-designed experiments.

625 BASIC DNA TECHNIQUES 3 credits
Basic DNA techniques including extraction of DNA, cleavage of DNA and cloning. Laboratory.

626 TECHNIQUES IN MOLECULAR BIOLOGY 3 credits
Discussion of current techniques in molecular biology such as microscopy, cell culture, gene expression, and protein analysis. Laboratory.

628 ADVANCED TOPICS IN BEHAVIOR 3 credits
Prerequisites: 528 or equivalent. Advanced studies of topics in behavior, emphasizing current scientific literature.

651 ENTOMOLOGY 4 credits
Prerequisite: Graduate standing in Biology. Exploration of the diversity and biology of insects and their relatives. Laboratories emphasize field exercises and a collection.

660 ENVIRONMENTAL PHYSIOLOGY 3 credits
Prerequisites: 561, 562. Study of physiological reactions of healthy mammals to natural changes or extreme of physical environment.

663 ADVANCED EXERCISE PHYSIOLOGY 3 credits
Through lecture, reading, and critical analysis of current literature, physiologic mechanisms of exercise in animals will be explored.

665 HISTOLOGY, CELL BIOLOGY, AND INTRODUCTORY PATHOLOGY 4 credits
This course integrates cell biology and histology to show how organs are structured and function and how they are altered during sample pathologies. Laboratory.

670 MEDICAL PHYSIOLOGY, PATHOPHYSIOLOGY, AND PHARMACOLOGY 3 credits
Prerequisite: Admission to M.S.N. program, or 300/561, or consent of instructor. Selected principles of human physiology, pathophysiology, and pharmacology are examined in depth, interrogated, and related to the care of patients in the clinical setting.

671 DEVELOPMENTAL BIOLOGY 4 credits
The study of cellular and molecular mechanisms underlying animal development. Laboratory.

673 INTEGRATIVE STRESS PHYSIOLOGY 3 credits
Prerequisite: B.S. in Biology or equivalent. This course is designed to examine the behavioral, physiological, genomic, and molecular mechanisms of how various types of stressors affect the organism.
674 INTEGRATED CARDIOVASCULAR PHYSIOLOGY 3 credits
Prerequisite: B.S. in Biology or equivalent. Integration of epidemiological, behavioral, physiological, molecular, and genetic mechanisms of cardiovascular function in health and disease. Emphasis on critical thinking and class discussions.

675 INTEGRATIVE PHYSIOLOGIC GENOMICS 4 credits
Prerequisite: B.S. in science discipline. This course uses methodologies from genetics and physiology as an integrated approach to studying whole body systems.

676 INTEGRATIVE PHYSIOLOGY 3 credits
Exposure of the integrative nature of physiology through lecture, reading, and critical analysis of current literature.

677 SYSTEMS PHYSIOLOGY 3 credits
Study of the complex nature of specific physiological systems both as separate entities and interacting units.

681 CYTOLOGY 4 credits
The study of how a cell’s structure, biochemistry, metabolism, and molecular biology integrate to produce cell function. Laboratory.

683 SELECTED TOPICS IN MICROBIOLOGY 3 credits
The study of organization, function, and development of the vertebrate nervous system.

685 ADVANCED CELL PHYSIOLOGY 3 credits
Structure and functional organization of cells at ultrastructural level. Three lecture hours a week.

688 PRINCIPLES OF TRANSMISSION ELECTRON MICROSCOPY 3 credits
Modern microscopy techniques using transmission electron microscopy. Portfolio required to demonstrate proficiency in fixation techniques, use of ultramicrotome, light and electron microscopes and darkroom techniques.

689 PRINCIPLES OF SCANNING ELECTRON MICROSCOPY 3 credits
An introduction of modern cytological methods using the scanning electron microscope. A portfolio is required to demonstrate proficiency in fixation techniques, use of supplementary equipment such as the critical point drying apparatus and the sputter-coating apparatus and the efficient use of the scanning electron microscope.

695 SPECIAL TOPICS: BIOLOGY 1-3 credits
(May be repeated) Prerequisite: permission. Special courses offered once or only occasionally in areas where no formal course exists.

697 BIOLOGY COLLOQUIUM 1 credit
(May be repeated) Prerequisite: permission. Attendance at all departmental seminars and presentation of seminar based on original research. Required of all thesis option students who shall present their thesis research.

699 MASTER'S THESIS 1-6 credits
(May be repeated) A minimum of six credits is required for thesis option student.

701 RESEARCH TECHNIQUES IN INTEGRATED BIOSCIENCE 4 credits
Students learn standard, common techniques that are applicable across broad areas of research in integrated bioscience.

702 COMMUNICATING IN INTEGRATED BIOSCIENCE 2 credits
Communication of bioscience topics to professionals of a broad audience. Students present topics to areas of interest to other (non-discipline) students in the course.

703 PROBLEM SOLVING IN INTEGRATED BIOSCIENCE 3 credits
Prerequisite: 702. Students will learn how to solve complex systems and get hands-on experience working in interdisciplinary teams.

797 INTEGRATED BIOSCIENCE COLLOQUIUM 1 credit
Prerequisite: Permission. Seminars of original research from a broad range of biosciences.

899 DOCTORAL DISSERTATION 1-12 credits
Original research by the doctoral student.

BIOLOGY/NEOMED 3110:

630 HUMAN GROSS ANATOMY I 3 credits
Prerequisite: 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 macromorphology.

695 SPECIAL TOPICS: BIOLOGY/NEOMED 1-6 credits
Prerequisite: permission of instructor. Advanced topics in medical education covering areas not otherwise available. May be repeated with a change in topic.

CHEMISTRY 3150:

501 BIOCHEMISTRY LECTURE I 3 credits
Prerequisite: Graduate status or permission of department. Biochemistry of amino acids, carbohydrates, lipids, and nucleic acids: structure/function relations. Enzymes as catalysts; kinetics and regulation. Co-factors.

502 BIOCHEMISTRY LECTURE II 3 credits
Prerequisites: 501, graduate status or permission of department. Overview of metabolism: carbohydrates, amino acids, nucleic acids; bioenergetics; carbohydrate, fatty acid, amino acid, and nucleotide anabolism and catabolism; normal control of metabolism. Photosynthesis.

506 BIOCHEMISTRY OF GENE EXPRESSION 3 credits
Prerequisite: 501 or permission of department. DNA, RNA, and protein synthesis, transcription, and translation. Gene function and expression, cell cycle and cancer, genetic engineering, gene silencing, gain of function studies.

572 ADVANCED INORGANIC CHEMISTRY 3 credits
Prerequisite: Graduate status or permission of department. Concepts of atomic structure integrated with modern concepts of chemical bonding, periodic table. Chemistry of the transition elements. Transition elements including coordination compounds, organometallics and metal carbonyls.

590 WORKSHOP IN CHEMISTRY 1-3 credits
(May be repeated) Group studies of special topics in chemistry. May not be used to meet undergraduate or graduate major requirements in chemistry.

593 SPECIAL TOPICS: CHEMICAL EDUCATION 1-3 credits
(May be repeated up to 6 credits) Consideration of topics in chemical education.

603 BIOCHEMISTRY LECTURE III 3 credits
Prerequisites: 501 and 502, graduate status or permission of department. DNA, RNA and protein metabolism. Transcription and translation. Gene function and expression.

610 BASIC QUANTUM CHEMISTRY 3 credits
Prerequisite: Graduate status or permission of department. Quantum mechanics with applications to molecular systems. Includes angular momentum, molecular orbitals, variational and perturbation methods and molecular orbital theorems.

615 SPECTROSCOPY 3 credits
Prerequisites: 501 and 510, graduate status or permission of department. Interaction of light with matter, linear and nonlinear spectroscopies. Rotational, vibrational and electronic spectroscopy. Radiative transitions and photochemical reactions.

616 TRANSITION-METAL ORGANOMETALLICS 3 credits
Prerequisite: Graduate status or permission of department. The organometallic chemistry of the transition metal elements. Topics covered include synthesis, characterization methods, structure, bonding, reactivity, and application.

620 MAIN GROUP ORGANOMETALLICS 3 credits
Prerequisite: Graduate status or permission of department. The organometallic chemistry of main group elements. Topics covered include synthesis, characterization methods, structure, bonding, reactivity, and application.

625 CHEMISTRY SEMINAR 1 credit
Prerequisite: Graduate status or permission of department. Lectures on current research topics in chemistry by invited speakers.

629 PHYSICAL INORGANIC CHEMISTRY 3 credits
Prerequisites: Graduate status or permission of department. Detailed treatment of chemistry of transition elements. Group theoretical applications, ligand field theory, kinetics and mechanisms of complex, magnetic, electronic spectra, molecular orbital theory.

630 THEORETICAL INORGANIC CHEMISTRY 2 credits
Prerequisites: 625, graduate status or permission of department. Detailed treatment of chemistry of transition elements. Group theoretical applications, ligand field theory, kinetics and mechanisms of complex, magnetic, electronic spectra, molecular orbital theory.

631 METALS IN MEDICINE 3 credits
Prerequisite: 572, graduate status or permission of department. This course will cover the synthetic and development of metal based medicines including the tumor drug cisplatin, technetium 99m based imaging agents, and silver antimicrobials.

632 THERMODYNAMICS AND STATISTICAL THERMODYNAMICS 3 credits
Prerequisite: Graduate status or permission of department. Rigorous treatment of laws of thermodynamics and their applications to selected chemical systems. Fundamentals of statistical thermodynamics and applications to systems in chemical equilibrium.

633 KINETICS 3 credits
Prerequisite: 635, graduate status or permission of department. Phenomenological kinetics, experimental methods of investigation and analysis of reaction systems. Theoretical treatments of reaction rates.

640 CHEMICAL SEPARATIONS 3 credits
Prerequisites: Graduate status or permission of department. General theory, instrumentation and application of methods of separation. Emphasis on modern chromatographic techniques and recent advances.

641 SPECTRAL METHODS 3 credits
Prerequisites: Graduate status or permission of department. Theory and application of instrumental measurements. Interpretation of data.

645 X-RAY CRYSTALLOGRAPHY 3 credits
Prerequisite: Graduate status or permission of department. 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: Graduate status or permission of department. Determination of the structures of organic compounds by spectroscopic analysis: OR/CD, UV/Vis spectroscopy, IR spectroscopy, mass spectrometry, FT-NMR spectroscopy, 2D-NMR.

679 INORGANIC POLYMERS 3 credits
Prerequisites: 572 or permission of instructor. Synthesis, structure, bonding, characterization, and applications of polypyrrole, polypyrrolephene, polyaniline, polycarboanilines, poly(ferrocenylene)s, and 1,4-dialdehyde coordination polymers, and related materials.

683 MECHANISTIC AND SYNTHETIC ORGANIC CHEMISTRY I 3 credits
Prerequisites: Graduate status or permission of department. Introduction to the structural and mechanistic aspects of organic reactions: HMO calculations, acids and bases, electrophilic, nucleophilic, linear free energy relationships, reactive intermediates, reaction mechanisms.

684 MECHANISTIC AND SYNTHETIC ORGANIC CHEMISTRY II 3 credits
Prerequisites: 683, graduate status or permission of department. Synthetic organic chemistry from a mechanistic perspective: nucleophilic and electrophilic substitution and addition reactions, aromatic chemistry, functional group manipulations, oxidations, reductions, cycloaddition reactions.

699 MASTER’S THESIS 1-6 credits
Prerequisite: Graduate status or permission of department or properly qualified candidates for master’s degree. Supervised original research in analytical, inorganic, organic, physical or biochemistry.

710 SPECIAL TOPICS: ANALYTICAL CHEMISTRY 1-3 credits
(May be repeated) Prerequisite: Graduate status or permission of department. Topics in advanced analytical chemistry. Electroanalysis, activation analysis, atomic absorption spectrophotometry, mass spectrometry, liquid-liquid, liquid-liquid, and gas chromatography, ion exchange, thermodynamical methods, separations, standards, sampling, recent developments.

711 SPECIAL TOPICS: INORGANIC CHEMISTRY 1-3 credits
(May be repeated) Prerequisite: Graduate status or permission of department. Consideration of topics in modern inorganic chemistry such as coordination compounds, chemistry of the solid state, representative elements, nonaquoic solvents, organometallic compounds, homogeneous catalysis.

712 SPECIAL TOPICS: ORGANIC CHEMISTRY 1-3 credits
(May be repeated) Prerequisite: Graduate status or permission of department. Topics in advanced organic chemistry such as natural products, heterocyclic compounds, photochemistry, mass spectrometry, FT-NMR spectroscopy, 2D-NMR.

713 SPECIAL TOPICS: PHYSICAL CHEMISTRY 1-3 credits
(May be repeated) Prerequisite: Graduate status or permission of department. Subject from modern physical chemistry.

715 SPECIAL TOPICS: BIOCHEMISTRY 1-3 credits
(May be repeated) Prerequisite: Graduate status or permission of department. Recent developments in areas of biochemistry.

720 ADVANCED BIOCHEMICAL TECHNIQUES 3 credits
Prerequisite: 502, graduate status or permission of department. An advanced lecture course on physical techniques in biochemical sciences, including chromatographic methods, radiolabeling techniques, scattering and magnetic resonance spectroscopy.
722 ENZYMATIC REACTIONS 3 credits
Prerequisites: 501, 502, graduate status or permission of department. Mechanisms of enzyme catalyzed reactions, general aspects and specific examples for phosphoryl, acyl, glycosyl transferases, energy transductions, oxidation/reduction, isomerization and rearrangements. Chemistry of cofactors.

724 BIOINORGANIC CHEMISTRY 3 credits
Prerequisites: 501 and 502, graduate status or permission of department. Survey of the structure and properties of metal ion complexes with amino acids, nucleotides, metabolites and macromolecules; metal ion metabolism; metals in medicine.

726 ADVANCED METABOLISM 3 credits
Prerequisites: 501 and 502, graduate status or permission of department. Study of advanced pathways in carbohydrate, lipid and protein metabolism with emphasis placed on metabolic dysfunction.

740 PHYSICAL ORGANIC CHEMISTRY 3 credits
Prerequisites: 603, 684, graduate status or permission of department. An advanced treatment of the theory and mechanisms of organic chemistry: FMO theory, molecular mechanics, molecular strain, kinetics, thermodynamics, acidity functions, linear free energy relationships.

750 ADVANCED SYNTHETIC ORGANIC CHEMISTRY 3 credits
Prerequisites: 603, 684, graduate status or permission of department. An advanced treatment of organic functional group manipulations in the context of the total synthesis of natural products.

899 DOCTORAL DISSERTATION 1-15 credits
Prerequisite: Graduate status or permission of department. Open to 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:

504 ASSYRIOLOGY 3 credits
(May be repeated for credit with another cuneiform language) Prerequisite: permission of instructor. The Akkadian language.

597 READING AND RESEARCH IN THE ANCIENT NEAR EAST 3-13 credits
Prerequisite: permission of instructor. Advanced work in various aspects of Ancient Near Eastern Studies (Archaeology, Assyrology, Egyptology, etc.).

ANTHROPOLOGY 3230:

510 EVOLUTION AND HUMAN BEHAVIOR 3 credits
Prerequisite: Permission. Critical examination of the theory of natural selection and its usefulness for understanding the origins and evolution of early hominid and modern human social behavior.

516 ANTHROPOLOGY OF SEX AND GENDER 3 credits
Prerequisite: Permission. This course explores cross-cultural variation regarding sex, gender, and sexuality. It examines the ways that cultures create, maintain, and reproduce gender concepts and gender relations.

520 THE ANTHROPOLOGY OF FOOD 3 credits
Prerequisite: Permission. Using 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: Permission. Examination of functional and causal relationships between culture and individual cognition and behavior. Lecture.

567 MEDICAL ANTHROPOLOGY 3 credits
Prerequisite: Permission of instructor. Analyzes various aspects of Western and non-Western medical systems from an anthropological perspective. Compares traditional medical systems around the world.

560 QUALITATIVE METHODS: BASIS OF ANTHROPOLOGICAL RESEARCH 4 credits
Prerequisite: 557 or permission. Provides hands-on experience in qualitative methods, including key informant interviewing, focus groups and other methods. Includes the use of computer-based programs for rapid data appraisal strategies.

563 SOCIAL ANTHROPOLOGY 3 credits
Prerequisite: Permission. Comparative structural analysis of non-Western systems of kinship and social organization in terms of status, role, reciprocal expectation, nomenclature, nuclear and extended households and other kinship groupings. Lecture.

572 SPECIAL TOPICS: ANTHROPOLOGY 3 credits
(May be repeated) Prerequisite: Permission. Designed to meet the needs of students with interests in selected topics in anthropology. Offered only when resources and opportunities permit. May include archaeological field school, laboratory research or advanced course work not presently offered by department on a regular basis.

598 WORKSHOP IN ANTHROPOLOGY 1-3 credits
(May be repeated) Group studies of special topics in anthropology. May not be used to meet departmental undergraduate or graduate major requirements. May be used for elective credit only.

651 SEMINAR IN ANTHROPOLOGICAL THEORIES AND METHODS 3 credits

697 INDIVIDUAL INVESTIGATION 1-3 credits
Prerequisites: permission of instructor and chair of department. Intensive reading and/or research on student's chosen field of interest. Regular conferences with instructor. Preparation of a research paper.

ARCHAEOLOGY 3240:

500 ARCHAEOLOGICAL THEORY 3 credits
Prerequisite: Permission. Advanced seminar covering history of scientific archeological exploration, major theoretical paradigms, and current trends in archaeology. Required for Certification in Field Archaeology.

510 ARCHAEOGEOGRAPHICAL SURVEY 3 credits
Prerequisite: Permission. Advanced instruction in principles of subsurface geophysical survey techniques in archaeology. Emphasizes magnetic gradiometry and electrical resistivity techniques, including both laboratory and field work.

520 ARCHAEOLOGY OF OHIO 3 credits
Prerequisite: Permission. Provides detailed overview of Ohio's prehistoric cultures and the methodological period focusing on cultural evolution and environmental relationships.

540 ARCHAEOLOGICAL LABORATORY METHODS 3 credits
Prerequisite: Permission. Advanced laboratory processing and study of lithic, ceramic, paleoontological, metallic, archaeological materials. Emphasis varies with instructor expertise. Involves instrumental or statistical analysis.

550 ARCHAEOLOGICAL FIELD SCHOOL 1-6 credits
Prerequisite: Permission. Field-based course teaching basic archaeological techniques: mapping, excavation of prehistoric and historic sites, survey and documentation. Repeatable for up to six credits.

572 SPECIAL TOPICS IN ARCHAEOLOGY 1-6 credits
Prerequisite: Permission. Designed to meet the needs of students with interests in selected topics in archaeology. Offered only when resources and opportunities permit. May include archaeological field school, laboratory research or advanced course work not presently offered by department on a regular basis. Repeatable for up to six credits.

ECONOMICS 3250:

506 STATE AND LOCAL PUBLIC FINANCE 3 credits
Prerequisite: Admission to the master's program in Economics or permission. Examines economic rationale and problems for provision of goods and services by different governmental units. Considers alternative revenue sources and special topics.

515 COST-BENEFIT ANALYSIS 3 credits
Prerequisite: Admission to the master's program in Economics or permission. Introduction to tools and techniques for use in public project evaluation. Includes development of analytical framework and methods of determining benefits and costs over time. Stresses application of techniques.

523 APPLIED GAME THEORY 3 credits
Prerequisite: Admission to the master's program in Economics or permission. 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.

527 ECONOMIC FORECASTING 3 credits
Prerequisites: Admission to the master's program in Economics or permission. Study of methods for building, identifying, fitting, and checking dynamic economic models and the use of these models for forecasting. Emphasis is on the application of available computer software systems.

530 LABOR MARKET AND SOCIAL POLICY 3 credits
Prerequisite: Admission to the master's program in Economics or permission. Intensive study of current labor and social policy issues (e.g., discrimination, poverty, migration, education, immigration, and labor market problems). Impact of international trade on employment and wages.

534 LABOR MARKET ANALYSIS AND EVALUATION 3 credits
Prerequisites: Admission to the master's program in Economics or permission. Applied labor market research using specialized techniques. Employment, education, labor market and current policy issues and programs analyzed and evaluated. Original research project required.

536 HEALTH ECONOMICS 3 credits
Prerequisite: permission of instructor. Economic analysis of health care. Studies health policy issues, includes study of demand and supply of medical services and insurance, analysis of health care industries.

538 ECONOMICS OF SPORTS 3 credits
Prerequisite: permission of instructor. Sports franchises as profit maximizing firms and benefits of a franchise to a city; labor markets in professional sports; the economics of college football.

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

546 ECONOMICS OF DEVELOPING COUNTRIES 3 credits
Prerequisite: Admission to the master's program in Economics or permission. 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.

561 PRINCIPLES OF INTERNATIONAL ECONOMICS 3 credits
Prerequisites: Admission to the master's program in Economics or permission. International trade and foreign exchange, policies of free and controlled trade, international monetary problems.

575 DEVELOPMENT OF ECONOMIC THOUGHT 3 credits
Prerequisites: Admission to the master's program in Economics or permission. Evolution of theory and method, relation of ideas of economists contemporary to conditions.

581 MONETARY AND BANKING POLICY 3 credits
Prerequisite: Admission to the master's program in Economics or permission. Control over currency and credit, policies of control by central banks and governments, United States Treasury and Federal Reserve System.

587 URBAN ECONOMICS: THEORY AND POLICY 3 credits
Prerequisite: Admission to the master's program in Economics or permission. Analysis of urban issues from an economic perspective. Emphasis on urban growth, land-use patterns, housing, housing, finance, and urban fiscal policy.

591 WORKSHOP IN ECONOMICS 1-3 credits
(May be repeated) Group studies of special topics in economics. May not be used to meet undergraduate or graduate major requirements in economics. May be used for elective credit only.

600 FOUNDATIONS OF ECONOMIC ANALYSIS 3 credits
Prerequisite: graduate standing. Determination of national income, employment and price level; aggregate consumption, investment and asset holding; decision problems faced by household and firm. Partial equilibrium and analysis of competition and monopoly and general equilibrium analysis. May not be substituted for 602, 603, 611, or applied toward the 30 graduate credits required for M.A. in economics.

605 MACROECONOMIC ANALYSIS I 3 credits
Prerequisite: Admission to the master's program in Economics or permission. Examination of public sector economics emphasizes public revenues, public expenditures, develops objectives of taxation, welfare aspects of the public sector, theory of public goods. Considers specific taxes, cost-benefit analysis, expenditures analysis, fiscal federalism.

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

611 MICROECONOMIC THEORY I 3 credits
Prerequisite: Admission to the master's program in Economics or permission. Development of microeconomic theory of competitive behavior of the firm. Determination of market prices. Optimization models, establishment of criteria for products, allocative and distributive efficiency.

615 INDUSTRIAL ORGANIZATION 3 credits
Prerequisite: 611 or permission. Examines link between market structure, firm conduct and economic performance. Measurement and effects of monopoly power, industrial concentration and changes.
517 THE ECONOMICS OF REGULATION 3 credits
Prerequisite: 615 or permission of instructor. Examines rationale, methods and success of government regulation of public-transportation and communications industries.

620 APPLICATIONS OF MATHEMATICAL MODELS TO ECONOMICS 3 credits
Prerequisites: Admission to the master’s program in economics or permission of the department. Review of selected topics of differential and integral calculus and their application to economic theory. Theory of optimization in production and consumption, static macroeconomic models. Analysis of growth and stability.

621 APPLICATION OF LINEAR MODELS IN ECONOMIC ANALYSIS 3 credits
Prerequisites: Admission to the master’s program in economics or permission of the department. Review of selected topics of linear algebra applied to economic theory. Static and dynamic input-output tables, dynamic models, consumption technology and theory of demand, linear programming, general equilibrium analysis.

626 APPLIED ECONOMETRICS II 3 credits
Prerequisite: 626 or equivalent. Students will learn advanced econometric topics, continuing to build on modeling, interpretation, and evaluation skills through economic problems, culminating in an empirical research paper.

628 SEMINAR IN RESEARCH METHODS 3 credits
Prerequisite: Admission to the master’s program in economics or permission of the department. A seminar in the research use of advanced mathematical or econometrics or economic models. Emphasis is on individual development of a theoretical proposition or research statement, its empirical examination and policy implications.

633 THEORY OF WAGES AND EMPLOYMENT 3 credits
Prerequisite: Admission to the master’s program in economics or permission of the department. An analytical approach of economic theory with observed labor market phenomena. Discussion of wage and employment theories, effects of unions, collective bargaining theories and effects of government regulation.

640 SPEECH IN ECONOMIC CONTEXTS 3 credits
Prerequisite: Admission to the master’s program in economics or permission of the department. Opportunity to study special topics and current issues in economics at an advanced level. Repeatable with permission of the instructor.

664 SEMINAR ON ECONOMIC GROWTH AND DEVELOPMENT 3 credits
Prerequisite: Admission to the master’s program in economics or permission of the department. Study of major issues of economic growth since age of classical economic problems in development of emerging countries. Discussion of aggregate macroeconomic models of capital formation, investment, consumption and external trade.

666 SEMINAR ON REGIONAL ECONOMIC ANALYSIS AND DEVELOPMENT 3 credits
Prerequisite: Admission to the master’s program in economics or permission of the department. Study of a particular national or international regional development. Any one or a combination of following regions may be considered: Middle East, North Africa, areas within Latin America, Southern Europe, Southeast Asia or Eastern Europe.

670 INTERNATIONAL MONETARY ECONOMICS 3 credits
Prerequisite: Admission to the master’s program in economics or permission of the department. International financial relations. Foreign exchange market and exchange rate adjustments. Balance of payments adjustments policies. International monetary system.

671 INTERNATIONAL TRADE 3 credits
Prerequisite: Admission to the master’s program in economics or permission of the department. Traditional trade theory. Recent developments in trade policy, policy implications in trade relations among developed and developing economics.

683 MONETARY ECONOMICS 3 credits
Prerequisite: Admission to the master’s program in economics or permission of the department. Study of money and value theory among other areas, plus some pressing policy issues.

695 GRADUATE INTERNSHIP IN ECONOMICS 3 credits
Prerequisites: Eighteen hours of economics graduate courses. Career application completed by student’s graduate coursework. Supervisor reports and assignments required. May be repeated for a maximum of three credits.

697 READING IN ADVANCED ECONOMICS 1-4 credits; each
Prerequisite: Admission to the master’s program in economics or permission of the department. (A maximum of six credits may be applied toward the master’s degree in economics.) Internship assignment of specific topics in advanced economics under supervision of instructor. Since the subject matter is decided upon in each case, the course may be taken up to the maximum credit.

699 MASTER’S THESIS 3 credits
(May be repeated for a total of six credits)

500 ANGLO SAXON 3 credits
Study of Old English language and Old English prose and poetry, including Beowulf.

503 DEVELOPMENT OF THE ARTHURIAN LEGEND 3 credits
Traces evolution of Arthurian materials from 540 to 1500 and beyond, with emphasis on characters, themes, events and treatments. Traces evolution of Arthurian materials from 540 to 1500 and beyond, with emphasis on characters, themes, events and treatments.

506 CHAUCER 3 credits
Close study of Chaucer’s major works – The Canterbury Tales and Troilus and Criseyde in Middle English.

507 MIDDLE ENGLISH LITERATURE 3 credits
Study of genres, topics, styles and writers of the Middle English literary works from 12th to 15th centuries. Readings in Middle English.

521 SWIFT AND POPE 3 credits
An intensive study of the major satires of Swift and Pope. Concentration on the satirical strategies of each author within the context of the shifting intellectual and cultural milieu at the end of the 17th and beginning of the 18th Centuries.

524 EARLY ENGLISH FICTION 3 credits

530 VICTORIAN POETRY AND PROSE 3 credits
Poetry, prose of the late 19th Century, excluding fiction, with attention to Tennyson, Browning, Arnold, Carlyle, Ruskin and other major writers.

531 VICTORIAN FICTION 3 credits
Reading major novels of Victorian era, of varying length, by Emily Bronte, Dickens, Eliot, Thackeray, Hardy. Characterization, theme, and attitude toward life emphasized.

535 20TH CENTURY BRITISH POETRY 3 credits
Concentrated study of major poems of Yeats, Eliot, Auden with attention also to Hardy, Housman, Spender, C. Day Lewis, Dylan Thomas and others.

536 BRITISH FICTION: 1900-1925 3 credits
Study of Conrad, Joyce, D.H. Lawrence, and Virginia Woolf with attention to their innovations in form, style, their contribution to modernist fiction.

537 BRITISH FICTION SINCE 1925 3 credits
Study of important British novelists since 1925, excluding Lawrence, Joyce, and Woolf. Attention to development of British short story from 1925 to present.

540 AMERICAN ROMANTIC FICTION 3 credits
Examination of early American fiction, tracing its genesis, romantic period and germinal movements toward realism. Writers discussed include Cooper, Poe, Hawthorne, and Melville.

545 AMERICAN FICTION: REALISM AND NATURALISM 3 credits
Examination of American writers of realistic and naturalistic fiction (e.g. Howells, James, Crane, Dreiser), tracing developments in American fiction against background of cultural and social change.

550 MODERN AMERICAN FICTION 3 credits
Study of significant American short and long fiction from World War I to the present.

553 AMERICAN WOMEN POETS 3 credits
Study of modern poets’ uses and revisions of tradition, women’s relationships, constructions of life and the artist-as-woman, and the debate between “public” and “private” poetry.

556 THOREAU, EMERSON, AND THEIR CIRCLE 3 credits
A study of the life and work of Henry David Thoreau, Ralph Waldo Emerson, and other key figures of the American Renaissance.

557 WRITERS ON WRITING 3 credits
A close look at what established writers have to say about the process of writing. Students write response essays and take exams on readings.

560 FILM AND LITERATURE 3 credits
Analysis of literary texts and their film adaptations. Emphasis on genre, structure, and visual elements.

566 LINGUISTICS AND LANGUAGE ARTS 3 credits
Foundation course in linguistics with pedagogical implications for second language learners. Fundamental topics (morphology, syntax, semantics, phonetics, pragmatics) and related topics (sociolinguistics, contrastive analysis) covered.

567 MODERN EUROPEAN FICTION 3 credits
Representative European writing from about 1850 to present, in translation. Focuses on fiction of such writers as Zola, Tolstoy, Dostoevsky, Mann, Proust, Kafka and Solzhenitsyn.

568 INTERNATIONAL POETRY 3 credits
This survey of world poetry focuses on the stylistic concerns and social consequences of literary movements in Latin America, Africa, Europe, and beyond.

586 LEARNER ENGLISH 3 credits
Prerequisite: Admission to the master’s program in economics or permission of the department. Theoretical and practical issues in teaching English as a second language. Focus on theoretical and practical issues in teaching English as a second language. Focus on theoretical and practical issues in teaching English as a second language. Focus on theoretical and practical issues in teaching English as a second language.

589 GRAMMATICAL STRUCTURES OF MODERN ENGLISH 3 credits
Prerequisite: Admission to the master’s program in economics or permission of the department. The study of differences in pronunciation, vocabulary and grammar among U.S. language varieties. Origins, regional and social dimensions are explored. Correctness, focusing on black English and Appalachian speech, explored.

592 SYNTAX 3 credits
Principles of syntactic description. Sentence structures are investigated from a variety of languages, with emphasis on English.

593 THEORETICAL FOUNDATIONS AND PRINCIPLES OF ESl 3 credits
Prerequisite: Admission to the master’s program in economics or permission of the department. Fundamental topics (morphology, syntax, semantics, phonetics, pragmatics) and related topics (sociolinguistics, contrastive analysis) covered.

594 MODERN EUROPEAN FICTION 3 credits
Study of the literature of European countries from about 1850 to present, in translation. Focuses on fiction of such writers as Zola, Tolstoy, Dostoevsky, Mann, Proust, Kafka and Solzhenitsyn.

597 THEORY OF RHETORIC 3 credits
Study of the different rhetorical topics and their application to teaching of English.

599 ADVANCED ENGLISH 3 credits
Major sociolinguistic concepts and methodology examined, as well as relationships between language, sociocultural factors, and education. Issues of Standard English, power, and gender also examined.

600 GRAMMATICAL STRUCTURES OF MODERN ENGLISH 3 credits
Contemporary understanding of Modern English sentence structure: parts of speech, sentence types, phrase types, modification, coordination and subordination, parentheticals. Traditional grammar and sentence rhetoric discussed.

500 MANAGEMENT REPORTS 3 credits
Study of principles and writing practice in effective business style, specialized structure, and purpose for business reports.

505 SCIENCE FICTION 3 credits
A study of twentieth-century British and American science fiction, featuring primary forms of the science fiction story and the work of major authors.

506 LEARNER ENGLISH 3 credits
Introduction to tools for and practice in analyzing second language learners’ production of English. Theory and practice of teaching oral and written English also covered.

510 FIELD EXPERIENCE: TEACHING SECOND LANGUAGE LEARNERS 3 credits
Prerequisite: Permission of the instructor is required to enroll. Practical experience in which students teach-in-training observe, participate in, and practice teaching under the supervision of the instructor and/or an experienced, certified teacher.

520 MODERN ENGLISH 2-3 credits
May be repeated with different topics.) Special studies, and methods of literary research, in selected areas of English and American literature and language.

525 WORKSHOP IN ENGLISH 1.5 credits
May be repeated with different topics.) Group studies of special topics in English. Cannot be used to meet undergraduate or graduate major requirements in English; for elective credit only.

560 INTERNATIONAL ENGLISH 1.5 credits
Prerequisite: permission of instructor. Graduate internship, including analytical reading and writing focused on liberal arts and career applications of the study of English. May count up to three credits.

568 TEACHING COLLEGE COMPOSITION PRACTICUM 3 credits
Prerequisite: teaching assistantship. Orientation and weekly analysis of teaching rationale and practice, limited to teaching assistants in the Department of English. (Credits may not be used to meet M.A. in English degree requirements.)
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>SHAKESPEAREAN DRAMA</td>
<td>3 credits</td>
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<tr>
<td>Concentrated study of several Shakespearean plays with emphasis on historical, critical, and dramatic analysis.</td>
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<tr>
<td>SHAKESPEARE’S CONTEMPORARIES IN ENGLISH DRAMA</td>
<td>3 credits</td>
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<tr>
<td>Readings in such playwrights as Lyly, Greene, Marlowe, Jonson, Beaumont, Fletcher, Webster, Middleton and Ford and in contemporary writings relevant to theory and practice of drama.</td>
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<tr>
<td>MILLION DRAMA</td>
<td>3 credits</td>
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<tr>
<td>Emphasis on Milton’s major poems and prose works: Paradise Lost, Paradise Regained, Areopagitica. Student becomes acquainted with Milton the man and Milton the artist.</td>
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<tr>
<td>SEVENTEENTH-CENTURY ENGLISH LITERATURE</td>
<td>3 credits</td>
</tr>
<tr>
<td>An examination of seventeenth-century British authors, including Donne, Jonson, Marvell, Milton, Bacon and Bunyan, and their canonical positions, their craft and their literary criticism.</td>
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<tr>
<td>AUTOBIOGRAPHY AS LITERATURE</td>
<td>3 credits</td>
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<tr>
<td>This course examines the genre of autobiography and memoir. A wide representation of autobiographies will be the focus of discussion and analysis.</td>
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<tr>
<td>AUTOBIOGRAPHICAL WRITING</td>
<td>3 credits</td>
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<tr>
<td>Under a workshops format, this course examines autobiographical essays written by well-known authors. Attention will also be given to the art and craft of writing autobiography.</td>
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<tr>
<td>KEATS AND HIS CONTEMPORARIES</td>
<td>3 credits</td>
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<tr>
<td>Writings of John Keats, studied against background of romantic poetic theory and poetry of Keats contemporaries.</td>
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<tr>
<td>LITERATURE OF THE 1930s</td>
<td>3 credits</td>
</tr>
<tr>
<td>A study of 1930s American literature in its social context, using recent critical theory to examine relationships between history and literature.</td>
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<tr>
<td>SEMINAR IN JAMES</td>
<td>3 credits</td>
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<tr>
<td>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.</td>
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<tr>
<td>POE AND HAWTHORNE</td>
<td>3 credits</td>
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<tr>
<td>Substantial readings from each author: tales, novels, essays, letters, poetry. Also, representative literary criticism about each author.</td>
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<tr>
<td>WHITTEN AND DICKINSON</td>
<td>3 credits</td>
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<tr>
<td>Students will study the work of Walt Whitman, Emily Dickinson, and the appropriate recent scholarship. Students conduct, write about, and present their own scholarly research.</td>
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<tr>
<td>THE NEW Rhetorics</td>
<td>3 credits</td>
</tr>
<tr>
<td>This seminar examines the impact of rhetorical theory on the study and teaching of writing. We will study works from classical, modern, and postmodern rhetoricians.</td>
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<tr>
<td>PRAGMATISTS</td>
<td>3 credits</td>
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<tr>
<td>This seminar examines the pragmatic roots of composition studies - the “tact tradition,” including the classical expression, and criticism of that movement.</td>
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<tr>
<td>CULTURAL STUDIES: THEORY AND PRACTICE</td>
<td>3 credits</td>
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<tr>
<td>This course explores the relationship between Cultural Studies and English Studies, examining the impact of Cultural Studies on the practice of textual analysis.</td>
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<tr>
<td>LITERARY CRITICISM</td>
<td>3 credits</td>
</tr>
<tr>
<td>Inquiry into nature and value of literature and problems of practical criticism as represented in major statements of ancient and modern critics.</td>
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<tr>
<td>MODERN LINGUISTICS</td>
<td>3 credits</td>
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<tr>
<td>Introductory examination of methods and results of modern grammatical research in syntax, semantics, phonology and dialects. Goals include understanding of language variation and background preparation for linguistic studies of literature.</td>
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<tr>
<td>COMPOSITION</td>
<td>3 credits</td>
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<tr>
<td>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 developmental readings and presentations.</td>
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<tr>
<td>RESEARCH METHODOLOGIES IN COMPOSITION</td>
<td>3 credits</td>
</tr>
<tr>
<td>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.</td>
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<tr>
<td>WRITING FOR MBAs</td>
<td>3 credits</td>
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<tr>
<td>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.</td>
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<tr>
<td>THEORY AND TEACHING OF BASIC COMPOSITION</td>
<td>3 credits</td>
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<tr>
<td>Review of current research and exploration of specific instructional methods for teaching basic composition.</td>
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<tr>
<td>SCIENCE WRITING</td>
<td>3 credits</td>
</tr>
<tr>
<td>Study of principles and writing practice for effective communication in the physical or social sciences, including purpose, audience, specialized document structure, and oral presentations.</td>
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<tr>
<td>SCHOLARLY WRITING</td>
<td>3 credits</td>
</tr>
<tr>
<td>Study of composing, analyzing and evaluating academic arguments. Practice in specific forms of academic writing such as reviews of research, articles and book reviews.</td>
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<tr>
<td>SEMINAR IN SATIRE</td>
<td>3 credits</td>
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<tr>
<td>A study of satire from the middle ages through the late 20th Century, with particular attention to techniques of satiric attack on politics, social, and literary criticism.</td>
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<tr>
<td>SEMINAR IN ENGLISH</td>
<td>3 credits</td>
</tr>
<tr>
<td>May be repeated with change of topics. Special topics within the general field of literature and language, usually focusing on major figures or themes.</td>
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<tr>
<td>INDIVIDUAL READING IN ENGLISH</td>
<td>1-3 credits</td>
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<tr>
<td>Individual study under guidance of professor who directs and coordinates student’s reading and research.</td>
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<tr>
<td>MASTER’S THESIS</td>
<td>1-4 credits</td>
</tr>
<tr>
<td>Original work in the field of literature and language and completion of graduate student’s required thesis.</td>
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</table>

**GEOGRAPHY AND PLANNING**

<table>
<thead>
<tr>
<th>Advanced Courses</th>
<th>3 credits</th>
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<tbody>
<tr>
<td>GEOGRAPHIC INFORMATION SYSTEMS</td>
<td>3 credits</td>
</tr>
<tr>
<td>Introduction to the principles and concepts underlying geographic information systems (GIS) and their application in professional practice and academic laboratory.</td>
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<tr>
<td>ADVANCED GEOGRAPHIC INFORMATION SYSTEMS</td>
<td>3 credits</td>
</tr>
<tr>
<td>Prerequisite: 505 or permission. Advanced instruction in the theory and application of geographic information systems (GIS) including hands-on experience with both raster and vector GIS. Laboratory.</td>
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<tr>
<td>ARCHAEOGEOPHYSICAL SURVEY</td>
<td>3 credits</td>
</tr>
<tr>
<td>Prerequisite: Permission. Advanced instruction in subsurface geophysical survey techniques in archaeological settings. Emphasis on magnetic gradiometry and electrical resistivity techniques, image processing and geological and archaeological interpretation.</td>
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<tr>
<td>ENVIRONMENTAL PLANNING</td>
<td>3 credits</td>
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<tr>
<td>Scientific and technical principles for decision-making in planning, with emphasis on soils, land use, and water quality issues. Data sources and methods of site evaluation.</td>
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<tr>
<td>URBAN GEOGRAPHY</td>
<td>3 credits</td>
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<tr>
<td>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.</td>
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<tr>
<td>TRANSPORTATION SYSTEMS PLANNING</td>
<td>3 credits</td>
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<tr>
<td>Study and analysis of transportation systems from a geographic perspective. Emphasis on transportation problems and issues, elements of transportation planning.</td>
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<tr>
<td>MILITARY GEOGRAPHY</td>
<td>3 credits</td>
</tr>
<tr>
<td>Influence of physical and human geography on military operations and military history. Role played by geography in international conflicts.</td>
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<tr>
<td>LAND USE PLANNING LAW</td>
<td>3 credits</td>
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<tr>
<td>Acquaint student with past and present approaches to land use control in the United States and examine the political, economic, social and legal forces which have shaped existing land-use legislation.</td>
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<tr>
<td>PRACTICAL APPROACHES TO PLANNING</td>
<td>3 credits</td>
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<tr>
<td>Role of geographic investigation in city, regional and resource planning.</td>
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<tr>
<td>PLANNING ANALYSIS AND PROJECTION METHODS</td>
<td>3 credits</td>
</tr>
<tr>
<td>Introduction to the primary analytic techniques for small-area demographic and economic analysis of population distribution.</td>
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<tr>
<td>LAND USE PLANNING METHODS</td>
<td>3 credits</td>
</tr>
<tr>
<td>Application of GIS and other computer-based tools to the preparation, implementation and evaluation of comprehensive land use plans.</td>
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<tr>
<td>HISTORY OF URBAN DESIGN AND PLANNING</td>
<td>3 credits</td>
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<tr>
<td>Origins of human settlements and planning from the perspective of urban design and related societal trends. Comparison of world regional and historical urban forms. Experience in ‘reading’ settlements as visual landscapes.</td>
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<tr>
<td>CARTOGRAPHY</td>
<td>3 credits</td>
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<tr>
<td>Theoretical and practical applications of cartographic principles used to design and produce maps for research reports, public presentations, publication, and other professional uses.</td>
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<tr>
<td>GLOBAL POSITIONING SYSTEMS (GPS)</td>
<td>3 credits</td>
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<tr>
<td>Fundamentals of Global Positioning Systems (GPS), with emphasis on geographic and planning activities. Includes hands-on exercises.</td>
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<tr>
<td>CARTOGRAPHIC THEORY AND DESIGN</td>
<td>3 credits</td>
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<tr>
<td>Prerequisite: 540 or permission. Principles and techniques of thematic mapping. Stresses maps as communication tools. Examines principal thematic mapping techniques and means of presenting quantitative and qualitative data. Laboratory.</td>
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<tr>
<td>URBAN APPLICATIONS IN GIS</td>
<td>3 credits</td>
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<tr>
<td>Prerequisites: 505 or permission. Applications of GIS in the urban context, including methods used for analysis of population density gradients, migration, and accessibility.</td>
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<tr>
<td>APPLICATIONS IN CARTOGRAPHY AND GEOGRAPHIC INFORMATION SYSTEMS</td>
<td>3 credits</td>
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<tr>
<td>Prerequisites: 505, 540, or permission. Application of analytic and presentation techniques from cartography and geographic information systems to practical problems in geography and planning. Laboratory.</td>
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<tr>
<td>GIS DATABASE DESIGN</td>
<td>3 credits</td>
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<tr>
<td>Prerequisite: 505 or permission. Introduction to theory and concepts of geographic data modeling, geodatabase design, and topology. Emphasis on current practices and methodologies in geography and planning.</td>
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<tr>
<td>GIS PROGRAMMING AND CUSTOMIZATION</td>
<td>3 credits</td>
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<tr>
<td>Prerequisites: 505 or permission. Introduction to use of scripting languages for customizing the interface and extending the functionality of desktop GIS software.</td>
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<tr>
<td>REMOTE SENSING</td>
<td>3 credits</td>
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<tr>
<td>Concepts, systems, and methods of applying aerial photography, satellite imagery, and other remote-sensing data for analyzing geographic, geological, and other earth phenomena. Laboratory.</td>
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<tr>
<td>REMOTE SENSING</td>
<td>3 credits</td>
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<tr>
<td>Prerequisites: 547 or permission. Current research in remote sensing. Applications in study of human cultural and biophysical environment. Practice in planning, design, execution and interpretation of remote sensing studies. Laboratory.</td>
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<tr>
<td>DEVELOPMENT PLANNING</td>
<td>3 credits</td>
</tr>
<tr>
<td>A study of planning concepts and techniques for developing countries, including growth and development, planning agencies, regional inequities and alternative approaches.</td>
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<tr>
<td>POLITICAL GEOGRAPHY</td>
<td>3 credits</td>
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<tr>
<td>Principles and theory in contemporary domestic and international political geographies. Emphasis on the changing local and global patterns of electoral politics, security, and diplomacy.</td>
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<tr>
<td>RESEARCH METHODS IN GEOGRAPHY AND PLANNING</td>
<td>3 credits</td>
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<tr>
<td>Investigation of library and archive resources. Emphasis on development of professional writing skills.</td>
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<tr>
<td>SPATIAL ANALYSIS</td>
<td>3 credits</td>
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<tr>
<td>Analysis of mapped statistical surfaces. Principles for use of map as model for statistical evidence, prediction, hypothesis testing.</td>
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<tr>
<td>SPECIAL TOPICS IN GEOGRAPHY</td>
<td>3 credits</td>
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<tr>
<td>May be repeated. Selected topics of interest in geography.</td>
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<tr>
<td>WORKSHOP IN GEOGRAPHY</td>
<td>1-3 credits</td>
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<tr>
<td>(May be repeated for a total of six credits) Group studies of special topics in geography.</td>
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<tr>
<td>WATER FIELD STUDIES</td>
<td>3 credits</td>
</tr>
<tr>
<td>Properties, origins and uses of major soil and water regime landscapes. Stresses relationships between soil and the hydrological cycle, urbanization, suburbanization and agriculture. Field trips required.</td>
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<tr>
<td>FIELD RESEARCH METHODS</td>
<td>3 credits</td>
</tr>
<tr>
<td>Field work enabling student to become competent in collecting, organizing and analysis of data while carrying out field research projects. Field trips required.</td>
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<tr>
<td>REGIONAL FIELD STUDIES</td>
<td>1-3 credits</td>
</tr>
<tr>
<td>Off-campus intensive study of geographic features of a region or regions through direct observation and travel using appropriate field study methods. (Repeatable up to six credits)</td>
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</tbody>
</table>
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 developed world. Particular attention will be given to the planning experiences of European nations and their impact on American planning theory and practice.

680 ADVANCED SPATIAL ANALYSIS 3 credits
Prerequisites: GEO 553 or permission. Advanced concepts and methodologies in geospatial research. Emphasis on quantitative revolution in geographical analysis including multivariate and spatial analysis, factor and component analysis, and multidimensional scaling.

685 PLANNING INTERNSHIP 3 credits
Prerequisite: permission. Individual experience in selected planning agencies for supervised performance in professional planning work. (May be repeated but only 3 credits may be applied to total credit hours needed for degree requirements.) Credit/Non-Credit.

687 HISTORY OF GEOGRAPHIC THOUGHT 3 credits
Critical review of major developments in geographic concepts from ancient times to present.

505 ARCHAEOLOGICAL GEOLOGY 3 credits (includes lab)
Prerequisite: Admission to the Geology master's program or permission. Provides background in geologic principles and techniques relevant to archaeologists. Topics include stratigraphy, absolute dating, location assessment, zoonoarchaeology, taphonomy, and remote sensing. Required lab and field trips.

507 ARCHAEOGEOPHYSICAL SURVEY 3 credits
Prerequisites: Admission to the Geology master's program or permission. Advanced instruction in the use of geophysical survey techniques in archaeology. Emphasis on magnetic, gamma-ray and electrical resistivity techniques, image processing and geological and archaeological interpretation.

510 REGIONAL GEOLOGY OF NORTH AMERICA 3 credits
Prerequisites: Admission to the Geology master's program or permission. Examination of physiographic provinces of North America emphasizing structure, tectonic setting, stratigraphy and processes responsible for landforms in each province. Laboratory, Field trips.

511 GLACIAL GEOLOGY 3 credits
Prerequisite: Admission to the Geology master's program or permission. Causes and effects of Pleistocene expansion of polar ice masses with emphasis on glacial deposits and world climatic changes. Field trips.

521 COASTAL GEOLOGY 3 credits
Prerequisite: Admission to the Geology master's program or permission. Study of the origins and evolution of coasts and coastal deposits with particular attention paid to the interaction of waves and currents with sediment, and the development of associated sedimentary features. Field trips.

525 PRINCIPLES OF SEDIMENTARY BASIN ANALYSIS 3 credits
Prerequisites: Admission to the Geology master's program or permission. Primarily the study of depositional systems, regional and global stratigraphic cycles, and sedimentation and plate tectonics.

532 OPTICAL MINERALOGY-INTRODUCTORY PETROGRAPHY 3 credits
Prerequisite: Admission to the Geology master's program or permission. Optical background for identification, characterization, and classification of minerals and rocks using the petrographic microscope. Laboratory.

533 ADVANCED PETROGRAPHY 3 credits
Prerequisites: 532. Petrogenesis of igneous, metamorphic and sedimentary rocks as determined by microscopic studies of textures and mineral assemblages using thin section. Laboratory.

535 PALEOCOLOGY 3 credits
Prerequisite: Admission to the Geology master's program or permission. Natural occurrences of petroleum. Characteristics, origin, entrapment and exploration methods. Laboratory. Field trips.

536 COAL GEOLOGY 3 credits
Prerequisites: Admission to the Geology master's program or permission. Origin, composition and occurrence of coal with emphasis on depositional environments, coalification processes, exploration, evaluation and exploitation. Laboratory. Field trips.

537 ECONOMIC GEOLOGY 3 credits
Prerequisites: Admission to the Geology master's program or permission. Study of metallic and nonmetallic mineral deposits emphasizing paragenesis and exploration. Laboratory. Field trips.

541 FUNDAMENTALS OF GEOPHYSICS 3 credits
Prerequisites: Admission to the Geology master's program or permission. Fundamental concepts in solid earth geophysics, planetary physics, geodesy, and geomagnetism. Contributions of geophysics to recent major developments in geoscience.

544 ENVIRONMENTAL MAGNETISM 3 credits
Prerequisites: Admission to the Geology master's program or permission. Introduction to the theory and methods of environmental magnetism and the application of environmental magnetism to interpreting sedimentary deposits.

545 ENVIRONMENTAL AND ENGINEERING GEOPHYSICS 3 credits

546 EXPLORATION GEOPHYSICS 3 credits
Prerequisites: Admission to the Geology master's program or permission. Basic principles and techniques of geophysical exploration with emphasis on gravimetric, magnetic, seismic and electrical methods, and applications to geologic problems. Laboratory. Field trips.

550 ADVANCED STRUCTURAL GEOLOGY 3 credits
Prerequisite: Admission to the Geology master's program or permission. Fundamental and advanced concepts of structural geology with emphasis on current and developing concepts. Laboratory. Field trips.

551 FIELD/LAB STUDIES IN ENVIRONMENTAL SCIENCE 3 credits
Prerequisite: permission. A Field/Laboratory inquiry into a specific interdisciplinary, environmental science topic. Students complete a research project, field survey, and scientific presentation analyzing real world data. May be repeated for a maximum of six credit hours.

552 GEOLOGY AND ENVIRONMENTAL SCIENCE SERVICE LEARNING 1-3 credits
Graduate students gain experience as project managers for class projects by designing research plans, supervising data collection, lab analyses, and preparing final project reports.

553 GEOLOGY FIELD CAMP I 3 credits
Prerequisites: Admission to the Geology master's program and permission. Introduction to collection and interpretation of field data and construction of geological maps.

554 GEOLOGY FIELD CAMP II 3 credits
Prerequisites: Admission to the Geology master's program and permission. Advanced techniques necessary for interpreting detailed geological features.

555 FIELD STUDIES IN GEOLOGY 1-3 credits
Prerequisites: Permission of instructor. Field trip course emphasizing aspects of geology not readily available in Ohio. Generally studied in Ohio. Prior study preparation and post-trip examination. Student will bear trip expenses. (May be repeated for up to four credits)

556 MACROEVOLUTION 3 credits
Prerequisite: Admission to the Geology master's program or permission. Provides a comprehensive treatment of macroevolutionary processes, focusing on evidence from the fossil record. Topics include genetics, speciation, development, and fossil lineages. Laboratory.

557 ENVIRONMENTAL MICROPALeONeTOLoGY 3 credits
Prerequisite: Permission to the Geology master's program or permission. Introduction to techniques of micropalaeontology as proxy indicators for environmental and climate change. Laboratory.

561 GEOMICROBIOLOGY 3 credits
Prerequisite: Graduate standing. A course addressing the physiology, ecology, and activities of microorganisms that mediate important biogeochemical processes, and the interdisciplinary approaches to studying them.

570 GEOCHEMISTRY 3 credits
Prerequisites: Admission to the Geology master's program or permission. Application of chemical principles to the study of geologic processes. Laboratory. Field trips.

572 STABLE ISOTOPE GEOCHEMISTRY 3 credits
Prerequisites: Admission to the Geology master's program or permission. 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: Permission to the Geology master's program or permission. Origin, occurrence, regime and utilization of groundwater. Qualitative and quantitative presentation of geological and geochemical aspects of groundwater hydrology. Laboratory. Field trips.

580 WATER IN ENVIRONMENTAL STUDIES 2 credits
Prerequisite: Permission of department chair. May be repeated for a maximum of six credits. Credit/Non-Credit.

581 ANALYTICAL METHODS IN GEOLOGY 2 credits
Prerequisites: Admission to the Geology master's program or permission. A survey of analytical methods used to solve geologic problems emphasizing on method on selection, proper sample collection, analysis of data and quality assurance.

584 GEOSCIENCE INFORMATION ACQUISITION AND MANAGEMENT 2 credits
Prerequisite: Must be a Graduate Division 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.

595 INDIVIDUAL READINGS IN GEOLOGY 1-4 credits
Prerequisite: permission of graduate advisor required. (May be repeated for a total of 8 credits: credits may not be used to meet degree requirements.) Directed reading to fit individual student programs. Credit/Noncredit.

590 WORKSHOP IN GEOLOGY AND ENVIRONMENTAL SCIENCE 1-3 credits
Prerequisite: permission of instructor. Group study of specialized problems in geology and environmental science. May not be used to meet graduate degree requirements in the department. May be used for elective credit only.

591 GRADUATE INTERNSHIP IN GEOLOGY AND ENVIRONMENTAL SCIENCE 1-3 credits
Prerequisite: permission of department chair. Supervised professional experience in geology or geophysics. May only apply three credits toward minimum graduate requirements in Geology and Environmental Science.

631 ROCKS AND MINERALS 4 credits
Prerequisites: Admission to the Geology master's program or permission. Intensive course integrating crystallography, mineralogy and petrology for the science teacher and graduate student from disciplines other than geology. Laboratory.

639 NUCLEAR GEOLOGY 3 credits
(Two hour lecture, three hour laboratory) Prerequisites: minimum of seven credits in chemistry, eight credits in physics, eight credits in calculi and eight credits in geology or permission. Discusses nature of radioactive and stable isotopes, their applications in geology, radiometric methods, radioactive waste disposal and environmental issues. Nuclear analytical techniques will also be discussed; lecture, laboratory and field study.

643 GEOSTATISTICS 3 credits
Prerequisite: Permission to the Geology master's program or permission. Application of statistical methods to geology and geophysics including tests of hypotheses, trend surface analysis, analysis of variance, nonparametric statistics and time series analysis.

655 ADVANCED FIELD STUDIES 1-3 credits
(May be repeated for a maximum of four credits) Prerequisite: permission of instructor. Field trip course studying aspects of geology not seen in Ohio; includes pre- and post-trip academic activities. Students will bear costs.

656 GLOBAL TECTONICS 3 credits
Prerequisites: Admission to the Geology master's program or permission. Theoretical and experimental contexts of plate tectonics and associated tectonic features.

661 GEOLoGIC RECORD OF pAST GLOBAL CHANGE 3 credits
Prerequisite: equivalent of baccalaureate degree in geology or permission of instructor. Study of the geologic record of past global climate and environmental change from geochemical, palaeontological, sedimentological and other geological evidence.

674 ADVANCED GROUNDWATER HYDROLOGY 3 credits
Prerequisite: Admission to the Geology master's program or permission. Study of water table flow, groundwater recharge, aquifer storage and discharge, and the interpretation of sedimentary rocks. Laboratory. Field trips.

680 SEMINAR IN GEOLOGY 2 credits
(May be repeated for a total of six credits) Selected topics with reference material from original sources.
564 AMERICAN ECONOMY SINCE 1900 3 credits
Survey of economic developments since 1900; topics include agriculture, business and labor, urbanization, theories of economic growth, financial systems, foreign trade, and economic trends since 1945. 3 credits

567 HISTORY OF AMERICAN POP CULTURE 3 credits
Historical analysis of mass cultural phenomena and the social experiences associated with mass technologies that transformed modern American life in the nineteenth and twentieth centuries.

568 AFRICAN-AMERICAN SOCIAL AND INTELLECTUAL HISTORY 3 credits
Examination of the development of African-American thought and society, focusing on selected periods of African-American history. 3 credits

569 AFRICAN-AMERICAN WOMEN'S HISTORY 3 credits
Study of the history of African-American women from the colonial period to the present. 3 credits

570 OHIO HISTORY 3 credits
Political, social, economic and intellectual history of Ohio, with special emphasis on Ohio's role in the national and international contexts.

571 AMERICAN ENVIRONMENTAL HISTORY 3 credits
Utilization, conservation of natural resources from beginnings of American society to present; combination of economic, technological history of extensive treatment of public policy, environmental issues.

575 MEXICO 3 credits
History of Mexico from Indian civilizations to present with emphasis on relations with United States, social and political ramifications of the 20th Century Mexican revolution.

576 CENTRAL AMERICA AND THE CARIBBEAN 3 credits
Selected aspects of the histories of Central American and Caribbean countries with emphasis on populist and peasant movements, political reform, social revolution, economic and underdevelopment, and relations with the United States.

578 WAR AND WESTERN CIVILIZATION 3 credits
War and society in European culture and beyond from ancient world to present with special emphasis on period since 1740.

583 HISTORY AND VIDEO GAMES 3 credits
Historical analysis of mass cultural phenomena and the social experiences associated with mass technologies that transformed modern American life in the nineteenth and twentieth centuries.

584 HISTORY MUSEUMS AND ARCHIVES 3 credits
This course will focus on the work of history museums, historical societies and historic house museums, and archives.

585 HISTORY, COMMUNITIES, AND MEMORY 3 credits
Course examines the interactions between the work of academic historians and the public in areas such as local history, monuments, oral history, film, and the internet.

587 SCIENCE AND TECHNOLOGY IN WORLD HISTORY 3 credits
Prerequisite: Six credits of 3000 level or permission of instructor. This course examines the development and diffusion of science and technology in human history, its impact on society, culture, and daily life.

588 OTTOMAN STATE AND SOCIETY 3 credits
Explores political, economic, and social dynamics of one of the world's most enduring and expansive multiethnic empires.

593 SPECIAL STUDIES: NORTH AMERICAN HISTORY 3 credits
Prerequisite: Graduate student status. Special studies in the history of North America (Rio Grande to the Arctic). See departmental office for information on particular offerings.

594 WORKSHOP IN HISTORY 1-3 credits
(May be repeated) Group studies of special subjects pertaining to history. May be used for elective credit only. May not be used to meet undergraduate or graduate major requirements in history.

595 SPECIAL STUDIES: EUROPEAN HISTORY 3 credits
May be repeated. Special studies in European history (from the fall of the Roman Empire to the present). See departmental office for information on particular offerings.

596 SPECIAL STUDIES IN HISTORY: OTHER 3 credits
May be repeated. Special studies in the history of North America (Rio Grande to the Arctic). See departmental office for information on particular offerings.

598 RACE, NATION, AND CLASS IN THE MIDDLE EAST 3 credits
This course analyzes identity politics and the development of the ideas of race, nation, and class in the Middle East from a historical perspective.

599 WOMEN AND GENDER IN MIDDLE EASTERN SOCIETIES 3 credits
This course explores the multi-layered processes and dimensions, including texts, cultural values and practices, institutions, events, which have shaped and continue to shape women's experiences in the Middle East.

601 GRADUATE RESEARCH SEMINAR 4 credits
Prerequisite: Eight 3000 graduate credits or permission of instructor. Research seminar designed to train students in the skills of researching and writing history, with a particular emphasis on article length.

602 MA OPTION PAPER COMPLETION 1 credit
Prerequisite: Permission of instructor. This course is for students completing the MA research paper option. Students should enroll in this course during the semester the option paper is completed.

610 GRADUATE RESEARCH--COMPARATIVE STUDIES IN WORLD CIVILIZATION 4 credits
Prerequisite: Graduate student status. Comparative historiography on world civilizations: East Asia, South Asia, Middle East, Africa, and the Americas. Emphasis on key themes: kingdom, empire, colonialism, nationalism.

612 READING SEMINAR: THE MIDDLE EAST 4 credits
Study of historical literature, sources of materials, and major interpretations of Middle Eastern history.

622 READING SEMINAR IN ANCIENT HISTORY 4 credits
Study of historical literature, sources of materials and major interpretations of ancient history, especially Greek and Roman periods.

625 READING SEMINAR IN MEDIEVAL HISTORY 4 credits
Study of historical literature, sources of materials and major interpretations of medieval European history.

631 READING SEMINAR IN MODERN EUROPEAN HISTORY TO 1815 4 credits
Study of historical literature, sources of materials, major interpretations of early modern European history to Napoleonic era.

634 READING SEMINAR IN MODERN EUROPEAN HISTORY SINCE 1815 4 credits
Study of historical literature, sources of materials and major interpretations of modern European history since early 19th Century.

651 READING SEMINAR: THE MODERN BRITISH EMPIRE 4 credits
Prerequisite: Graduate Student status. Study of the historical literature on the modern British Empire, from the end of the American Revolution through decolonization in the 20th century.
666 READING SEMINAR IN AMERICAN HISTORY TO 1877 3 credits
Study of historical literature, sources of materials and major interpretations of American colo-
nial and United States history to Civil War.

669 READING SEMINAR IN AMERICAN HISTORY SINCE 1877 3 credits
Study of historical literature, sources of materials and major interpretations of United States
history since Civil War.

677 READING SEMINAR IN LATIN AMERICAN HISTORY 4 credits
Study of historical literature, primary texts, and major interpretations and debates on selected
topics in Latin American history.

680 READING SEMINAR: CHINA 4 credits
Study of Chinese texts, secondary literature, and major interpretations of the history of China.

689 HISTORIOGRAPHY 3 credits
Study of historians, historical writings and interpretations through the ages. Required for mas-
ter's degree candidates who have earned graduate credit in History.

690 HISTORY TEACHING PRACTICUM 3 credits
Prerequisite: graduate assistantship. Required of all graduate assistants each fall semester.
Training and experiences in teaching of history under the supervision of an experienced
faculty member. Credits may not be used to meet degree requirements.

694 TESIS RESEARCH 1-6 credits
Research for Master of Arts degree thesis.

697 INDIVIDUAL READING FOR M.A. STUDENT 1-4 credits
each (May be repeated for a total of 12 credits) Directed reading to fit individual student programs.
May be repeated, but no more than six credits may count toward the M.A. degree in history.
Written permission of the instructor required.

699 MASTER'S THESIS 1-6 credits
Prerequisite: 694. Writing of Master of Arts degree thesis.

797 INDIVIDUAL READING FOR PH.D. STUDENT 1-6 credits
each (May be repeated, but no more than 12 credits) may apply toward the Ph.D. history Direc-
ted reading to fit individual student programs. Written permission of the instructor required.

898 DISSERTATION RESEARCH 1-15 credits
Research for Doctor of Philosophy degree dissertation.

899 DOCTORAL DISSERTATION 1-15 credits
Prerequisite: 898. Writing of Doctor of Philosophy degree dissertation.

MATHEMATICS
3450:

501 HISTORY OF MATHEMATICS 3 credits
Prerequisite: Departmental permission. Origin and development of mathematical ideas.
Course does not meet degree requirements in the department.

510 ADVANCED LINEAR ALGEBRA 3 credits
Prerequisite: Departmental permission. Study of vector spaces, linear transformation, canon-
cal and quadratic forms, inner product spaces.

511 ABSTRACT ALGEBRA I 3 credits
Prerequisite: Departmental permission. Study of groups, rings, fields, integral domains, vector
spaces, field extensions. Galois theory. May not be used to meet master's degree require-
ments in mathematics.

512 ABSTRACT ALGEBRA II 3 credits
Prerequisite: 511 or departmental permission. Study of groups, rings, fields, integral domains,
vector spaces, field extensions, Galois theory.

513 THEORY OF NUMBERS 3 credits
Prerequisite: Departmental permission. Euclidean algorithm, unique factorization theorem,
congruences, primitive roots, indices, quadratic residues, number-theoretic functions, Gauss-
al sums, and continued fractions.

515 COMBINATORICS AND GRAPH THEORY 3 credits
Prerequisite: Departmental permission. Introduction to basic ideas and techniques of mathe-
matical counting; properties of structure of systems.

520 MATHEMATICAL TECHNIQUES AND COMMUNICATION 3 credits
Prerequisite: Departmental permission. 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
First and Second. Prerequisite: Departmental permission. Real number system, sequences, series,
set theory, continuity, differentiation, maxi-

525 COMPLEX VARIABLES 3 credits
Prerequisite: Departmental permission. Complex variables; analytic functions, integration and Cauchy's theorem; power series and Laurent
series; residue theorem; applications such as conformal mappings, inversion of integral trans-
form.

527 APPLIED NUMERICAL METHODS I 3 credits
Prerequisite: Departmental permission. Numerical methods in polynomial interpolation, root
finding, numerical integration, and numerical linear algebra. May not be used to meet master's
degree requirements for mathematics or applied mathematics.

528 APPLIED NUMERICAL METHODS II 3 credits
Prerequisite: Departmental permission. Numerical methods in the solution of ordinary and par-
tial differential equations. Numerical differentiation, Runge-Kutta methods, and iterative meth-
ods for ODEs, finite differences for PDEs.

532 INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS 3 credits
Prerequisite: Advanced courses in mathematics. Studies of various aspects of the analysis of Partial Di-


535 SYSTEMS OF ORDINARY DIFFERENTIAL EQUATIONS 3 credits
Prerequisite: Departmental permission. Analytic, solution of systems of equations, linear, non-
terior. Topics: stability theory, perturbation methods, asymptotic methods, applications from
physical, social sciences.

536 MATHEMATICAL MODELS 3 credits
Prerequisite: Departmental permission. Formulation and analysis of mathematical models in social
and biological sciences. Nonlinear systems and models. Topics may include stochastic processes, linear programming, graph theory, theory of measurement.

538 ADVANCED ENGINEERING MATHEMATICS I 3 credits
Prerequisite: Departmental permission. Matrices, eigenvalue problems, systems of equations,
vector analysis, complex variables. May not be used to meet master's degree requirements
for applied mathematics.

539 ADVANCED ENGINEERING MATHEMATICS II 3 credits
Prerequisite: Departmental permission. Special functions, fourier series and transforms, PDEs.

541 CONCEPTS IN GEOMETRY 4 credits
Prerequisite: Departmental permission. Axomatic treatment of both Euclidean and non-Euclid-
ean geometries. Other concepts included are finite geometry, transformations, constructions
and inversions.

545 INTRODUCTION TO TOPOLOGY 3 credits
Prerequisite: Departmental permission. Introduction to topological spaces and topologies, map-
pings, cardinality, homeomorphisms, connected spaces, metric spaces.

589 TOPICS IN MATHEMATICS 1-4 credits
(May be repeated for a total of 12 credits) Prerequisite: Permission of instructor. Selected top-
ics in mathematics and applied mathematics at an advanced level.

591 WORKSHOP IN MATHEMATICS 1-4 credits
(May be repeated) Group studies of special topics in mathematics and applied mathematics.
May not be used to meet undergraduate or graduate course credit requirements in mathematics and statistics. May be used for elective credit only.

611 TOPICS IN ALGEBRA 3 credits
Prerequisite: M522 or departmental permission. Advanced study of selected topics in some of
the following areas: semigroups, groups, rings, modules and fields.

621 REAL ANALYSIS 3 credits
Prerequisite: 522 or departmental permission. In-depth study of real analysis – metric spaces, normed vector spaces, integration theory, Hilbert spaces.

625 ANALYTIC FUNCTION THEORY 3 credits
Prerequisite: Departmental permission. Complex number system, holomorphic func-
tions, contour integration, power series, complex analytic functions, residue theorem, singularities, analytic continuation, asymptotic expansions.

627 ADVANCED NUMERICAL ANALYSIS I 3 credits
Prerequisites: 522 and knowledge of C++. FORTRAN, or MATLAB or departmental per-
mission. Error propagation; theoretical analysis of numerical methods in interpolation, integration, and ordinary differential equations.

628 ADVANCED NUMERICAL ANALYSIS II 3 credits
Prerequisites: 522 and knowledge of C++. FORTRAN, or MATLAB or departmental permis-
sion. Theoretical analysis of numerical methods in linear algebra.

631 CALCULUS OF VARIATIONS 3 credits
Prerequisite: Departmental permission. Problems with fixed and movable endpoints, problems with constraints, generalization to several variables, the maximality principle, linear time-
dependent problems, the connection between classical theory and the maximality principle.

632 ADVANCED PARTIAL DIFFERENTIAL EQUATIONS 3 credits
Prerequisite: 532 or departmental permission. Existence, uniqueness and stability of solutions
to general classes of partial differential equations. Methods for solving these classes intro-
duced, emphasizing both analytical and numerical techniques.

633,4 METHODS OF APPLIED MATHEMATICS I AND II 3 credits each
Prerequisite: 539 or departmental permission. Methods of applied mathematics concentrating on

635 OPTIMIZATION 3 credits
Prerequisite: 522 or departmental permission. Unconstrained and constrained optimization theory and methods in applied problems.

636 ADVANCED COMBINATORICS AND GRAPH THEORY 3 credits
Prerequisite: Departmental permission. Theory and techniques of combinatorics as applied
to network problems and graph theoretic problems.

638 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.

697 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.

698 SEMINAR IN MATHEMATICS 3 credits
Prerequisite: Permission of advisor. Seminar-type discussion on topics in mathematics leading to
supervised research project.

699 PRACTICUM IN MATHEMATICS 1-3 credits
(May be repeated) Prerequisite: graduate teaching assistant or permission. Training and expe-
rience in college teaching of mathematical sciences. May not be used to meet degree require-
ments. Credit/No Credit.

697 INDIVIDUAL READING 1-3 credits
(May be repeated) Prerequisite: graduate standing and permission. Directed studies in mathematics at graduate level under guidance of selected faculty member.

699 MASTER'S RESEARCH 1-6 credits
(May be repeated) Prerequisite: permission of advisor. Research in suitable topics in mathe-

699 MASTER'S THESIS 3 credits
Prerequisite: permission of advisor. Properly qualified candidate for master's degree may obtain three
credits for research that culminates in a public oral presentation of the faculty-supervised the-
集中 research.
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 requirements)

506 INTRODUCTION TO C AND UNIX 3 credits
Prerequisite: Programming experience in a high level language. C language programming, UNIX shell programming, file structure, system calls, and interprocess communication. (May not be used to meet computer science requirements)

508 INTRODUCTION TO PROGRAMMING LANGUAGES 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Windows operating systems, integrated development environment, event-driven programming, graphical user interface design, object-oriented programming, component model, and neural networks. (May not be used to meet computer science master’s degree requirements)

518 INTRODUCTION TO DISCRETE STRUCTURES 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Introduction to algebraic structures of particular use in computer science. Topics include algorithms and flow chart theory, mathematical induction, recursive definitions, graph theory, and lattices (tapes). (May not be used to meet computer science master’s degree requirements)

521 OBJECT-ORIENTED PROGRAMMING 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Object-oriented design, analysis, and programming using different development models. Comparison with other programming paradigms.

526 OPERATING SYSTEMS 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Introduction to aspects of all modern operating systems: types; storage management; process and resource control; interacting process synchronization. (May not be used to meet computer science master’s degree requirements)

528 UNIX SYSTEM PROGRAMMING 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. An overview of the UNIX Operating System. Shell programming. Process management, process synchronization, storage management, scheduling algorithms, resource protection, and system programming.

530 THEORY OF PROGRAMMING LANGUAGES 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Advanced concepts in compiler design, programming languages, and natural language processing. Introduction to theoretical issues, formal models of languages, Backus Normal Form, semantics. Alternative programming paradigms including functional programming. (May not be used to meet computer science master’s degree requirements)

535 ALGORITHMS 3 credits
Prerequisites: Admission to Computer Science master’s program or permission. Design and analysis of efficient algorithms for random access machines; derivation of pattern classification algorithms.

540 COMPILER DESIGN 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Techniques used in constructing compilers, including lexical and syntactic analysis, parsing techniques, object code generation and optimization. Course requires a compiler implementation project.

545 INTRODUCTION TO BIOINFORMATICS 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Introduction to major themes in bioinformatics. Topics include concepts of molecular genetics, biological databases, database searching, sequence alignments, phylogenetic trees, structure prediction, and microarray data analysis.

550 PROBABILITY 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Classical results and practical insights into implementing parallel algorithms on actual parallel architectures. Issues in software security: common software security errors, steganography, spam, cryptography, malware, internet hacking.

560 ARTIFICIAL INTELLIGENCE AND HEURISTIC PROGRAMMING 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Introduction to various programs which have displayed some intelligent behavior. Exploration of level at which computers can display intelligence.

565 COMPUTER ARCHITECTURE 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Design of systems to meet computer science master’s degree requirements.

568 MOBILE ROBOTICS 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Advanced topics in operating system design: synchronization mechanisms, performance evaluation, security, and distributed operating systems.

570 ADVANCED THEORY OF PROGRAMMING LANGUAGES 3 credits
Prerequisites: Admission to Computer Science master’s program or permission. In-depth study of various issues in the design and implementation of programming languages, such as formal type systems, operational and other semantics, and verification.

575 ADVANCED ALGORITHMS 3 credits
Prerequisites: Admission to Computer Science master’s program or permission. Advanced graph algorithms, matrix multiplication, fast Fourier transforms, lower bound theory, complexity hierarchies, NP-complete and intractable problems, approximation techniques.

601 RESEARCH METHODOLOGY 3 credits
Prerequisite: Admission to Computer Science graduate program or permission of instructor. Research process overview: literature review, formulation of problems, research design, writing proposals, data collection, data processing and analysis, evaluation, writing reports, and presenting results.

626 ADVANCED OPERATING SYSTEMS 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Advanced topics in operating system design: synchronization mechanisms, performance evaluation, security, and distributed operating systems.

630 COMPUTER GRAPHICS 3 credits
Prerequisites: Admission to Computer Science master’s program or permission. Interactive graphics languages, scan conversion, clipping, geometric transformations, volume visualization, visualization applications and research.

631 ADVANCED COMPUTER ARCHITECTURE 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Fundamentals of computer architecture and design, with emphasis on cost/performance tradeoffs. Studies of operational vector, RISC, and microprocessor architectures.

645 COMPUTATIONAL BIOLOGY 3 credits
Prerequisites: Admission to Computer Science master’s program or permission. Introduction to the hardware organization of the computer at the register, processor and systems level.

646 ADVANCED COMPUTER ARCHITECTURE 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Fundamentals of computer architecture and design, with emphasis on cost/performance tradeoffs. Studies of operational vector, RISC, and microprocessor architectures.

650 DATA COMMUNICATIONS AND COMPUTER NETWORKS 3 credits
Prerequisites: Admission to Computer Science master’s program or permission. ISO-OSI, TCP/IP, SNA data switching, protocols, flow and error control, routing, topology. Network management, microcomputers, and socket-based programming.

655 DATABASE MANAGEMENT 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Fundamentals of database organization, data manipulation, and representation, data integrity, privacy.

660 EXPERT SYSTEMS 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Expert systems, knowledge representation and inference, mechanisms for expert systems, uncertainty management, expert system tools and applications.

665 ADVANCED COMPUTER ARCHITECTURE 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Fundamentals of computer architecture and design, with emphasis on cost/performance tradeoffs. Studies of operational vector, RISC, and microprocessor architectures.

668 SOFTWARE ENGINEERING METHODOLOGIES 3 credits
Prerequisites: Admission to Computer Science master’s program or permission. Introduction to current techniques and methodologies used in software development, design, validation, and maintenance.

670 ADVANCED AUTOMATA AND COMPLEXITY THEORY 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. In-depth study of concepts related to computational complexity. Topics include concepts of nondeterministic automata, recursive function theory, the Chomsky hierarchy, Turing machines and undecidability.

671 PARALLEL PROCESSING 3 credits
Prerequisite: Admission to Computer Science master’s program or permission. Parallel computer architectures, theories of parallel computing, system resources optimization, efficient parallel languages and application requirements for cost-effective computing systems.

675 SOFTWARE ENGINEERING METHODOLOGIES 3 credits
Prerequisites: Admission to Computer Science master’s program or permission. Introduction to current techniques and methodologies used in software development, design, validation, and maintenance.

680 ADVANCED TOPICS IN COMPUTER SCIENCE 1-3 credits
May be repeated. Prerequisite: permission of instructor. May be repeated for a total of 15 credits. Prerequisite: admission to Computer Science master’s program or permission of instructor. Selected topics in computer science at an advanced level. (Department consent required for application to course for master’s degree requirements)

685 PRACTICUM IN COMPUTER SCIENCE 1-3 credits
Prerequisite: graduate 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.

688 ADVANCED DATABASE SYSTEMS 1-3 credits
Prerequisite: Permission of instructor. Directed studies designed as an introduction to research problems under guidance of designated faculty member.

690 MASTER’S RESEARCH 1-6 credits
May be repeated. Prerequisite: permission of advisor. Research in computer science topic culminating in a research paper. No more than three credits may be applied to the minimum degree requirements.

691 INDIVIDUAL STUDY IN COMPUTER SCIENCE 1-3 credits
May be repeated. Prerequisite: admission to Computer Science master’s program or permission of instructor. Directed studies designed as an introduction to research problems under guidance of designated faculty member.

698 MASTER’S THESIS 1-3 credits
Prerequisite: permission of advisor. May be repeated for a total of 15 credits. Prerequisite: registration and approval of advisor. Prerequisite: permission of advisor. May be repeated for a total of 15 credits. May be repeated. Prerequisite: admission to Computer Science master’s program or permission of instructor. Selected topics in computer science at an advanced level. (Department consent required for application to course for master’s degree requirements)

550 PROBABILITY 3 credits
Prerequisite: Appropriate background is one semester of calculus or equivalent. Introduction to probability, random variables and probability distributions, expected value, sums of random variables, Markov processes. May not be used to meet graduate major requirements in statistics.

551 THEORETICAL STATISTICS I AND II 3 credits each
Prerequisite: Admission to Computer Science graduate program is three semesters of calculus or equivalent. 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. May not be used to meet graduate major requirements in statistics.

550 GENERAL METHODS OF RESEARCH 1 credit
Prerequisite: admission to Computer Science graduate program or permission of instructor. Directed studies designed as an introduction to research problems under guidance of designated faculty member.
561 APPLIED STATISTICS 4 credits
Prerequisite: Appropriate background is two semesters of calculus or equivalent. Applications of statistical theory to natural and physical sciences and engineering, including probability distributions, interval estimation, hypotheses testing (parametric and nonparametric), and simple linear regression and correlation. May not be used to meet graduate major requirements in statistics.

562 APPLIED REGRESSION AND ANOVA 4 credits
Prerequisite: Appropriate background is one semester of applied statistics or equivalent. Applications of the techniques of regression and multifactor analysis of variance. May not be used to meet graduate major requirements in statistics.

565 DESIGN OF SAMPLE SURVEYS 3 credits
Prerequisite: Appropriate background is one semester of applied statistics or equivalent. Interpretations of data from frequently used sample survey techniques.

568 RELIABILITY MODELS 3 credits
Prerequisite: Appropriate background is one semester of applied statistics or equivalent. Selected topics in reliability modeling including parametric and nonparametric models, competing models, censored, censored and accelerated life models.

570 BIOSTATISTICS AND EPIDEMIOLOGY 3 credits
Prerequisite: Appropriate background is one semester of Applied Statistics or equivalent. Bio-statistics and Epidemiological methods for biological and medical studies, including analysis of repeated measures, disease-related measures, log-linear models, and clinical trials.

571 ACTUARIAL SCIENCE I 3 credits
Prerequisite: Appropriate background is one semester of theoretical statistics or one semester of applied statistics 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: 571. Continuation of Actuarial Science I. Study of multiple life functions, multiple decrement models, valuation theory for pension plans, insurance models including expenses, nonforfeiture benefits and dividends.

573 SURVIVAL ANALYSIS 3 credits
Prerequisite: Applied Statistics or equivalent. Basic concepts in survival analysis, including censored data and truncation, estimation of survival models, nonparametric hazard and survival function estimation, comparing survival curves between groups.

575 FOUNDATIONS OF STATISTICAL QUALITY CONTROL 3 credits
Prerequisite: Appropriate background is one semester of applied statistics or equivalent. Course provides a solid foundation in the theory and applications of statistical techniques widely used in industry.

576 TIME SERIES ANALYSIS 3 credits
Prerequisite: Appropriate background is one semester of probability or one semester of theoretical statistics or one semester of stochastic processes. ARIMA modeling with seasonality. Parameter estimation, model diagnostics and forecasting. Regression with autocorrelated errors. Contingration and multivariate ARIMA models. Holococastidically and long-memory models.

580 STATISTICAL DATA MANAGEMENT 3 credits
Prerequisite: Appropriate background is one semester of applied statistics 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.

585 APPLIED ANALYTICS-DECISION TREES 3 credits
Prerequisite: Appropriate background is one semester of applied statistics or equivalent. Selected topics in predictive modeling using CHAID, Classification and Regression Trees, Logistic Regression, and Neural Networks.

589 TOPICS IN STATISTICS 1-3 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 1-3 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 1-3 credits
Prerequisite: 660 or permission. Students will be assigned to work with an instructor as consultant on real-world projects in the Center for Statistical Consulting. May be repeated for a total of 4 credits; however, only 2 credits can count toward major requirements. Does not count for elective credit in math department science majors.

605 ADVANCED PROBABILITY AND STOCHASTIC PROCESSES 3 credits
Prerequisite: 651. Random walk, distributions, unlimited sequence of trials, laws of large numbers, convolutions, branching processes, renewal theory, Markov chains, time-dependent stochastic processes.

607 PROBABILITY AND STATISTICS 4 credits
Prerequisite: Appropriate background is three semesters of calculus or equivalent. Probability, random variables, moments and generating functions, random vectors, special distributions, limit theorems, sampling, prediction estimation, hypothesis testing, confidence estimation.

651 ADVANCED MATHEMATICAL STATISTICS 3 credits
Prerequisite: 651. Convergence of random variables, the Central Limit Theorem, theory of estimation, properties of hypothesis testing, the multivariate normal density, introduction to linear models, Bayesian statistics.

655 LINEAR MODELS 3 credits
Prerequisite: Appropriate background is linear algebra or 651 or equivalent. General linear model in matrix notation, general linear hypothesis, regression models, experimental design models, analysis of variance and covariance, variance components.

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. May not be used to meet graduate major requirements in statistics.

663 EXPERIMENTAL DESIGN 3 credits
Prerequisite: Appropriate background is one semester of applied statistics or equivalent. Selected topics in experimental design including random and fixed effects, nested designs, split plot designs, confounding, fractional factors, Latin squares, and analysis of covariance.

665 REGRESSION 3 credits
Prerequisite: Appropriate background is one semester of applied statistics or equivalent. Correlation, simple and multiple linear regression: least squares, matrix notation, model building and checking, estimation theory, hypothesis testing, outliers, influence, multicollinearity, transformations, categorical regressors, logistic regression.

666 NONPARAMETRIC STATISTICS-METHODS 3 credits
Prerequisite: Appropriate background is one semester of applied statistics or equivalent. Theory and practice using techniques requiring less restrictive assumptions. Nonparametric analysis for 1- and F-tests, ANOVA, regression and correlation. Computer applications.

667 FACTOR ANALYSIS 3 credits
Prerequisite: Appropriate background is one semester of applied statistics or equivalent. 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: Appropriate background is two semesters of applied statistics or equivalent. Multivariate techniques include Hotelling’s T², Mahalanobis ANOVA, regression and correlation, linear contrasts, factorial experiments, nested and repeat measure designs, log-linear models, and discriminant analysis.

670 ADVANCED BIOSTATISTICS 3 credits
Prerequisite: 570. Statistical issues and methods for biological, medical and health sciences, including clinical trials, equivalence studies, genomics, comparative effectiveness studies, survival analysis, and bioassy. Computer applications.

675 RESPONSE SURFACE METHODOLOGY 3 credits
Prerequisite: Appropriate background is two semesters of applied statistics or equivalent. First and second order response designs, efficient experimental plans, methods for the analysis, and optimization of response functions.

689 ADVANCED TOPICS IN STATISTICS 1-3 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 adviser. Supervised writing of paper for Masters of Science in Statistics Northsex Option. No more than two credits apply to major requirements.

695 PRACTICUM IN STATISTICS AND MATHEMATICS 1-3 credits
Prerequisite: graduate teaching assistant or permission. Supervision and training in college teaching of statistics. May not be used to meet degree requirements. Credit/noncredit.

697 INDIVIDUAL READING 1-2 credits
(May be repeated for a total of four credits) Prerequisites; graduate standing and permission. Directs and coordinates student's reading and research. May not be used to meet major requirements.

698 MASTER’S RESEARCH 1-6 credits
(May be repeated) Prerequisite: permission of advisor. Research in suitable topics in statistics at advanced level. May be repeated for a total of 6 credits.

699 MASTER’S THESIS 2 credits
(May be repeated for a total of 4 credits) Prerequisite: Permission. Properly qualified candidates for master's degree may obtain 2-4 credits for research experience which culminates in presentation of faculty-supervised thesis.

ENGINEERING APPLIED MATHEMATICS 3490:

700 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.

891 PRELIMINARY RESEARCH 1-15 credits
Prerequisite: Permission. (May be repeated) Completion of qualifying examination and approval of Student Advisory Committee. Preliminary investigation of Ph.D. dissertation topic.

899 DOCTORAL DISSERTATION 1-15 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:

790 THE GENERAL DESIGNATION OF 3500 IS USED FOR LANGUAGES THAT DO NOT HAVE A SPECIFIC DEPARTMENT NUMBER

590 WORKSHOP 1-4 credits
Prerequisite: Graduate status or permission of department. (May be repeated for a maximum of eight credits) Group studies of special topics in modern languages.

597 INDIVIDUAL READINGS IN MODERN LANGUAGES 1-4 credits
Prerequisite: Graduate status and permission of instructor and department chair. (May be repeated with departmental permission) Individual study under the guidance of a professor who directs and coordinates student's reading and research.

ARABIC 3501:

522 SPECIAL TOPICS IN ARABIC 1-4 credits
Prerequisite: Graduate status, permission of instructor and department chair. Development of specialized language skills or reading of significant works of literature or culture not studied in other courses. Conducted in Arabic. May be repeated once with different topic for a total of eight credits.

597 INDIVIDUAL READING IN ARABIC 1-4 credits
Prerequisite: Graduate status, permission of instructor and department chair. Individual study under the guidance of a professor. May be repeated with departmental permission for a total of eight credits.

CHINESE 3502:

522 SPECIAL TOPICS IN LANGUAGE, SKILLS, OR CULTURE OR LITERATURE 1-4 credits
Prerequisite: Graduate status, permission of instructor and department chair. Development of specialized language skills or reading of significant works of literature or culture not studied in other courses. May be repeated once with different topic for a total of eight credits.

597 INDIVIDUAL READING IN CHINESE 1-4 credits
Prerequisite: Graduate status, permission of instructor and department chair. Individual study under the guidance of a professor who directs and coordinates student's reading and research. May be repeated with departmental permission for a total of eight credits.

LATIN 3510:

597, 598, LATERAL READING AND RESEARCH 3 credits each
Prerequisite: Graduate status or permission of department. 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: Graduate status or permission of department. Advanced study of normative French grammar with emphasis on syntax, morphology, grammatical structure and phonetic principles.

513 FRENCH CINEMA 3 credits
Prerequisite: Graduate status or permission of department. Study and discussion of various aspects of French culture and civilization as characterized in movies.

522 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS OR CULTURE OR LITERATURE 4 credits
Prerequisite: Graduate status or permission of department. (May be repeated.) Development of specialized language skills or reading of significant works of literature or culture not studied in other courses.

527 20TH CENTURY FRENCH LITERATURE 4 credits
Prerequisite: Graduate status or permission of department. Reading and discussion of the representative works of major cultural manifestations during the 20th century in France. Conducted in French.

530 CONTEMPORARY QUEBEC 3 credits
Prerequisite: Graduate status or permission of department. Historical, political, sociological, and cultural overviews of Quebec, offering an in-depth examination of questions of identity through the study of literature and popular culture.

531 FRANCOPHONE LITERATURE 3 credits
Prerequisite: Graduate status or permission of department. Study of representative works and literary movements in Spanish America. Does not count toward the MA in Spanish. Conducted in Spanish.

560 SELECTED THEMES IN FRENCH LITERATURE 3 credits
(May be repeated.) Conducted in French. Prerequisite: Graduate status or permission of department. Reading and discussion of literary works selected according to an important theme.

597,8 INDIVIDUAL READING IN FRENCH 1-4 credits
Prerequisite: Graduate status or permission of department. Individual reading in French, offered at the graduate level. (May be repeated for a total of eight credits.)

697,8 INDIVIDUAL READING AND RESEARCH IN FRENCH 1-4 credits each
Prerequisite: Graduate status or permission of department. Individual study and research in specific areas. Considerable reading and writing required.

GERMAN 3530:
597,8 INDIVIDUAL READING IN GERMAN 1-4 credits
Prerequisite: Graduate status or permission of department. Individual reading in German, offered at the graduate level. (May be repeated for a total of eight credits.)

ITALIAN 3550:
597 INDIVIDUAL READING IN ITALIAN 1-4 credits
Prerequisite: Graduate status or permission of department. Individual study under guidance of professor who directs and coordinates student’s reading and research.

SPANISH 3580:
503 ADVANCED GRAMMAR 3 credits
Prerequisite: Graduate status or permission of department. Advanced study of Spanish syntax and grammatical analysis. Does not count toward the M.A. in Spanish. Conducted in Spanish.

504 INTRODUCTION TO SPANISH LINGUISTICS 4 credits
Prerequisite: Graduate status or permission of department. 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.

505 SPANISH LINGUISTICS; PHONOLOGY 4 credits
Prerequisite: Graduate status or permission of department. Descriptive study of Spanish phonetic system and morphological, historical aspects, regional accents and sociolinguistic variation. Conducted in Spanish.

506 SPANISH LINGUISTICS; SYNTAX 4 credits
Prerequisite: Graduate status or permission of department. Descriptive study of Spanish syntax; introduction to theories of grammar; overview of Spanish semantics and pragmatics. Conducted in Spanish.

507 SURVEY OF HISPANIC LITERATURE: SPAIN 4 credits
Prerequisite: Graduate status or permission of department. Historical overview of representative works and literary movements in Spain. Does not count toward M.A. in Spanish. Conducted in Spanish.

508 SURVEY OF HISPANIC LITERATURE: SPANISH AMERICA 4 credits
Prerequisite: Graduate status or permission of department. Historical overview of representative works and literary movements in Spanish America. Does not count toward M.A. in Spanish. Conducted in Spanish.

509 CULTURAL MANIFESTATION IN MEDIEVAL AND RENAISSANCE SPAIN 4 credits
Prerequisite: Graduate status or permission of department. Comparative study of representative artistic and literary works of the Medieval and Renaissance periods. Conducted in Spanish.

510 SPANISH APPLIED LINGUISTICS 4 credits
Prerequisite: Graduate status or permission of department. This course discusses current theories of second language acquisition and their implications for the learning of problematic Spanish structures.

511 SPAIN DURING THE BAROQUE PERIOD 4 credits
Prerequisite: Graduate status or permission of department. A comparative study of the different cultural manifestations during the 17th century in Spain. Conducted in Spanish.

512 CERVANTES: DON QUIJOTE 4 credits
Prerequisite: Graduate status or permission of department. Reading and analysis of Don Quijote as the first modern novel in the historical context of Renaissance and Baroque esthetics. Conducted in Spanish.

513 THE DON JUAN MYTH IN SPANISH CULTURE 4 credits
Prerequisite: Graduate status or permission of department. Study of the evolution of the Don Juan myth from its origins to its latest versions in the 20th century. Conducted in Spanish.

514 CULTURAL POLITICS IN THE RIVER PLATE 4 credits
Prerequisite: Graduate status or permission of department. This course will examine the military, political, economic, and cultural development of Argentina and Uruguay by looking at how these regimes affect culture.

516 REPRESENTING REALITY IN 19TH CENTURY SPAIN 4 credits
Prerequisite: Graduate status or permission of department. A comparative study of the major literary and artistic movements in Spain from Realism to Modernism. Conducted in Spanish.

518 20TH CENTURY SPAIN: THE AVANT-GARDE IN LITERATURE AND ART 4 credits
Prerequisite: Graduate status or permission of department. A comparative study of the major literary and artistic movements in Spain which illustrate the primary cultural changes of the century. Conducted in Spanish.

519 THE SPANISH CIVIL WAR AND ITS CULTURAL IMPACT 4 credits
Prerequisite: Graduate status or permission of department. Study of the impact of the Civil War on Spanish culture.

522 SPECIAL TOPICS IN SPECIALIZED LANGUAGE SKILLS OR CULTURE OR LITERATURE 4 credits
Prerequisite: Graduate status or permission of department. Development of specialized language skills or reading of significant works of literature or culture not studied in other courses.

525 20TH CENTURY SPANISH-AMERICAN NOVEL 4 credits
Prerequisite: Graduate status or permission of department. Reading and discussion of representative contemporary Latin American novels. Conducted in Spanish.

527 LATINO CULTURES IN THE USA 4 credits
Prerequisite: Graduate status or permission of department. Inquiry into the Latino experience of displacement and marginality through the analysis of cultural manifestations in the USA. Conducted in Spanish.

530 WOMEN IN 20TH CENTURY HISPANIC LITERATURE 4 credits
Prerequisite: Graduate status or permission of department. Reading and analysis of selected works from the 20th Century that depict women in Hispanic countries. Methodologies of feminist criticism will be studied. Conducted in Spanish.

531 HISPANIC CULTURE: SPAIN 4 credits
Prerequisite: Graduate status or permission of department. Study of society, customs, history, art, music, etc. of Spain, from a Hispanic perspective. Does not count toward the MA in Spanish. Conducted in Spanish.

532 HISPANIC CULTURE: SPANISH AMERICA 4 credits
Prerequisite: Graduate status or permission of department. Overview and historical survey of Spanish American civilization and culture. Does not count toward the M.A. in Spanish. Conducted in Spanish.

661 SPANISH TEACHING PRACTICUM 2 credits
Prerequisite: Graduate status or permission of department. Orientation and practice of particular aspects of teaching Spanish language and culture. Student teaching experiences are periodically reviewed and evaluated. These credits may not be applied toward degree requirements.

697 INDIVIDUAL READINGS IN SPANISH 1-4 credits each
Content of given individual reading program taken from course contexts approved for graduate work in Spanish.

PHILOSOPHY 3600:
511 PLATO 3 credits
Prerequisite: 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.

514 AQUINAS 3 credits
Prerequisite: 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.

515 AUGUSTINE 3 credits
Prerequisite: 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.

518 20TH CENTURY ANALYTIC PHILOSOPHY 3 credits
Prerequisite: 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.

521 PHILOSOPHY OF LAW 3 credits
Prerequisite: Permission of instructor. Identification and critical evaluation of classic and contemporary theories and assumptions of law, including legal reasoning, justice, natural law, punishment, etc.

524 EXISTENTIALISM 3 credits
Prerequisite: Permission of instructor. In-depth inquiry into the thought of Kierkegaard, Husserl, Heidegger, Sartre, Tillich and other existentialists with their concern for the human condition.

526 PHENOMENOLOGY 3 credits
Prerequisite: Permission of instructor. Inquiry into methodology of Husserl and Heidegger and their influence upon Western European and American thought.

532 ARISTOTLE 3 credits
Prerequisite: Permission of instructor. Detailed study of Aristotle’s metaphysics, philosophy of nature, philosophy of mankind and ethics.

534 KANT 3 credits
Prerequisite: 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.

555 PHILOSOPHY OF FEMINISM 3 credits
Prerequisite: Permission of instructor. Study of feminist critiques of, and alternatives to, traditional western philosophy, including topics in ethics, metaphysics, epistemology, and religion.

561 NEUROETHICS 3 credits
Prerequisite: Permission of instructor. Discussion and evaluation of contemporary theories of moral agency arising from developments in neuroscience.

562 THEORY OF KNOWLEDGE 3 credits
Prerequisite: Permission of instructor. Examination of nature of knowledge; theories of perception and truth, problem of induction and relation of language to knowledge.

564 PHILOSOPHY OF SCIENCE 3 credits
Prerequisite: Permission of instructor. Nature of scientific inquiry, types of explanations, law and causality; theoretical concepts and reality. Also considers critics of hypothetical-deductive view of science, e.g., Hanson and Kuhn.

571 METAPHYSICS 3 credits
Prerequisite: Permission of instructor. Theories about ultimate nature and ultimate explanation of reality. Uses readings from classical and contemporary sources.

580 SEMINAR 3 credits
(May be repeated with change of topic) Prerequisite: Permission of instructor. Varying philosophical topics not covered in regular course offerings.
PHYSICS 3650:

501 EVERYDAY PHYSICS 4 credits
Prerequisite: Admission to the physics master’s program or permission. College-level physics content for future teachers. Inquiry, discovery, activities, discussion, and experimental learning takes place in a laboratory/embodied-learning environment.

506 PHYSICAL OPTICS 3 credits
Prerequisite: Admission to the physics master’s program or permission. Propagation, reflection, refraction, and diffraction of electromagnetic waves, superposition, polarization, interference and interference patterns, Fresnel and Fraunhofer diffraction, Fourier optics, coherence theory, and quantum optics.

531 MECHANICS I 3 credits
Prerequisite: Admission to the physics master’s program or permission. Mechanics at intermediate level. Newtonian mechanics, motion of a particle in one dimension, central force problem, system of particles, conservation laws, rigid bodies, gravitation.

532 MECHANICS II 3 credits
Prerequisite: Admission to the physics master’s program or permission. 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
Prerequisite: Admission to the physics master’s program or permission. Electricity and magnetism at intermediate level. Electrostatics and magnetostatics, electric field, scalar potentials, complex potentials, dielectrics, Laplace’s and Poisson’s equations, current, magnetic field, vector potential, magnetic vector potential, induction, magnetic vector potential.

537 ELECTROMAGNETISM II 3 credits
Prerequisite: Admission to the physics master’s program or permission. Special relativity, four vector, Maxwell’s equations in covariant form; propagation, reflection and refraction of electromagnetic waves; multipole radiation.

541 QUANTUM PHYSICS I 3 credits
Prerequisite: Admission to the physics master’s program or permission. Introduction to quantum theory. Schrödinger equation, observables, angular momentum, perturbation theory, variational principle, bound states, scattering theory, reactive interactions, spin and the Pauli Principle.

542 QUANTUM PHYSICS II 3 credits
Prerequisite: Admission to the physics master’s program or permission. Applications of quanta to atomic, nuclear and solid state physics. Tunneling and alpha decay, perturbation theory, quantum probability. Hydrogen and Helium atoms, interatomic forces, quantum statistics.

551 ADVANCED LABORATORY I 3 credits
Prerequisite: Admission to the physics master’s program or permission. Experimental techniques required to complete projects in contemporary physics. FT-IR spectroscopy, optical spectroscopy, lasers, SPM, and thin-film growth and characterization.

552 ADVANCED LABORATORY II 3 credits
Prerequisite: Admission to the physics master’s program or permission. Experimental projects applicable to contemporary physics. Diode and dye lasers, laser feedback, chaos, MRI, electron tunneling, and fiber optics.

556 TECHNIQUES OF PHYSICS INSTRUCTION 1 credit
Prerequisite: Admission to the physics master’s program or permission. Teaching assistants are introduced to current research in learning physics, shown applications for their labroom, and trained in skills needed as a laboratory teaching assistant.

570 INTRODUCTION TO SOLID-STATE PHYSICS 3 credits
Prerequisite: Admission to the physics master’s program or permission. Account of basic physical processes occurring in solids, with emphasis on fundamental relation between these processes and periodicity of crystalline lattice.

581 METHODS OF MATHEMATICAL PHYSICS I AND II 3 credits each
Prerequisite: Admission to the physics master’s program or permission. Vectors, generalized coordinates, tensors, change of coordinates, vector spaces, linear transformations, eigenvalues and eigenvectors, Hilbert space, boundary value problems, transcendental functions, complex variables, Hilbert functions, Green’s functions, integral equations.

588 SELECTED TOPICS: PHYSICS 1-4 credits (May be repeated)
Prerequisite: Admission to the physics master’s program or permission. Consideration of selected topics, procedures, techniques, materials or apparatus of current interest in physics.

590 WORKSHOP 1-4 credits (May be repeated)
Prerequisite: Admission to the physics master’s program or permission. Further investigations of various selected topics in physics, under guidance of faculty member.

597 INDEPENDENT STUDY 1-4 credits (May be repeated)
Prerequisite: Admission to the physics master’s program or permission. Further investigations of various selected topics in physics, under guidance of faculty member.

598 PHYSICS COLLOQUIUM 1 credit
Prerequisite: Admission to the physics master’s program or permission. 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: Admission to the physics master’s program or permission. Review of FORTRAN and basic topics in computer science. Numerical solutions to physics problems, including Newton’s and Schrodinger’s equations. Treatment and reduction of experimental data, plotting, and error analysis.

606 COMPUTER PHYSICS: NUMERICAL SOLUTIONS TO PHYSICS PROBLEMS II 3 credits
Prerequisite: Admission to the physics master’s program or permission. Data reduction, computer-graphic comparison of theoretical models with data, linear and non-linear least squares curve fitting. May accommodate scientific problems of individual interest.

616 ELECTROMAGNETIC THEORY II 3 credits
Prerequisite: Admission to the physics master’s program or permission. Scattering and diffraction in geometrical optics, ray theory of relativity, dynamics of relativistic particles, collisions of charged particles, radiation from moving charges, bremsstrahlung, multiple fields.

625 QUANTUM MECHANICS I 3 credits
Prerequisite: Admission to the physics master’s program or permission. Basic concepts of quantum mechanics, representation theory, particle in a central field, addition of angular moments and spins, Clebsch-Gordon coefficients, perturbation theory, scattering, transition probabilities.

626 QUANTUM MECHANICS II 3 credits
Prerequisite: Admission to the physics master’s program or permission. Foundations of relativistic quantum mechanics. Klein-Gordon and Dirac equations, spin-zero and spin-1/2 particles in electromagnetic field, second quantization of bosons and fermions, superfluidity and superconductivity.

641 LAGRANGIAN MECHANICS 3 credits
Prerequisite: Admission to the physics master’s program or permission. Principle of least action and Lagrangian expansion of motion, conservation laws, integration of motion, collisions, small oscillations, Hamilton’s equations, canonical transformations.

661 STATISTICAL MECHANICS 3 credits
Prerequisite: Admission to the physics master’s program or permission. Fundamentals of statistical mechanics, Gibbs, Fermi and Bose statistics, solids, liquids, gases, phase equilibrium, chemical reactions.

669 ELECTRICAL PHENOMENA AND PHASE TRANSITIONS 3 credits

685 SOLID-STATE PHYSICS I 3 credits
Prerequisite: Admission to the physics master’s program or permission. Theory of physics of crystalline solids. Properties of reciprocal lattice and Bloch’s theorem. Lattice dynamics and specific heat. Electron states; cellular method, tight-binding method, Green’s function method.

686 SOLID-STATE PHYSICS II 3 credits
Prerequisite: Admission to the physics master’s program or permission. Orthogonalized plane and pseudo potentials. Electron-electron interaction; screening by impurities. Friedel sum rule and band structure. Heavy fermions, Fermi surfaces, Fermi liquid.

693 SPECIAL PROBLEMS IN THEORETICAL PHYSICS 1-3 credits (May be repeated)
Prerequisite: Admission to the physics master’s program or permission. Intended to facilitate expansion of particular areas of interest in theoretical physics, by consultation with faculty member and independent study beyond available course work.

691 SEMINAR IN THEORETICAL PHYSICS 1-3 credits (May be repeated)
Prerequisite: Admission to the physics master’s program or permission. May be repeated. Intended to facilitate expansion of particular areas of interest in theoretical physics, by consultation with faculty member and independent study beyond available course work.

697 GRADUATE RESEARCH 1-5 credits
Prerequisite: Admission to the physics master’s program or permission. Candidates for M.S. degree may obtain up to five credits for supervised research projects. Grades and credit at completion of such research.

698 SPECIAL TOPICS: PHYSICS 1-4 credits
Prerequisite: Admission to the physics master’s program or permission. Enables student who needs information in special areas, in which no formal course is offered, to acquire knowledge in these areas.

699 MASTER’S THESIS 1 credit
Prerequisite: Admission to the physics master’s program or permission. With approval of department, one credit may be earned by candidate for M.S. degree upon satisfactory completion of a master’s thesis.

797 DOCTORAL RESEARCH 1-15 credits (May be repeated)
Prerequisite: Approval of the Student Advisory Committee for Ph.D. research in physics, physical chemistry, polymer science, applied mathematics or electrical engineering. Original research by a Ph.D. candidate in various disciplines under the guidance of physics faculty.

POLITICAL SCIENCE 3700:

500 POLITICAL EXTREMISM AND VIOLENCE 3 credits
This course examines the causes and consequences of political extremism and political violence in democracies and failed democracies.

502 POLITICS AND THE MEDIA 3 credits
Examination of relationships between the press, the news media and political decision makers.

503 MEDIA, CRIME, AND PUBLIC OPINION 3 credits
Examination of social construction of crime in mass media and how it impacts public opinion, including fear of crime, beliefs about crime causation, and crime policy.

510 INTERNATIONAL SECURITY POLICY 3 credits
Introduction to political uses of military forces. Major focus on methodological, conceptual, and ethical dilemmas confronted in developing and implementing defense policy.

513 GLOBAL PUBLIC HEALTH THREATS 3 credits
An introduction to comparative global biological and public health security policy. Topics include infectious disease outbreak, bioterrorism, and potential homeland security threats.

514 WEALTH AND POWER AMONG NATIONS 3 credits
Studies relationship between politics and economy; mesh theoretical perspectives with exploration of the key empirical issues. Topics include trade, relations, unions, finance, development, aid, sanctions.

522 UNDERSTANDING RACIAL AND GENDER CONFLICT 3 credits
This course focuses on factors that make Ohio electorally competitive. Material topics on recent election results, public opinion polling, and the influences of socio-economic factors.

537 GOVERNMENT VERSUS ORGANIZED CRIME 3 credits
The course gives a history of organized crime and the government’s responses to fight it. Newly emerging international crime groups are also discussed.

540 SURVEY RESEARCH METHODS 3 credits
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
Intensive study of policy-making process, emphasizing roles of various participants in executive and legislative branches as well as private individuals and groups.
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Graduate Courses

542 METHODS OF POLICY ANALYSIS 3 credits
Examines diversity of methods available for analyzing public policies. Techniques of cost-benefit analysis and evaluation qua-experimentation are covered as well as considerations of ethical questions in policy analysis, the practical problems facing policy analysts.

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.

545 AL QAEDA 3 credits
This course explores the causes and consequences of Al Qaeda's terrorism. Students will examine the politics of intelligence in the United States and other countries.

546 INTELLIGENCE AND COUNTERTERROISM 3 credits
The aim of this class is to familiarize students with intelligence and counterterrorism. It examines the politics of intelligence in the United States and other countries.

550 ADMINISTERING PRISONS, PROBATION, AND PAROLE 3 credits
This course examines the political dynamics of correctional institutions' governance and internal politics, relationships between political and correctional policies, and policy imprisonment.

561 THE SUPREME COURT AND CIVIL LIBERTIES 3 credits
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 CRIMINAL JUSTICE 3 credits
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.

563 HUMAN RIGHTS IN WORLD POLITICS 3 credits
An introduction to human rights from a comparative perspective; topics include: definition and development of human rights with attention paid to government interaction and wartime.

570 CAMPAIGN MANAGEMENT I 3 credits
The first course in campaign management. Focus is on timing, coalition building, candidate positioning, meal planning, internal organization, and other elements of campaign strategy.

571 CAMPAIGN MANAGEMENT II 3 credits
The second course in campaign management. Focus is on timing, coalition building, candidate positioning, meal planning, internal organization, and other elements of campaign strategy.

572 CAMPAIGN FINANCE 3 credits
Reading and research in financial decision making in political campaigns.

573 VOTER CONTACT AND ELECTIONS 3 credits
Theories and practical approaches to gaining votes in all types of political campaigns.

574 POLITICAL OPINION, BEHAVIOR AND ELECTORAL POLITICS 3 credits
Advanced analysis of psychological, cultural and group processes of opinion formation and change. Attention given to the effect of opinion change on electoral outcomes.

575 LOBBYING IN THE UNITED STATES 3 credits
Reading and research on the development, structure and function of interest groups in the United States.

576 AMERICAN POLITICAL PARTIES 3 credits
Prerequisite: six credits of political science or permission. Reading and research on the development, structure and function of parties in the United States.

577 LOBBYING 3 credits
Elective on lobbying profession in the political process. Topics include theories of lobbying, tools of lobbying, the lobbying process, and types of lobbying.

580 POLICY PROBLEMS 3 credits
(May be repeated for a total of six credits) Intensive study of selected problems in public policy.

581 THE CHALLENGES OF POLICE WORK 3 credits
Analysis of various political dimensions underlying the study of politics and policing in the context of police reform, crime, and the community.

582 CURRENT ISSUES (CJ TOPIC) 3 credits
Study and critical analysis of current issues, programs, and policies relating to the politics and criminal justice at the federal or state level.

583 CONSTITUTIONAL PROBLEMS IN CRIMINAL JUSTICE 3 credits
Analyzes Supreme Court policy-making regarding problems of criminal justice, including search and seizure, self-incrimination, right to counsel, jury selection, and post-appeal prison review.

589 WORKSHOP IN POLITICAL SCIENCE (1-3 credits)
May be repeated for a total of nine credits). Timely workshops on varying subjects to meet the changing needs of our students in response to new and emerging political issues and controversies.

592 SELECTED TOPICS IN POLITICAL SCIENCE 3 credits
(May be repeated for a total of six credits). Topics of substantial current importance or specialized topics within political science.

600 SCOPE AND THEORIES OF POLITICAL SCIENCE 3 credits
Prerequisites: Admission to a Political Science graduate program or permission. Emphasis on the nature, scope and content of political theory; theory construction and validation in political science.

601 RESEARCH METHODS IN POLITICAL SCIENCE 3 credits
Prerequisites: 600 or permission. Techniques of quantitative research methodology in political science: utility and limitations of quantitative analysis.

602 SCHOLARLY WRITING AND PROFESSIONAL DEVELOPMENT IN POLITICAL SCIENCE 3 credits
Prerequisite: Admission to a Political Science graduate program or permission. Course will assist in the development of Essay/Capstone projects: organization, format presentation, editing, committee review. Will help polish student writing and presentation skills.

610 SEMINAR IN INTERNATIONAL POLITICS 3 credits
Prerequisite: Admission to a Political Science graduate program or permission. Analysis of current problems in theory and practice of politics and organization.

612 SEMINAR IN SECURITY STUDIES 3 credits
The aim of the course is to introduce graduate students to the study of national security politics and policy.

620 SEMINAR IN COMPARATIVE POLITICS 3 credits
Prerequisite: Admission to a Political Science graduate program or permission. Research selected topics in comparative politics. Comparative method.

622 SEMINAR IN ALTERNATIVES TO VIOLENCE AT HOME AND ABROAD 3 credits
Prerequisite: Admission to a Political Science graduate program or permission. An interdisciplinary analysis of the nature of violence—from interpersonal to international—to enhance our capacity to reduce violence and other threats to liberty.

630 SEMINAR IN NATIONAL POLITICS 3 credits
Prerequisite: Admission to a Political Science graduate program or permission. Reading and research on formulation, development and implementation of national policy in one or more areas of contemporary significance.

630 CORE III: INDIVIDUAL DIFFERENCES 2 credits
Prerequisites: Admission to a Psychology graduate program or permission. Emphasis on the multiple and contingent interconnections between law, punishment, politics, and power.

635 CAMPAIGN AND ELECTION LAW 3 credits
Prerequisites: Admission to a Political Science graduate program or permission. Examines the legal environment for political campaigns. Topics include historical background, legal foundation, voting rights, filing requirements, campaign finance, and political advertising.

662 SEMINAR IN POLICY AGENDAS AND DECISIONS 3 credits
Prerequisite: Admission to a Political Science graduate program or permission. Reading and research on the development of public policy issues and modes of decision making used by policy makers.

672 SEMINAR: POLITICAL INFLUENCE AND ORGANIZATIONS 3 credits
Prerequisites: permission. Examination of how public concerns and demands are resolved or diffused. A theoretical and applied look at parties, interest groups, public opinion, media, and protest.

673 SPECIAL TOPICS IN POLITICAL SCIENCE 1-3 credits
Prerequisites: Admission to a Political Science graduate program or permission. Graduate-level examination of: American politics, comparative politics, international politics, international politics or political theory.

695 INTERNSHIP IN GOVERNMENT AND POLITICS 3 credits
(May be repeated for a total of six credits.) Prerequisite: Admission to a Political Science graduate program or permission. Supervised individual placement with political office holders, party groups, governmental agencies, law firms and other organizations providing professional-level work.

697 INDEPENDENT RESEARCH AND readings 1-4 credits
(May be repeated, but no more than six credits toward the master's degree in political science) Prerequisite: Admission to a Political Science graduate program or permission.

699 MASTERS THESIS 2-6 credits
Prerequisite: Admission to a Political Science graduate program or permission.

PSYCHOLOGY 3750:

500 PERSONALITY 4 credits
Prerequisite: admission to the Graduate School. Consideration of current conceptualizations of the normal personality with emphasis on methods of measurement, experimental findings and research techniques.

510 PSYCHOLOGICAL TESTS AND MEASUREMENTS 4 credits
Prerequisite: admission to the Graduate School. Consideration of the nature, construction and use of tests and measurement in the field of psychology and education. Includes aptitude and achievement testing, ratings scales, attitude and opinion analysis.

520 ABNORMAL PSYCHOLOGY 4 credits
Prerequisite: admission to the Graduate School. Survey of syndromes, etiology, diagnoses and treatments of major psychological conditions ranging from transient maladjustments to psychoses.

530 PSYCHOLOGICAL DISORDERS OF CHILDREN 4 credits
Prerequisites: permission to the Graduate School. Survey of syndromes, etiologies and treatments of behavioral disorders in children from the standpoint of developmental psychology. Behavioral data and treatment approaches emphasized.

543 HUMAN RESOURCE MANAGEMENT 4 credits
Prerequisite: admission to the Graduate School. Application of psychological theory to the effective management of human resources in an organization, including recruitment, selection, training and retention of personnel.

544 ORGANIZATIONAL THEORY 4 credits
Prerequisite: admission to the Graduate School. Application of psychological theory to macro-level processes in organizations including leadership, motivation, task performance, organizational theories and development.

545 PSYCHOLOGY OF SMALL GROUP BEHAVIOR 4 credits
Prerequisites: permission to the Graduate School. Intensive investigation of factors affecting behavior and performance in small groups including effects of personality, social structures, task, situation and social-cognitive variables.

550 COGNITIVE DEVELOPMENT 4 credits
Prerequisite: admission to the Graduate School. Theory and research on life-span changes in cognitive processes including concept formation/categorization, information processing and Piagetian assessment tasks.

560 HISTORY OF PSYCHOLOGY 3 credits
Prerequisite: admission to the Graduate School. Psychology in pre-scientific period and details of developmental or systematic viewpoints in 18th and 19th Centuries.

601 PSYCHOLOGICAL RESEARCH USING QUANTITATIVE AND COMPUTER METHODS I AND II 4 credits
Each Sequential prerequisite: graduate standing in psychology or the collaborative doctoral program in counseling psychology or special nondegree students with permission. Psychological research problem applying quantitative and computer methods. Topics include research design, sampling, controls, lines to validity, hypotheses testing, psychological measurement, error, robustness and power.

606 CORE I: SOCIAL PSYCHOLOGY 2 credits
Prerequisite: graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Introduction to empirical research and theories on the psychological processes leading to interpersonal behavior, focusing on topics like attitude change, social influence, and prosocial behavior.

607 CORE II: COGNITIVE PSYCHOLOGY 2 credits
Prerequisite: graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Theory of social psychology. Survey of theories and concepts, empirical phenomena, and methodologies in human cognitive psychology. Topics include attention, cognitive flexibility, learning, memory, categorization, skill acquisition/expertise, and training effectiveness.

608 CORE III: INDIVIDUAL DIFFERENCES 2 credits
Prerequisite: graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Theory of individual differences in personality and behavior and of the interaction between and within-group cultural variables influencing personality development and assessment.

609 CORE IV: BIOPSYCHOLOGY 2 credits
Prerequisite: graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Survey of biopsychological theories and research on individual differences in personality and behavior and of the interaction between and within-group cultural variables influencing personality development and assessment.
675 APPLIED COGNITIVE AGING PRACTICUM
2 credits
Prerequisite: graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Social and cognitive theories/research applied to the issue of how people understand their social experiences. Topics include: person perception, attribution, social categorization, social inference.

680 SCIENCE AND ETHICS OF INDUSTRIAL PSYCHOLOGY
4 credits
Survey of the ethical considerations of selection and performance management. Also, discusses professional and scientific guidelines regarding the ethics of Industrial psychology.

672 COUNSELING PRACTICUM
4 credits
Prerequisites: graduate standing in psychology and permission of instructor. Introduction to and development of counseling skills and intervention techniques. In addition to the required exercises, and case conference evaluations of actual clinical work samples. (Must be repeated for a total of 8 credits.) Credit/noncredit.

673 COUNSELING PRACTICUM II
4 credits
Prerequisite: graduate standing in psychology, 672, and instructor’s permission. Development and application of assessment and intervention skills with clients in the Psychology Department’s Counseling Clinic, including individual and small group supervision of clinical work. (Must be repeated for a total of 8 credits.) Credit/noncredit.

674 PERSONNEL PRACTICUM
4 credits
(May be repeated.) Prerequisites: 660, graduate standing in psychology, 14 credits of psychology, and permission of the instructor. Supervised field experience in industrial/organizational psychology in settings including business, government or social organizations. The field experience requires the application of industrial/organizational psychological theories and techniques. Credit/noncredit.

675 APPLIED COGNITIVE AGING PRACTICUM
2 credits
(May be repeated.) Prerequisites: 727, graduate standing in psychology, 14 credits of psychology, and permission of the instructor. Supervised field experience in applied cognitive aging psychology to provide the student with the opportunity to apply skills and knowledge acquired in the academic setting and to obtain knowledge about community programs and agencies which focus on developmental processes. Credit/noncredit.

680 EXTERNAL SPECIAL TOPICS
1-4 credits
(May be repeated for a maximum of 16 credits.) Prerequisites: permission of area chair. Graduate coursework taken at Kent State, Youngstown State, and/or Cleveland State Universities may be applied toward a UA degree either as a required or an elective course.

699 MASTER’S THESIS
1-4 credits
(May be repeated.) Prerequisite: permission of the instructor. Research analysis of data and presentation of thesis findings.

700 SURVEY OF PROFESSIONAL TECHNIQUES
4 credits
Prerequisite: 630 or instructor’s permission. Introduction to rationales, assumptions and ethics, and methodology of professional counseling. Elementary administrative, scoring and interpretation of Rorschach, and survey of other important contemporary professional techniques.

701 PSYCHODIAGNOSTICS
4 credits
Prerequisite: 700. Application of psychological testing to problems of diagnosis and evaluation. Practical experience in administration, scoring, interpretation, and report writing. Development of case material with other assessment techniques in variety of settings.

707 SUPERVISION IN COUNSELING PSYCHOLOGY I
4 credits
Prerequisite: doctoral standing 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 THEORETICAL CONFLICTS IN PSYCHOLOGY
4 credits
Prerequisite: 630 or permission of the instructor. Major systems of psychological theory explored within a philosophy of science framework: Freudian, behavioral, Rogerian, cognitive, existential. Also includes research, contemporary problems and ethics.

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 and empirical research on these theories, applied work in vocational counseling and applied research.

712 PRINCIPLES AND PRACTICE OF INDEPENDENT INTELLIGENCE TESTING
4 credits
Prerequisite: 630 or permission of instructor. Principles and methodology of intelligence testing, supervised practice in administration, scoring and interpretation of individual intelligence tests for children and adults.

713 PROFESSIONAL, ETHICAL AND LEGAL ISSUES IN COUNSELING PSYCHOLOGY
4 credits
Prerequisite: doctoral standing or permission of the 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 630 or 680/500, and 420/520, and 5600:645. Study of the development, administration, and interpretation of objective instruments for personality assessment (MMPI, CPI, MBTI, 16PF and selected additional inventories).

715 RESEARCH DESIGN IN COUNSELING I
3 credits
Prerequisite: doctoral standing or permission of the instructor. Study of research designs, evaluation procedures, and review of current research.

716 ISSUES OF DIVERSITY IN COUNSELING PSYCHOLOGY
4 credits
Prerequisite: 630 or equivalent. Critical examination and application of research and theory in counseling diverse populations, focusing on race/ethnicity, gender, sexual orientation, age, disability, and spirituality.

717 HISTORY AND SYSTEMS IN PSYCHOLOGY
2 credits
Prerequisite: 630. Philosophical and scientific antecedents of psychology and details of the development of systematic views in the 19th and 20th centuries.

717 PSYCHOLOGY OF ADULTHOOD AND AGING
4 credits
Prerequisite: graduate standing in psychology or in the collaborative program in counseling psychology or permission of instructor. Topics include effects of development, aging and research design, age-related changes in intelligence, personality, perception, learning, memory, and socialization and intervention approaches.

718 PERCEPTION, ATTENTION, AND AGING
4 credits
Prerequisite: graduate standing in adult development and aging program or permission of instructor. Overview of theory, methods, and data on attention and perception and how aging affects these phenomena.

712 PSYCHOLOGY AND AGING
4 credits
Prerequisite: graduate standing in psychology or permission of instructor. Survey of selected topics in the field of aging research, such as research on cognitive aging, decision-making, and expertise.

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.

736 PSYCHOPHARMACOLOGY AND ADULTHOOD
4 credits
Prerequisite: 640. Pharmacology addresses a diverse range of drugs that act in the brain. Drug mechanisms are discussed in the context of emotional, cognitive, and behavioral effects.

737 APPLIED DEVELOPMENTAL PSYCHOLOGY
4 credits
Prerequisites: 727, graduate standing in psychology, or permission of instructor. Examination of developmental theories applied to the lives of children and adults.

738 DRUG ABUSE AND THERAPY
4 credits
Prerequisite: 727, graduate standing in psychology, or permission of instructor. Techniques for the assessment and treatment of drug abuse. Discussion of behavioral, cognitive, and biochemical approaches.

740 INDUSTRIAL GERONTOLOGY
4 credits
Prerequisite: 660, graduate standing in psychology, or permission of the instructor. Study of the general systems theory framework to the study of the relationships between organization, individuals, and society in the context of the processes of organizations, and the relationships between organizations and their environment.

760 SURVEY OF PROJECTIVE TECHNIQUES
4 credits
Prerequisite: 630 or permission of instructor. Theories and research on projective testing. Elementary administration, scoring and interpretation of Rorschach, and survey of other important contemporary professional techniques.

763 PERFORMANCE FEEDBACK AND EVALUATION
4 credits
Prerequisite: 660, graduate standing in psychology, or permission of the instructor. Consideration of the role of attitudes and values in the prediction of behavior including consumer psychology, explaining attitude changes, measurement of attitudes and the use of survey methodology.

765 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, evaluation of performance, job worth and departments. Prerequisites: 660, graduate standing in psychology, or permission of the instructor. Survey of the theories and methods of organizational change and transformation used to increase organizational effectiveness and improve employee quality of work life.

766 ORGANIZATIONAL MOTIVATION AND LEADERSHIP
4 credits
Prerequisite: 660, graduate standing in psychology, or permission of instructor. Survey of theories of the processes of motivation specifying both the intrinsic and extrinsic determinants of worker motivation. The leadership process and its relation to motivation, group performance and attributes is also analyzed.

767 INFORMATION PROCESSING AND INDUSTRIAL ORGANIZATIONAL PSYCHOLOGY
4 credits
Prerequisite: 660. Issues in personnel psychology which have legal implications are reviewed. Impact of recent court decisions are evaluated in staffing and compensation.

768 PERFORMANCE FEEDBACK AND EVALUATION
4 credits
Prerequisite: 660, graduate standing in psychology, or permission of instructor. Examination of current research and practice in the area of performance appraisal. Topics will include: criterion development, rater training, appraisal effectiveness, feedback processes, and performance management.

775 PSYCHOPATHOLOGY
4 credits
Prerequisites: 630, 680, and 699. Coursework geared toward understanding the clinical aspects of psychopathology in terms of their historic roots and the current nomenclature used to identify, diagnose, and treat psychopathologies ranging from transient maladjustments to severe psychoses.

788 ADVANCED SEMINAR IN COUNSELING PSYCHOLOGY
1-4 credits
(May be repeated.) Prerequisites: graduate standing in psychology and permission of the instructor. Special topics in psychology.

789 ADVANCED COUNSELING PRACTICUM
4 credits
(May be repeated.) Prerequisites: 795 (eight hours) or 5600:675 (five hours). Advanced counseling psychology students will counsel live clients in a variety of settings and will focus on supervision developed of specialized theoretical applications. Credit/Noncredit.

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.
105

SOCIOLOGY 3850:

510 SOCIAL STRUCTURES AND PERSONALITY
Interrelationships between position in society, personality characteristics. Personality treated as both resultant and determinant of social structure and process. Lecture.

511 SOCIAL INTERACTION
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
Theoretical and empirical analyses of process by which infant, child, adolescent and adult learn the social and cultural requirements necessary to function in new roles, changing roles and society in general.

521 RACIAL AND ETHNIC RELATIONS
Analysis of structure and dynamics of race and ethnic relations from a variety of perspectives emphasizing both historical and contemporary issues. Lecture.

525 SOCIOLOGY OF URBAN LIFE
Emergence and development of urban society. Examination of urban social structure from societal and cultural perspectives, the problems and prospects. Emphasis on various life styles of urban subcultures. Lecture/discussion.

528 THE VICTIM IN SOCIETY
Study of the nature, causes, and consequences of victimization with special focus on crime victimization.

530 JUVENILE DELINQUENCY
Analysis of social structure and process from which delinquency develops. Emphasis on current and past research. Lecture/discussion.

531 CORRECTIONS
Survey of theories of delinquent behavior and relevant empirical research. Special emphasis given to interaction processes and social control. Lecture.

541 SOCIOLOGY OF LAW
Social origins and consequences of law and legal processes. Emphasis on uses of law, social change and aspects of legal professions. Lecture.

544 SOCIAL ISSUES IN AGING
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 and programs to meet these needs.

547 SOCIOLOGY OF SEX AND GENDER
Review of research and theories of sex and gender. Examination of gender as structure, process and experience in society.

550 SOCIOLOGY OF MENTAL ILLNESS
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
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
An overview and examination of theoretical issues in sociology, through the study of both classical and contemporary theoretical work.

601 PROSEMINAR IN SOCIOLOGY
Prerequisite: Graduate standing in sociology or permission of instructor. Introduction to advanced topics of sociological approach and major areas of study/research in the field. Seminar. Credit/Noncredit.

602 FAMILY AND SOCIETY
Prerequisite: Graduate standing in Sociology or permission of instructor. Examination of the interrelationships of family and society as both independent/dependent variable, at micro/macro levels. Development and impact of family policies is discussed.

604 QUANTITATIVE METHODS IN SOCIOLOGY
Prerequisite: Graduate standing in sociology or permission of instructor. Introduction to use of quantitative methods for analyzing sociological issues. Instruction in the process of empirically verifying a theoretical question, from conceptualization to analysis. (Same as KSU 67211) Lecture.

615 EPIDEMIOLOGIC METHODS IN HEALTH RESEARCH
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
Prerequisite: Graduate standing in Sociology or permission of instructor. A sociological perspective is employed to analyze and understand the production, distribution and utilization of social sentiments and emotions. (Same as KSU 67235) Seminar.

628 PROFESSIONAL AND ETHICAL ISSUES IN SOCIOLOGY
Prerequisite: Graduate standing in Sociology. Introduction to professional and ethical issues including the logic of inquiry, developing effective approaches to independent learning and research, the research certification process and plagiarism. Lecture.

631 SOCIAL PSYCHOLOGY
Prerequisite: Graduate standing in Sociology or permission of instructor. Intensive examination of advanced theory and research in social psychology, particularly how social interaction and self-conception affect one another. Lecture.

634 PERSONALITY AND SOCIAL SYSTEMS
Prerequisite: Graduate standing in Sociology or permission of instructor. Examination of contemporary theory and research on linkages between personality and society. Some applications in studies of modernization, social class and occupations and sex roles. (Same as KSU 72433) Seminar.

639 SOCIOLOGY OF GENDER
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 672696)
722 EARLY SOCIOLOGICAL THOUGHT 3 credits
Prerequisite: Graduate standing in Sociology or permission of instructor. Two to four major sociological thinkers prior to 1930 by city department. Readings and/or research supervised by member of 675 ADVANCED TECHNIQUES IN POLICY ANALYSIS 3 credits
Prerequisite: permission. Analysis of theories of complex institutional systems. May not be used to meet core graduate requirements. May be used for elective credit only.

600 BASIC QUANTITATIVE RESEARCH 3 credits
Prerequisite: permission. Examines basic framework of social science research methodologies and basic complementary statistical techniques, including probability and sampling.

601 ADVANCED RESEARCH AND STATISTICAL METHODS 3 credits
Prerequisite: 600. Extends study of social science to include more advanced research designs and multivariate statistical techniques.

602 HISTORY OF URBAN DEVELOPMENT 3 credits
Examination of major literature on processes of urbanization in the United States and selected facets of urban institutional development.

605 ORIENTATION TO THE MASTER OF PUBLIC ADMINISTRATION 0 credits
Prerequisite: Admission to the MPA program. Corequisite: Take during the first semester in the MPA program. The orientation to the MPA program provides information and strategies for new students, including classes, advising, and career opportunities.

606 FOUNDATIONS OF URBAN PUBLIC ADMINISTRATION AND POLICY 3 credits
Introduces theory and principles of public administration and policy. Considers local government management practices, along with policy issues and problems arising in urban settings.

608 HEALTH BEHAVIOR: THEORY AND APPLICATION 3 credits
Prerequisite: Graduate status. This course provides an overview of behavior change theories at the individual, interpersonal, and community levels with an emphasis on application in health care and health-related decision-making.

610 LEGAL FOUNDATIONS OF PUBLIC ADMINISTRATION 3 credits
Prerequisite: permission. Introduction to the legal foundations and context of public administration, including the interaction of the course, public organizations, public administration and the public.

611 INTRODUCTION TO THE PROFESSION OF PUBLIC ADMINISTRATION 3 credits
Prerequisite: permission. Introduction to the theory and practice of the field of public administration. Foundation course for later MPA study.

613 INTERGOVERNMENTAL MANAGEMENT 3 credits
Prerequisite: permission. Examines the field of intergovernmental relations as it applies to public administration and management.

614 ETHICS AND PUBLIC SERVICE 3 credits
Prerequisite: 18 credit hours in the MPA program or permission. Examination of the ethical problems and implications of decisions and policies made by those whose actions affect the public and public policy.

615 PUBLIC ORGANIZATION THEORY 3 credits
Prerequisite: permission. Examines the development of public organizational theory and the current status of theoretical developments in the field of public administration.

618 CITIZEN PARTICIPATION 3 credits
The fundamental theory, background, techniques, and issues of citizen participation in urban policy-making.

620 SOCIAL SERVICES PLANNING 3 credits
Prerequisite: permission. In-depth analysis of total social services requirements and various ways in which social services planning function is carried out in urban communities.

621 URBAN SOCIETY AND SERVICES ADMINISTRATION 3 credits
Prerequisite: permission. Analysis of social bases of urban society; hierarchies, social problems, relationships to planning, public services.

622 URBAN PLANNING AND PUBLIC POLICY 3 credits
Basic knowledge of the health service delivery system is provided for planners and administrators in the public sector.

623 PUBLIC WORKS ADMINISTRATION 3 credits
Prerequisite: permission. Examines the building, maintenance and management of public works.

624 EMERGENCY MANAGEMENT POLICY IMPLEMENTATION AND ANALYSIS 3 credits
Prerequisite: permission. Examines the implementation of emergency management policy at the federal, state, and local levels. Analyzes current policy initiatives in this emerging field.

625 STRATEGIC PERCEPTIONS IN EMERGENCY MANAGEMENT 3 credits
Prerequisite: permission. In-depth analysis of decision responsibilities in emergency management. Examines unfunded mandates and the optimal strategies for success in the four phases of emergency management.

640 REGRESSION ANALYSIS 3 credits
Prerequisite: permission. Study of revenue and expenditure patterns of the city’s government.

641 URBAN ECONOMIC DEVELOPMENT 3 credits
Prerequisite: permission. Examination of urban economic unit and its susceptibility to social, economic, political and physical change.

642 PUBLIC BUDGETING 3 credits
Prerequisite: permission. Current professional practice and theoretical issues in public budgeting and management of capital and operating budgets.

643 INTRODUCTION TO PUBLIC POLICY 3 credits
Prerequisite: permission. Introduction to models of public policy formulation; identification of major policy issues; and the analysis of policy implementation and policy impact.

644 PUBLIC SECTOR FUND MANAGEMENT 3 credits
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.

645 PUBLIC SECTOR LABOR RELATIONS 3 credits
Prerequisite: 616. This course examines fundamental issues and principles of public sector labor relations with particular attention to the collective bargaining processes and to administration of labor contracts.

647 AGING POLICY 3 credits
In this course students will examine political institutions that impact the adoption and implementation of programs for the aged, including Medicare, Medicaid, and Social Security.

650 COMPARATIVE URBAN SYSTEMS 3 credits
Prerequisite: permission. Concepts, theories and methodology for comparative urban analysis among a number of major cities selected from each continent.

654 STRATEGIC MANAGEMENT IN PUBLIC AND NON PROFIT SECTORS 3 credits
This course examines the discipline of management, planning, contracting, decision-making and operating in both public and non-profit sectors.

658 LEGISLATIVE ORGANIZING 3 credits
Prerequisite: permission. Examines alternative methods of fundraising and unique resource management challenges and opportunities of non-profit organizations.

669 WORKSHOP 1-3 credits
Prerequisite: permission. (May be repeated for a maximum of six credits.) Group studies of special topics in urban studies and public administration. May not be used to meet core graduate requirements. May be used for elective credit only.

670 PROGRAM EVALUATION IN URBAN STUDIES 3 credits
Prerequisite: 600, 606. Provides in-depth historical overview of the public policy cycle including hands-on approaches to design and management. Examines frameworks for implementation, monitoring and analysis of project impact.

671 PROGRAM EVALUATION IN URBAN STUDIES 3 credits
Prerequisite: permission. Focus on issues that confront public managers in utilizing information as an organizational asset.

672 CITIZEN PARTICIPATION 3 credits
Prerequisite: permission. Selects 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.)

678 CAPSTONE SEMINAR IN PUBLIC ADMINISTRATION 3 credits
Prerequisite: Completion of core or concurrent enrollment in core courses. Thirty credit hours in public administration, public policy and urban administration.

680, 681 SELECTED TOPICS IN URBAN STUDIES 1-3 credits each
Prerequisite: permission. Selected topics in specific areas of urban studies and public administration. May not be used to meet core graduate requirements.

685 URBAN STUDIES SEMINAR 3 credits
Prerequisite: 16 credits of urban studies core plus quantitative methods. Urban research methods applied to specific urban research area. Comprehensive paper required.

691 MASTER’S COLLOQUIUM 1 credit
This course is required for masters students on assistantships. The course reviews programmatic, research, and curricula issues in the masters program.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>700</td>
<td>Urban Policy Studies</td>
<td>5 credits</td>
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<tr>
<td>701</td>
<td>Special Topics in History of Art</td>
<td>1-3 credits</td>
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<td>702</td>
<td>Museumology</td>
<td>3 credits</td>
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<td>703</td>
<td>Art and Critical Theory</td>
<td>3 credits</td>
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<td>704</td>
<td>History of Art Symposium</td>
<td>1-3 credits</td>
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<td>705</td>
<td>Methods of Art History</td>
<td>3 credits</td>
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<td>706</td>
<td>Student Teaching Colloquium</td>
<td>1 credit</td>
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<td>707</td>
<td>Survey of Asian Art</td>
<td>3 credits</td>
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<tr>
<td>708</td>
<td>Multiples and Multiplicity</td>
<td>3 credits</td>
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<td>709</td>
<td>Special Topics in Print</td>
<td>3 credits</td>
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<tr>
<td>710</td>
<td>Community Based Art Education</td>
<td>3 credits</td>
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<tr>
<td>711</td>
<td>Middle School Materials and Techniques</td>
<td>3 credits</td>
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<tr>
<td>712</td>
<td>Ceramic Methods, Materials, and Concepts</td>
<td>3 credits</td>
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<td>713</td>
<td>Early Childhood Art Education</td>
<td>3 credits</td>
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<tr>
<td>714</td>
<td>Art in the Inclusive Classroom</td>
<td>3 credits</td>
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<td>715</td>
<td>Elementary Field Experience: Art License</td>
<td>1 credit</td>
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<td>716</td>
<td>Secondary Field Experience: Art License</td>
<td>1 credit</td>
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<tr>
<td>717</td>
<td>Advanced Ceramics</td>
<td>3 credits</td>
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<tr>
<td>718</td>
<td>History of Craft</td>
<td>3 credits</td>
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**Graduate Courses**

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>700</td>
<td>Public Sector Human Resource Management</td>
<td>3 credits</td>
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<tr>
<td>701</td>
<td>Conceptual and Legal Foundations of Public Administration</td>
<td>3 credits</td>
</tr>
<tr>
<td>702</td>
<td>Comparative Administration</td>
<td>3 credits</td>
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<td>703</td>
<td>Leading Public Organizations</td>
<td>3 credits</td>
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<tr>
<td>704</td>
<td>Survey/Research Methods in the Public Sector</td>
<td>3 credits</td>
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<td>705</td>
<td>Economic Analysis in Public Administration</td>
<td>3 credits</td>
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<tr>
<td>706</td>
<td>Seminar in Health Policy</td>
<td>3 credits</td>
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<tr>
<td>707</td>
<td>Ph.D. Colloquium</td>
<td>1 credit</td>
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<tr>
<td>708</td>
<td>Urban Policy Studies</td>
<td>1-4 credits</td>
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<tr>
<td>709</td>
<td>Pro-Seminar</td>
<td>3 credits</td>
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<tr>
<td>710</td>
<td>Directed Research</td>
<td>3 credits</td>
</tr>
<tr>
<td>711</td>
<td>Urban Tutorial</td>
<td>3 credits</td>
</tr>
<tr>
<td>712</td>
<td>Doctoral Dissertation</td>
<td>1-15 credits</td>
</tr>
<tr>
<td>713</td>
<td>Directed Research</td>
<td>3 credits</td>
</tr>
<tr>
<td>714</td>
<td>Leading Public Organizations</td>
<td>3 credits</td>
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<tr>
<td>715</td>
<td>Comparative Administration</td>
<td>3 credits</td>
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<tr>
<td>716</td>
<td>Economic Analysis in Public Administration</td>
<td>3 credits</td>
</tr>
<tr>
<td>717</td>
<td>Seminar in Health Policy</td>
<td>3 credits</td>
</tr>
<tr>
<td>718</td>
<td>Ph.D. Colloquium</td>
<td>1 credit</td>
</tr>
<tr>
<td>719</td>
<td>Urban Policy Studies</td>
<td>1-4 credits</td>
</tr>
<tr>
<td>720</td>
<td>PRO-Seminar</td>
<td>3 credits</td>
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<tr>
<td>721</td>
<td>DIRECTED RESEARCH</td>
<td>3 credits</td>
</tr>
<tr>
<td>722</td>
<td>URBAN TUTORIAL</td>
<td>3 credits</td>
</tr>
<tr>
<td>723</td>
<td>DOCTORAL DISSERTATION</td>
<td>1-15 credits</td>
</tr>
<tr>
<td>724</td>
<td>University sponsored residency or travel</td>
<td>1 credit</td>
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<tr>
<td>725</td>
<td>Selected topics for specialized instruction delivered at Kent, Youngstown, and/or Cleveland University</td>
<td>1 credit</td>
</tr>
<tr>
<td>726</td>
<td>Graduate studio in two dimensional design media. Special topics and focus vary.</td>
<td>3 credits</td>
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<tr>
<td>Course Title</td>
<td>Credits</td>
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<tr>
<td>561 GRADUATE STUDIO: 3-D MEDIA</td>
<td>3</td>
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<tr>
<td>Graduate studio in three dimensional design media. Special topics and focus vary.</td>
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<tr>
<td>562 GRADUATE STUDIO: PHOTOGRAPHIC/DIGITAL MEDIA</td>
<td>3</td>
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<tr>
<td>Graduate studio in photographic/digital media. Special topics and focus vary.</td>
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<tr>
<td>589 SPECIAL TOPICS IN STUDIO ART</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>(May be repeated for credit when a different subject or level of investigation is indicated). Pre-</td>
<td></td>
<td></td>
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<tr>
<td>requisites: varies by course. Group investigation of topics not offered elsewhere in the curricu-</td>
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<tr>
<td>lum.</td>
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<tr>
<td>590 WORKSHOP IN ART</td>
<td>1-4</td>
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<tr>
<td>(May be repeated for credit when a different subject or level of investigation is indicated) Pre-</td>
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<tr>
<td>requisites: varies by course. Group investigation of topics not offered elsewhere in the curricu-</td>
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<tr>
<td>lum.</td>
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<tr>
<td>593 ADVANCED SEMINAR IN ART EDUCATION</td>
<td>3</td>
<td></td>
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<tr>
<td>Prerequisites: Permission of advisor. This course is designed to provide an overview of the art</td>
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<tr>
<td>education and industry in Family and Consumer Sciences.</td>
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<tr>
<td>594 SPECIAL TOPICS: ART EDUCATION</td>
<td>1-3</td>
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<tr>
<td>(May be repeated for credit when a different subject or level of investigation is indicated) Pre-</td>
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<tr>
<td>requisites: varies by course. Group investigation of topics not offered elsewhere in the curricu-</td>
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<tr>
<td>lum.</td>
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<tr>
<td>597 INDEPENDENT STUDIES</td>
<td>1-3</td>
<td></td>
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<tr>
<td>(May be repeated for credit when a different subject or level of investigation is indicated) Pre-</td>
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<tr>
<td>requisites: varies by course. Group investigation of topics not offered elsewhere in the curricu-</td>
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<tr>
<td>lum.</td>
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<tr>
<td>501 AMERICAN FAMILIES IN POVERTY</td>
<td>3</td>
<td></td>
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<tr>
<td>Prerequisite: Permission of instructor. Overview of the issues, trends, and social policies affect-</td>
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<tr>
<td>ing American families living in poverty. Online section available.</td>
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<tr>
<td>502 ADVANCED FIBER ARTS</td>
<td>3</td>
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<tr>
<td>Prerequisite: Permission of instructor. An advanced course that builds on the skills learned in</td>
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<tr>
<td>the prerequisite, with the intention of reaching a caliber suitable for one of the many profes-</td>
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<tr>
<td>sions in this field, including business aspects such as market analysis and product development.</td>
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<tr>
<td>504 MIDDLE CHILDHOOD AND ADOLESCENCE</td>
<td>3</td>
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<tr>
<td>Prerequisites: Permission of instructor. The influences of middle childhood and adolescent be-</td>
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<tr>
<td>havior on the psychological and social influences of the family environment. Middle childhood</td>
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<tr>
<td>and adolescent development. Online section available.</td>
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<tr>
<td>560 FAMILY FINANCIAL MANAGEMENT</td>
<td>3</td>
<td></td>
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<tr>
<td>Analyzes the family as a social unit and including financial problems and their resolution. In-</td>
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<tr>
<td>tegration of decision-making patterns and financial practices behavior. Cases, exercises, problems</td>
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<tr>
<td>and computer analysis. Online section available.</td>
<td></td>
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<tr>
<td>578 HISTORY OF INTERIOR DESIGN</td>
<td>4</td>
<td></td>
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<tr>
<td>The study of furnishings, interiors, and architecture from antiquity through the eighteenth cen-</td>
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<tr>
<td>tury, with emphasis on the historical-cultural influences shaping their development.</td>
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<tr>
<td>591 HISTORY OF INTERIOR DESIGN II</td>
<td>4</td>
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</tr>
<tr>
<td>The study of nineteenth and twentieth-century furnishings and interiors, with emphasis on the</td>
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<tr>
<td>social-cultural influences shaping their development.</td>
<td></td>
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<tr>
<td>522 TEXTILES FOR INTERIORS</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prerequisite: Permission of instructor. Evaluation of physical, aesthetic, comfort, care, and</td>
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<tr>
<td>durability properties of textile products and testing procedures to determine suitability for de-</td>
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<tr>
<td>Signed use and uses as it relates to interior fabrics.</td>
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<tr>
<td>525 TEXTILES FOR APPAREL</td>
<td>3</td>
<td></td>
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<tr>
<td>Prerequisite: Permission of instructor. Evaluation of physical, aesthetic, comfort, care, and</td>
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</tr>
<tr>
<td>durability properties of textile products and testing procedures to determine suitability for de-</td>
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<tr>
<td>signed use and uses as it relates to interior fabrics.</td>
<td></td>
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<tr>
<td>570 GLOBAL ISSUES IN TEXTILES AND APPAREL</td>
<td>3</td>
<td></td>
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<tr>
<td>Prerequisite: Permission of instructor. Examines the global structure and scope of the textile</td>
<td></td>
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<tr>
<td>and apparel industries emphasizing an economic perspective.</td>
<td></td>
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<tr>
<td>531 PROFESSIONAL PRESENTATION SKILLS IN FAMILY &amp; CONSUMER SCIENCES</td>
<td>3</td>
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<tr>
<td>Prerequisite: Permission of instructor. Emphasizes the development of abilities and strengths in</td>
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<tr>
<td>coordination of equipment, materials, motion, speech, and presentation delivery relating to</td>
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<tr>
<td>education and industry in Family and Consumer Sciences.</td>
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<tr>
<td>534 TEXTILE CONSERVATION</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prerequisite: Permission of instructor. Principles and practices of textile conservation with</td>
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<tr>
<td>emphasis on procedures appropriate for collectors and small business historical agencies.</td>
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<tr>
<td>564 CULTURE, ETHNICITY AND THE FAMILY</td>
<td>3</td>
<td></td>
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<tr>
<td>Prerequisite: Permission of instructor. Study of the role of culture and ethnicity in adap-</td>
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<tr>
<td>tation of a system to environments and program applications considered. Online section available.</td>
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<tr>
<td>568 BEFORE AND AFTER SCHOOL CHILD CARE</td>
<td>2</td>
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<tr>
<td>Study of the development, implementation and evaluation of school-age child-care programs for</td>
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<tr>
<td>before and after school and vacation periods.</td>
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<tr>
<td>569 FLAT PATTERN DESIGN</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prerequisite: Permission of instructor. Theory and experience in clothing design using flat pat-</td>
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<td>tern techniques.</td>
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<tr>
<td>570 ORGANIZATION AND SUPERVISION OF CHILD-CARE CENTERS</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>These courses provide principles and procedures in establishing and operating centers for infants,</td>
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<tr>
<td>toddlers, preschool and school-age children.</td>
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<tr>
<td>571 CASE MANAGEMENT FOR CHILDREN AND FAMILIES</td>
<td>3</td>
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<tr>
<td>Prerequisite: Provides Management basics in a multi-systems collaborative context. Includes</td>
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<tr>
<td>roles, values, principles, state and services systems, and service coordination.</td>
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<tr>
<td>572 CASE MANAGEMENT FOR CHILDREN AND FAMILIES</td>
<td>3</td>
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<tr>
<td>Prerequisite: Provides in-depth exploration of Case Management principles and practice.</td>
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<tr>
<td>573 SIMULATIONS IN FAMILY AND CONSUMER SCIENCES</td>
<td>1-3</td>
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<tr>
<td>Prerequisite: Permission of instructor. Exploration and evaluation of current developments in</td>
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<tr>
<td>selected areas.</td>
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<tr>
<td>574 WORKSHOP IN FAMILY AND CONSUMER SCIENCES</td>
<td>1-3</td>
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<tr>
<td>Prerequisite: Permission of instructor. Exploration and evaluation of current developments in</td>
<td></td>
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<tr>
<td>selected areas.</td>
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<tr>
<td>575 PARENT EDUCATION</td>
<td>3</td>
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<tr>
<td>Prerequisite: Permission of instructor. Practical application that reviews and analyzes various</td>
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<tr>
<td>parenting techniques with major emphasis on the evaluation of parent education programs.</td>
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<tr>
<td>576 STUDENT TEACHING SEMINAR</td>
<td>1</td>
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<tr>
<td>Corequisites: 5010:695, 5030:695. For students currently enrolled in Family and Consumer Sci-</td>
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<tr>
<td>ences student teaching. Emphasis on block and lesson plan development, licensure, portfolio de-</td>
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<tr>
<td>velopment, PAXAS III, professional development, and student teaching reflections.</td>
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<tr>
<td>577 FAMILY IN LIFE-SPAN PERSPECTIVE</td>
<td>3</td>
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<tr>
<td>Study of individual and family development across life span. Emphasis on adjustment patterns and</td>
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<tr>
<td>interpersonal competence. Implications for education theory research and policy.</td>
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<tr>
<td>578 ORIENTATION TO GRADUATE STUDIES IN FAMILY AND CONSUMER SCIENCES</td>
<td>3</td>
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<tr>
<td>Introduction to the concepts and practices necessary for graduate study in the interdisciplinary</td>
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<tr>
<td>field of family and consumer sciences.</td>
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<tr>
<td>579 DEVELOPMENTAL PARENT-CHILD INTERACTIONS</td>
<td>3</td>
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<tr>
<td>Prerequisite: Permission of instructor. Study of reciprocal interactions between parent and child</td>
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<tr>
<td>from birth to adulthood. Consideration of cross-cultural studies, historical and societal</td>
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<tr>
<td>transitions, and various family characteristics and structures. Online section available.</td>
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<tr>
<td>577 MATERIAL CULTURE STUDIES</td>
<td>3</td>
<td></td>
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<tr>
<td>Methods of studying clothing, textiles, and interiors from a cultural and historical perspective.</td>
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<tr>
<td>578 THEORIES OF FASHION</td>
<td>3</td>
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<tr>
<td>In-depth analysis of the theories underlying fashion and evaluation of current research related</td>
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<tr>
<td>to the study of fashion.</td>
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<tr>
<td>579 PROFESSIONAL PRESENTATION IN FAMILY AND CONSUMER SCIENCES</td>
<td>3</td>
<td></td>
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<tr>
<td>Developing effective family and consumer sciences professional presentations. Emphasis on visual,</td>
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<tr>
<td>display, demonstrations, public relations materials, user manuals, conference management, portfo-</td>
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<td>lio development, and learning styles.</td>
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<tr>
<td>580 DEVELOPMENT IN INFANCY AND EARLY CHILDHOOD</td>
<td>3</td>
<td></td>
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<tr>
<td>Analysis of research and theoretical frameworks regarding infant and child development from</td>
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<td>conception through age five. Implications for guidance and education.</td>
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<tr>
<td>581 SOCIAL PSYCHOLOGY OF DRESS AND THE NEAR ENVIRONMENT</td>
<td>3</td>
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<tr>
<td>Study of dress and the near environment as they relate to human behavior at the micro and macro</td>
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<tr>
<td>level.</td>
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<tr>
<td>582 HISTORICAL AND CONCEPTUAL BASES OF FAMILY AND CONSUMER SCIENCES</td>
<td>3</td>
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<tr>
<td>History of the field of family and consumer sciences with emphasis on the leaders and the con-</td>
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<td>cepetual basis of the field.</td>
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<tr>
<td>583 RESEARCH METHODS IN FAMILY AND CONSUMER SCIENCES</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>A study of family and consumer sciences research methods emphasizing concept and development,</td>
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<td>policy application and ethical considerations.</td>
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<tr>
<td>584 PRACTICUM IN FAMILY AND CONSUMER SCIENCES</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prerequisite: Permission of instructor. Supervised reading and research related to approved</td>
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<td>thesis topic. May be repeated once.</td>
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<td>585 MASTER'S PROJECT</td>
<td>5</td>
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<tr>
<td>Prerequisite: permission of advisor. The development, implementation and evaluation of a com-</td>
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<td>munity-based supervised project which makes a significant contribution to the field and may lead</td>
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<td>to publication.</td>
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<tr>
<td>586 INDIVIDUAL INVESTIGATION IN FAMILY AND CONSUMER SCIENCES</td>
<td>1-3</td>
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<tr>
<td>Prerequisite: permission of advisor. Individual investigation and analysis of a specific topic in</td>
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<tr>
<td>student's area of specialization of interest under direction of a faculty advisor.</td>
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697 INDIVIDUAL INVESTIGATION IN FAMILY DEVELOPMENT 1-3 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 1-3 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.

MUSIC 7500:

525 MUSIC TEACHING METHODOLOGIES FOR GRADUATE STUDENTS 2 credits
Prerequisite: Related to the teaching of undergraduate music courses, including preparation of syllabi, methods of evaluation, and instruction on class preparation and presentation.

526 GRADUATE MUSIC THEORY REVIEW 2 credits
Prerequisite: Undergraduate music theory equivalent to four semesters. Review of basic music theory and composition. Coverage includes the chromatic harmony vocabulary of the 18th, 19th, and 20th centuries.

527 GRADUATE MUSIC HISTORY REVIEW 2 credits
Prerequisite: Undergraduate music history equivalent to four semesters of music history or literature study. Review of basic music history for graduate students. Coverage extends from antiquity to the present. Both reading and listening assignments will be required.

532 TEACHING AND LITERATURE: PERCUSSION INSTRUMENTS 2 credits
To train graduate percussion students in techniques of percussion education. Emphasis on research, literature, performance, and techniques from elementary through secondary levels.

551 INTRODUCTION TO MUSICOLOGY 2 credits
Prerequisites: MUSC 352. Comparative musicology; acoustics; psychology and physiology of music; aesthetics; theory of music history; historical musicology.

553 MUSIC SOFTWARE SURVEY AND USE 2 credits
Prerequisite: Permission of instructor. A survey and evaluation of available software in the various forms of musical instruction. Students will design a course suitable for submission to a programmer.

555 ADVANCED CONDUCTING: ORCHORAL 2 credits
Prerequisite: 361 or equivalent. Conducting techniques in the choral ensemble, including lead sheets, choral ear training, choral conducting, and choral orchestral conducting.

556 ADVANCED CONDUCTING: INSTRUMENTAL 2 credits
Prerequisites: 361 and 442 or permission. Baton techniques and problems relating to practice, reading and preparation of scores; organization of ensembles; programming; conducting large and small instrumental ensembles. One hour lab required.

567 GUITAR PEDAGOGY 2 credits
Prerequisite: permission of instructor. A systematic analysis of prevailing schools of guitar pedagogy. Sound production psychology, method books and special problems in teaching addressed.

567 GUITAR ARRANGING 2 credits
Prerequisite: permission of instructor. After comparative analyses of selected examples, student make original solo guitar arrangements of works written for other solo instruments ensembles.

567 HISTORY AND LITERATURE OF THE GUITAR AND LUTE 2 credits
Prerequisite: permission of instructor. Study of plucked, fretted, string instruments from the 14th Century to the present; construction, notation, literature, and performance practices. Modem arrangements and recordings evaluated.

570 STUDIES IN CHORAL LITERATURE I: MEDIEVAL-RENAISSANCE 2 credits
A survey of choral repertoire in terms of general structure, character, voicing, notation, pitch, ornamentation, improvisation, and interpretation of dynamics, rhythm, articulation, and tempo.

571 STUDIES IN CHORAL LITERATURE II: BAROQUE 2 credits
A study of the repertoire in terms of general structure, character, voicing, notation, pitch, ornamentation, improvisation, and interpretation of dynamics, rhythm, articulation, and tempo.

572 STUDIES IN CHORAL LITERATURE III: CLASSIC-ROMANTIC 2 credits
A study of the repertoire in terms of general structure, character, voicing, notation, pitch, ornamentation, improvisation, and interpretation of dynamics, rhythm, articulation, and tempo.

573 STUDIES IN CHORAL LITERATURE IV: THE 20TH CENTURY 2 credits
A study of the repertoire in terms of general structure, character, voicing, notation, pitch, ornamentation, improvisation, and interpretation of dynamics, rhythm, articulation, and tempo.

574 INTEGRATIVE CONDUCTING WORKSHOP 2 credits
A study of the conductor and the effective rehearsal which respond to the needs of the singers while maintaining stylistic integrity in executing the music.

590 WORKSHOP IN MUSIC 1-3 credits
Prerequisite: permission of instructor. Investigation of topics not offered in regular curriculum. Graduate student must fulfill additional requirements.

601 CHORAL LITERATURE 2 credits
Prerequisite: permission of instructor. Study in depth of style, structure, technical demands, manner of setting text, and special performance problems found in masterworks by great choral composers of nine centuries.

604 DEVELOPMENT OF OPERA 2 credits
Prerequisite: permission of instructor. Growth and development of opera from 1600 to present. Includes detailed examination of stylistic and structural changes as well as performance practices.

609 PEDAGOGY OF JAZZ IMPROVISATION 3 credits
Includes a detailed study of the methods and materials as they relate to the teaching of jazz improvisation.

611 FOUNDATIONS AND PRINCIPLES OF MUSIC EDUCATION 3 credits
A study of the basic historical, philosophical, sociological, and psychological concepts in the context of music education.

612 PRACTICES AND TRENDS IN MUSIC EDUCATION 3 credits
A study of the history of practices and trends in American music education.

613 INSTRUCTIONAL PROGRAMMING IN MUSIC FOR THE MICROCOMPUTER 3 credits
Prerequisite: 553. Introduction to programming languages for the microcomputer including BASIC, Pascal and Assembler. Programming will be directed towards music educational concepts.

614 MEASUREMENT AND EVALUATION IN MUSIC 3 credits
A study of measurement and evaluation techniques and their application in music education.

615 MUSICAL STYLES AND ANALYSIS I 2 credits
Prerequisite: permission of instructor. Detailed study of compositional techniques and stylistic traits observed in Western music from period of Gregorian chant through music of Palestrina Gesualdo and others of late Renaissance.

616 MUSICAL STYLES AND ANALYSIS II 2 credits
Prerequisite: permission of instructor. Detailed study of compositional techniques and stylistic traits observed in Western music from period of Monteverdi through early Beethoven.

617 MUSICAL STYLES AND ANALYSIS III 2 credits
Prerequisite: permission of instructor. Detailed study of compositional techniques and stylistic traits observed in Western music from period of late Beethoven through Mahler and Strauss.

618 MUSICAL STYLES AND ANALYSIS IV 2 credits
Prerequisite: permission of instructor. Detailed study of compositional techniques and stylistic traits observed in Western music in 20th Century.

621 MUSIC HISTORY SURVEY: MIDDLE AGES AND RENAISSANCE 2 credits
Prerequisite: permission of instructor. Historical and stylistic analysis of all aspects of music of Middle Ages and Renaissance. Research and writing in areas of special interest.

622 MUSIC HISTORY SURVEY: BAROQUE 2 credits
Prerequisite: permission of instructor. Historical and stylistic analysis of Baroque music; study in depth of specific examples, from recordings, scores and live performances; continuation and synthesis of approaches normal to study of music history; selected readings related to each student’s particular fields of interest; project papers.

623 MUSIC HISTORY SURVEY: CLASSIC AND ROMANTIC 2 credits
Prerequisite: permission of instructor. Historical and stylistic analysis of 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.

624 GRADUATE BIBLIOGRAPHY AND RESEARCH IN MUSIC 2 credits
Prerequisite: Undergraduate music degree of equivalent. Examination of all types of popular music materials; research methods for thesis preparation and professional publishing; field trips to music libraries, computerized music research.

625 COMPUTER STUDY DESIGN 2 credits
The design and maintenance of a computer lab. Emphasis on hardware and software setup to maximize function and minimize maintenance.

630 TEACHING AND LITERATURE: STRING INSTRUMENTS 2 credits
Prerequisite: permission of instructor. Research in current trends and issues in brass teaching techniques and appropriate literature.

631 TEACHING AND LITERATURE: WOODWIND INSTRUMENTS 2 credits
Prerequisite: permission of instructor. To delineate and clarify contemporary techniques of woodwind pedagogy and to develop a comprehensive understanding of woodwind literature.

631 TEACHING AND LITERATURE: PIANO AND HARPCHORD 2 credits
Prerequisite: permission of instructor. To examine the history of piano and harpsichord literature in historically chronological order with special attention to its pedagogical value and stylistic differences.

634 TEACHING AND LITERATURE: STRING INSTRUMENTS 2 credits
Prerequisite: permission of instructor. Research in current trends and issues in string teaching techniques and appropriate literature.

640,642 ADVANCED ACCOMPANYING I, II, III, IV 1 credit each
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 transcription.

653 ELECTRONIC MUSIC 3 credits

657 STUDENT RECITAL 0 credits
Required of all music majors. Forum for student and faculty presenting lectures, recitals, and opportunity to practice skills for successful music performance.

665 VOCAL PEDAGOGY 2 credits
Prerequisite: permission. In-depth study of subjects dealing with teaching of voice: physiology of vocal instrument, principles governing vocal production and application of vocal pedagogy.

666 SONG LITERATURE I 2 credits
Prerequisite: permission of instructor. Systematic study of French and German song literature presented chronologically. Includes study of stylistic compositional characteristics and repertoire of major composers of song literature.

667 ADVANCED SONG LITERATURE II 2 credits
Prerequisite: permission of instructor. Systematic study of American, British, and Italian song literature presented chronologically. Includes study of stylistic compositional characteristics and repertoire of major composers of song literature.

674 SEMINAR IN MUSIC 1-3 credits
May be repeated for a total of nine credits) Intensive examination of special topics in the field of music.

675 SEMINAR IN MUSIC EDUCATION 1-3 credits
May be repeated for a total of nine credits) Intensive examination of special topics in the field of music education.

697 ADVANCED PROBLEMS IN MUSIC 1-3 credits
May be repeated for a total of eight credits) Prerequisite: permission of graduate advisor. Studies or research projects related to problems in music.

698 GRADUATE RECITAL 2 credits
Prerequisite: permission of graduate advisor. Recital prepared and presented as a requirement for any degree option. If recital document is to be written in conjunction with the recital, add 699 for the additional credit. Once passed, may not be repeated for credit.

699 MASTER’S THESIS/PROJECT 4-6 credits
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:

630 AKRON SYMPHONY CHORUS 1 credit
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.
521-569 APPLIED MUSIC FOR MUSIC MAJORS 2 or 4 credits each
The following courses are intended for a student majoring in one of the programs in the Department of Music. Courses levels correspond approximately to class standing.

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 HARPSCORD

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. Primarily for students whose major is theory-composition.

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.

1 credit

526 ORGAN
527 VIOLIN
528 VIOLA
529 CELLO
630 STRING BASS
631 TRUMPET OR CORNET
632 FRENCH HORN
633 TROMBONE
634 BARITONE
635 TUBA
636 FLUTE OR PICCOLO
637 OBOE OR ENGLISH HORN
638 CLARINET OR BASS CLARINET
639 BASSOON OR CONTRABASSOON
640 SAXOPHONE
641 HARPSCORD
642 APPLIED COMPOSITION
661 JAZZ PERCUSSION
662 JAZZ GUITAR 2-4 credits
(May be repeated) Prerequisite: undergraduate degree with a major in music. "Major conducted ensemble" for vocal majors.

663 JAZZ ELECTRIC BASS
664 JAZZ PIANO
665 JAZZ TRUMPET
666 JAZZ TROMBONE
667 JAZZ SAXOPHONE
668 JAZZ COMPOSITION
669 JAZZ VOCAL STYLES

COMMUNICATION 7600:

500 HISTORY OF JOURNALISM IN AMERICA 3 credits
A review and analysis of the historical evolution of journalism in America, focusing primarily on newspapers, magazines, radio, television.

506 CONTEMPORARY PUBLIC RELATIONS 3 credits
Study and practical application of communication concepts, theories and skills relevant to public relations programs in businesses and nonprofit organizations.

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: Permission. This class will look at how today's professionals practice online publishing. Students will work on writing and reporting skills need in New Media.

517 NEW MEDIA PRODUCTION 3 credits
Prerequisite: 516 or permission. Covers practical application of software to create on-line multimedia documents and explores design ideas for New Media content.

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 an in depth investigation of the business and production principles of electronic publishing of magazines.

536 ANALYZING ORGANIZATIONAL COMMUNICATION 3 credits
Prerequisite: 535 or permission. Methodology for in-depth analysis and application of communication in organizations; team building, conflict management, communication flow. Individual and group projects; simulations.

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 of minorities as decision-makers in the news industry.

554 THEORY OF GROUP PROCESSES 3 credits
Group communication theory and conference leadership as applied to individual projects and seminar reports.

557 PUBLIC SPEAKING IN AMERICA 3 credits
Survey and critical analysis of major speakers, speeches and speech movements in American history. Examines how style and content of American speaking influenced events and reflected their times.

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.
<table>
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<tr>
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<tbody>
<tr>
<td>562</td>
<td>ADVANCED MEDIA WRITING</td>
<td>3</td>
<td>Practical applications of script writing principles and techniques, focusing on the skills and disciplines required to finish an entire script.</td>
</tr>
<tr>
<td>568</td>
<td>ADVANCED AUDIOVISUAL EDITING</td>
<td>3</td>
<td>Prerequisite: Permission of instructor. Advanced computerized multi-track audio and video editing. Theory and practice of multi-track sound mix for video productions.</td>
</tr>
<tr>
<td>571</td>
<td>THEORIES OF RHETORIC</td>
<td>3</td>
<td>Study of key figures in history of rhetorical theory, stressing interrelationships among theories of rhetoric, intellectual climates and social climates.</td>
</tr>
<tr>
<td>575</td>
<td>POLITICAL COMMUNICATION</td>
<td>3</td>
<td>Students explore the relationship between politicians, citizens, and media. Topics include media coverage, campaign technologies, advertising, debates, engagement, rhetoric, and attitudes. Theories and methodologies analyzed.</td>
</tr>
<tr>
<td>581</td>
<td>FILM AS ART: AN INTRODUCTION TO THE FILM FORUM</td>
<td>3</td>
<td>A study of the role and function of Cinematography, Editing, Sound, and Mise-en-scene as they shape the meaning of the film within the context of the traditional/non-traditional narratives and the documentary structure.</td>
</tr>
<tr>
<td>590</td>
<td>COMMUNICATION WORKSHOP</td>
<td>1-3</td>
<td>(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.</td>
</tr>
<tr>
<td>600</td>
<td>INTRODUCTION TO GRADUATE STUDY IN COMMUNICATION</td>
<td>3</td>
<td>Introduction to the ideas and scholarship that constitute the various research interests in the discipline.</td>
</tr>
<tr>
<td>602</td>
<td>QUALITATIVE METHODS IN COMMUNICATION</td>
<td>3</td>
<td>Prerequisite: 600. The course covers paradigms underlying qualitative inquiry, major methods of inquiry, and techniques utilized in the communication discipline. The course fosters student's ability to conduct qualitative research through gathering and analyzing data.</td>
</tr>
<tr>
<td>603</td>
<td>QUANTITATIVE METHODS IN COMMUNICATION</td>
<td>3</td>
<td>An introduction to elementary concepts of empirical and quantitative research and their application in studies of mass media research topics.</td>
</tr>
<tr>
<td>606</td>
<td>COMMUNICATION PROBLEMS IN THE BASIC SPEECH COURSE</td>
<td>1</td>
<td>Designed to train a graduate student in methods and materials of introductory speech course.</td>
</tr>
<tr>
<td>608</td>
<td>COMMUNICATION PEDAGOGY</td>
<td>3</td>
<td>Familiarizes students with aspects of teaching communication and media courses at the college level.</td>
</tr>
<tr>
<td>624</td>
<td>SURVEY OF COMMUNICATION THEORY</td>
<td>3</td>
<td>Study of dimensions of field of communication: information analysis, social interaction and semantic analysis.</td>
</tr>
<tr>
<td>625</td>
<td>THEORIES OF MASS COMMUNICATION</td>
<td>3</td>
<td>Prerequisite: 600 or permission of instructor. A review of theories of mass media and studies exploring the effect of media.</td>
</tr>
<tr>
<td>630</td>
<td>COMMUNICATION IN ORGANIZATIONS</td>
<td>3</td>
<td>Prerequisite: 600. Advanced examination of theories and approaches for understanding communication issues, reflections, and practices in organizations; includes organizational and cultural communication structure, power, leadership, culture, and change.</td>
</tr>
<tr>
<td>637</td>
<td>TRAINING METHODS IN COMMUNICATION</td>
<td>3</td>
<td>Prerequisite: 600. Principles and concepts in the design and delivery of communication training programs: integration of theory and methodology, presentation skills, matching methods and learner needs.</td>
</tr>
<tr>
<td>645</td>
<td>INTERCULTURAL COMMUNICATION THEORY</td>
<td>3</td>
<td>Analysis of the impact on the communication process of cultural difference between communicators; examination of existing literature in intercultural communication.</td>
</tr>
<tr>
<td>670</td>
<td>COMMUNICATION CRITIC</td>
<td>3</td>
<td>Introduction to the basic elements, approaches and types of critical discourse as it is relevant to communication and mass media studies.</td>
</tr>
<tr>
<td>680</td>
<td>GRADUATE COMMUNICATION INTERNSHIP</td>
<td>1-6</td>
<td>(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 and approval of internship placement and research proposal. Provides communicators with students with opportunity to gain experience and to apply knowledge of academic concepts in a supervised work setting in the communication field.</td>
</tr>
<tr>
<td>691</td>
<td>ADVANCED COMMUNICATION STUDIES</td>
<td>3</td>
<td>(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.</td>
</tr>
<tr>
<td>697</td>
<td>GRADUATE RESEARCH IN COMMUNICATION</td>
<td>1-6</td>
<td>(May be repeated for a total of six credits.) Prerequisites: 7800:600 and approval of project proposal. Performance of research on problems found in mass media-communication.</td>
</tr>
<tr>
<td>698</td>
<td>MASTER'S PROJECT/PRODUCTION</td>
<td>1-6</td>
<td>(May be repeated for a total of six credits.) Prerequisite: Permission of the school director.</td>
</tr>
<tr>
<td>699</td>
<td>MASTER'S THESIS</td>
<td>1-6</td>
<td>(May be repeated for a total of six credits.) Prerequisite: Permission of the school director.</td>
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</tbody>
</table>

**THEATRE**

**THEATRE ORGANIZATIONS**

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<tbody>
<tr>
<td>601</td>
<td>PRODUCTION PRACTICUM/DISEGMENT TECHNOLOGY</td>
<td>1-2</td>
<td>(May be repeated as different subject areas are covered, but no more than 12 credits may be applied toward MA degree). Traditional and experimental courses in arts administration, supplementing those listed in the General Bulletin.</td>
</tr>
<tr>
<td>603</td>
<td>SPECIAL TOPICS IN ARTS ADMINISTRATION</td>
<td>1-4</td>
<td>(May be repeated to a total of 12 credits) Prerequisite: permission of project advisor. Recognition of work undertaken by the student when performing a role in a theatre production. Credit assigned and work supervised by faculty project supervisor.</td>
</tr>
</tbody>
</table>

**ARTS ADMINISTRATION**

<table>
<thead>
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</tr>
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<tbody>
<tr>
<td>600</td>
<td>RESEARCH AND WRITING TECHNIQUES</td>
<td>3</td>
<td>Exploration of the basic research tools and methods appropriate to the discipline, including utilization of the computer. Guidelines for writing thesis.</td>
</tr>
<tr>
<td>601</td>
<td>PRODUCTION PRACTICUM/DISEGMENT TECHNOLOGY</td>
<td>1-2</td>
<td>(May be repeated as different subject areas are covered, but no more than 12 credits may be applied toward MA degree). Traditional and experimental courses in arts administration, supplementing those listed in the General Bulletin.</td>
</tr>
<tr>
<td>603</td>
<td>SPECIAL TOPICS IN ARTS ADMINISTRATION</td>
<td>1-4</td>
<td>(May be repeated to a total of 12 credits) Prerequisite: permission of project advisor. Recognition of work undertaken by the student when performing a role in a theatre production. Credit assigned and work supervised by faculty project supervisor.</td>
</tr>
</tbody>
</table>

**DANCE PERFORMANCE**

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</thead>
<tbody>
<tr>
<td>590</td>
<td>WORKSHOP IN DANCE</td>
<td>1-3</td>
<td>Prerequisite: Permission. (May be repeated for a total of eight credits.) Group study/projects investigating a particular field of dance not covered by other courses.</td>
</tr>
</tbody>
</table>
696 TOPICS IN CHEMICAL ENGINEERING
(May be repeated for a total of six credits.) Prerequisite: permission. Topics selected from new and developing areas of chemical engineering, such as electrochemical engineering, coal and synthetic fuels processing, bioengineering, simultaneous heat and mass transfer phenomena and new separation techniques.

697 CHEMICAL ENGINEERING REPORT
3 credits
Prerequisite: permission of advisor. A relevant problem in chemical engineering is studied. Required course for students electing non-thesis option. Final report must be approved by advisory committee.

699 MASTER'S THESIS
1-6 credits
(May be repeated to a maximum of six credits.) For properly qualified candidate for master’s degree. Supervised original research in specific area of chemical engineering selected on basis of availability of staff and facilities.

701 ADVANCED TRANSPORT PHENOMENA
3 credits
Prerequisite: 600. Advanced theory of transport phenomena such as applied tensor analysis, constitutive equations, multicomponent reactive transport and multiphase transport. Illustrative practical examples presented.

702 MULTIPHASE TRANSPORT PHENOMENA
3 credits
Prerequisite: 600. General transport theorem, kinematics, Cauchy's lemmas and the jump boundary conditions are developed followed by the theory of volume averaging. The single phase equations are then volume averaged to obtain the multiphase equations of change. The technique for using these equations and their practical significance is also covered.

706 ADVANCED REACTION ENGINEERING
3 credits
Prerequisite: 605. Kinetics of heterogeneous systems, steady and unsteady state mathematical modeling of chemical reactors, fluidization and additional topics drawn from current literature.

711 ADVANCED CHEMICAL ENGINEERING THERMODYNAMICS
3 credits
Prerequisite: 610. Advanced matrix in thermodynamics, including phase and reaction equilibria. This high pressures, phase equilibrium for multiphase systems, reaction equilibria in multiphase systems, thermodynamics of surfaces, thermodynamics of systems under stress, non-equilibrium thermodynamics and current topics from literature.

715 MOMENTUM TRANSPORT
3 credits
Prerequisite: 600. Discussion of potential flow, boundary layer formation and turbulent flow phenomena for Newtonian fluids.

716 NON-NEWTONIAN FLUID MECHANICS
3 credits

720 ENERGY TRANSPORT
3 credits
Prerequisite: 600. Conduction, natural and forced convection, and radiation heat transfer starting with equations of continuity, motion and energy.

721 TOPICS IN ENERGY TRANSPORT
3 credits
Prerequisite: 720. Advanced analysis and graphical methods for solving complex heat transfer problems found in chemical engineering.

725 MASS TRANSFER
3 credits
Prerequisite: 600. Theory of mass transfer with applications to absorption, distillation and heterogeneous catalysis.

731 PROCESS CONTROL
3 credits
Prerequisite: 630. Introduction to modern control theory of chemical processes including cascade control, multivariable control and data sampled control.

736 POLYMERIC ENGINEERING TOPICS
3 credits
Prerequisite: permission. Selected topics of current interest in polymer engineering, such as modeling of reactions or processes, multiphase materials, mass transfer, fiber spinning, etc.

738 CHEMICAL PROCESSING OF ADVANCED MATERIALS
3 credits
Prerequisite: 605. Advanced materials such as ceramics, optical materials, sensors, catalysts; application of reaction engineering to solid-gel processing, ceramic processing, modified chemical vapor deposition.

742 ADVANCED CATALYST DESIGN
3 credits
Prerequisite: 605. Development of catalyst theory and its application to the design of practical catalysts.

745 ADVANCED TRANSPORT PHENOMENA
3 credits
Prerequisite: 600. General transport theorem, kinematics, Cauchy's lemmas and the jump boundary conditions are developed followed by the theory of volume averaging. The single phase equations are then volume averaged to obtain the multiphase equations of change. The technique for using these equations and their practical significance is also covered.

750 ADVANCED POLLUTION CONTROL
3 credits
Prerequisite: 605. Kinetics of heterogeneous systems, steady and unsteady state mathematical modeling of chemical reactors, fluidization and additional topics drawn from current literature.

760 INTRAPHASE AND INTERPHASE TRANSPORT
3 credits
Prerequisite: 600. General transport theorem, kinematics, Cauchy's lemmas and the jump boundary conditions are developed followed by the theory of volume averaging. The single phase equations are then volume averaged to obtain the multiphase equations of change. The technique for using these equations and their practical significance is also covered.

780 ADVANCED BIOCATALYSIS AND BIOTRANSFORMATIONS
3 credits
Prerequisite: 3150:410/510 or permission of instructor. Focuses include: (a) high performance enzymes via chemical modification, recombinant technology, evolution, extremophiles; (b) applications of enzymes in biosynthesis, bioprocessing, biosensing, and biomediation.

791 CHEMICAL ENGINEERING SEMINAR
1 credit
(May be repeated for a maximum of six credits.) Prerequisite: Permission of instructor. Advanced level coverage of specialized chemical engineering topics. Intended for students seeking a Ph.D. in engineering.

794 ADVANCED RESEARCH TECHNIQUES FOR ENGINEERING
3 credits
(May be repeated for a total of six credits.) Prerequisite: permission of department chair. Advanced projects, readings and other studies in various areas of chemical engineering. Intended for student seeking a Ph.D. in engineering.

899 PRELIMINARY RESEARCH
1-15 credits
(May be repeated for a total of 15 credits.) Prerequisite: approval of dissertation director. Preliminary investigations prior to the submission of a dissertation proposal to the interdisciplinary Doctoral Committee.

899 DOCTORAL DISSERTATION
1-15 credits
(May be taken more than once.) Prerequisite: acceptance of research proposal by the interdisciplinary Doctoral Committee and approval of the dissertation director. Original research by the doctoral student.

CIVIL ENGINEERING
4300:

500 INTRODUCTION TO NUCLEAR POWER ENGINEERING
3 credits
Prerequisite: Admission to the Nuclear Engineering Certificate program and permission of advisor. Nuclear power history, fundamental reactions, thermodynamic heat cycles, 1-fluid homogeneous simulator thermodynamics, steam, numerical simulation of commercial nuclear power plants, controls.
501 NUCLEAR REACTOR ENGINEERING AND BALANCE OF PLANT SYSTEMS 3 credits
Prerequisite: Admission to the Nuclear Engineering Certificate program and permission of adviser. Nuclear reactor time-dependent theory, heat removal, thermodynamics, thermody-
amic, systems and safety. Balance of plant heat cycles, component function and design, and thermodynamics. Simulation emphasized.

502 NUCLEAR PROCESS AND RADIOACTIVE WASTE MANAGEMENT, SAFEGUARDS, AND SECURITY 3 credits
Prerequisite: Admission to the Nuclear Engineering Certificate program and permission of adviser. Nuclear reactor power generation, thermal and exposure limits, critical heat flux and design, neutrons;thermal hydraulic relations. Full-plant simulation with advanced BOP scenarios.

503 NUCLEAR THERMOHYDRAULICS, SIMULATION AND ADVANCED REACTOR 3 credits
Prerequisite: Admission to the Nuclear Engineering Certificate program and permission of adviser. Nuclear reactor time-dependent theory, heat removal, thermodynamics, thermody-
amic, systems and safety. Balance of plant heat cycles, component function and design, and thermodynamics. Simulation emphasized.

514 DESIGN OF EARTH STRUCTURES 3 credits
Prerequisite: Permission. Design of earth structures: dams, highway fills, cuttings, embankments, etc. Design and construction of highway embankment techniques, quality control, embankment analysis, instrumentation, foundation design and soil stabilization techniques. Design problem. Graduate students will perform more advanced analysis and design.

518 SOIL AND ROCK EROSION 3 credits
Prerequisite: Permission. Site evaluation criteria and planning. Conventional boring, sampling and in situ testing methods. Theory and application of geophysics and geophysical methods including seismic, electrical resistivity, gravity, magnetic and radioactive measurements. Air photo interpretation.

523 CHEMISTRY FOR ENVIRONMENTAL ENGINEERS 3 credits (2 lecture – 1 lab)
Prerequisite: One year of college chemistry. General, physical, organic, biochemistry, energy conversion, and pollution concepts applied to environmental engineering. Concepts are used in water and wastewater laboratory.

526 ENVIRONMENTAL ENGINEERING DESIGN 3 credits
A&W Theoretical and practical aspects of chemical and biological processes utilized in the treatment of water and wastewater, with design parameters emphasized.

527 WATER QUALITY MODELING AND MANAGEMENT 3 credits
Analysis and simulation of the physical, chemical and biochemical processes affecting stream quality and the management of management strategies based upon the application of water quality modeling techniques to environmental systems.

529 HAZARDOUS AND SOLID WASTES 3 credits
Prerequisite: Permission of instructor. Hazardous and solid waste quantities, properties, treatment and disposal sources are presented. Handling, processing, storage and disposal methods are discussed with emphasis on technical constraints outlined.

543 APPLIED HYDRAULICS 3 credits
Review of design principles; urban hydraulics, steam channel mechanics, sedimentation, coastal engineering.

550 COMPUTER METHODS OF STRUCTURAL ANALYSIS 3 credits
Structural analysis using microcomputers; 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
Basic concepts in structural optimization. Mathematical programming methods including unconstrained minimization, multidimensional minimization and constrained minimization.

554 ADVANCED MECHANICS OF MATERIALS 3 credits
Three-dimensional state of stress and strain analysis. Unsymmetric bending of straight and curved members with shear deformation. Beams on elastic foundations. Sant Venant’s tor-
sional problems. Inelastic analysis of bending and torsional members. Introduction to energy method, instability behavior of prismatic members.

563 TRANSPORTATION PLANNING 3 credits
Prerequisite: 564 or equivalent. Constituent materials; manufacturing processes; panel prop-
erties; composite materials; simplified analysis of composite beams; columns, and appli-
cations to highway bridges; composites in concrete and wood structures.

567 ADVANCED HIGHWAY DESIGN 3 credits
In-depth examination of structural design. Advanced physico-chemical and mechanical proper-
ties of engineering soils viewed as particular matter.

568 ADVANCED SOIL MECHANICS 3 credits
Study of mechanics of behavior of soil as continuum. Principles of stress, strain, deformation, shear strength and pore water pressure as applied to mechanical behavior of soil masses.

569 ADVANCED GEOTECHNICAL TESTING 3 credits
Prerequisite: 608, 612. Theories of static and dynamic in situ and laboratory testing. Testing procedures, applicability, limitations. General evaluation of geotechnical para-
meters for routine and special site conditions. One lecture, two laboratories per week.

570 FOUNDATION ENGINEERING I 3 credits
Prerequisite: Permission. Foundation bearing capacity and settlement analysis. Design of shal-
low and deep foundation systems. Pile driving and load test procedures and analysis. Theory and design of earth-retaining structures including retaining walls, slabs and bulkheads.

571 FOUNDATION ENGINEERING II 3 credits
Prerequisite: 614 or permission. Soil-structure interaction theory and applications to under ground structures including foundations, tunnels and shafts. Advanced foundation design methods and problems including dewatering, soil stabilization, underpinning and cofferdams. Slope stability analysis.

572 SOIL IMPROVEMENT 3 credits
Admixture stabilization, precompression with vertical drains, blasting, vibrocompaction, injec-
tion and grouting, thermal methods, electro-osmosis, soil reinforcement, case studies.

573 NUMERICAL METHODS IN GEOTECHNICAL ENGINEERING 3 credits
Steady-state and transient flow through soils, consolidation, soil-structure interaction, pile, stress-deformation analysis of earth structures.

574 ROCK MECHANICS 3 credits
Prerequisite: 564 or permission. Mechanical nature of rocks: linear elasticity and application to rock problems; inelastic behavior of rocks, time dependence and effects of pore pressure, deformation characteristics of rock properties, failure theory and crack propagation.

579 SANITARY ENGINEERING PROBLEMS 3 credits
Application of both laboratory methods and theory to solution of sanitary engineering problems involving water pollution, stream regeneration, special industrial wastes, dewatering and sewage.

581 ENVIRONMENTAL ENGINEERING PRINCIPLES 4 credits
Corequisite: 523. Provide the basic principles of chemical reaction engineering, microbiology, environmental regulations, and contaminant migration required for the understanding and solving environmental problems.

582 AQUATIC CHEMISTRY 3 credits
Prerequisite: 581. Quantitative treatment of variables that govern the chemistry of aquatic systems. Emphasis on carbonate in open-closed systems, metal complexation and solubility, and oxidation-reduction reactions.

583 PHYSICAL/ CHEMICAL TREATMENT PROCESSES 3 credits
Prerequisite or corequisite: 621. Theory, current research associated with physical/chemical processes, the impact on design-coagulation/flocculation, sedimentation, filtration, absorption processes emphasized.

584 BIOLOGICAL WASTEWATER TREATMENT PROCESSES 3 credits
Prerequisite or corequisite: 621. Theory, current research associated with biological process-
es, related physical/chemical processes, biological examples involving wastewater treatment plants.

585 WATER TREATMENT PLANT DESIGN 3 credits
Prerequisite: 623. Design of wastewater treatment plants for potable, industrial and commercial uses. Development of water sources, treatment methods and financing used to design best practical methods in terms of cost-benefits. 

586 WASTEWATER TREATMENT PLANT DESIGN 3 credits
Prerequisite: 624. Application of theory and fundamentals to design of wastewater treatment plants. System design methods used for biological and chemical stabilization of wastewater to meet water quality criteria. Economic analyses made to determine best practical designs to be utilized.

587 ENVIRONMENTAL OPERATIONS LABORATORY 3 credits
Prerequisite: Permission. Immersion in operation of laboratory experiments related to the design and operation of water and wastewater treatment processes. Experimental design, data collection, analysis and report preparation.

588 ADVANCED CHEMICAL OXIDATION PROCESS 3 credits
Prerequisites: Permission. Qualitative and quantitative treatment of variables that govern process chemistry and kinetics in water. Emphasis on ozone, hydrogen peroxide, and ultra-
 violet light (UV).

589 SOIL REMEDIATION 3 credits
Prerequisite: 621 or permission. Provide a thorough understanding of site characterization, tradi-
tional soil remediation technologies, as well as present new and emerging remediation tech-
mologies.

590 AIR POLLUTION CONTROL 3 credits
Prerequisite: 626 or permission. Introduction to air pollution control philosophies, approaches, regulations, and modeling. Also contains an in-depth evaluation/design approach for the con-
trol of particular matter, SOx and NOx.

591 ADVANCED FLUID MECHANICS 3 credits

592 OPEN CHANNEL HYDRAULICS 3 credits
Application of basic principles of fluid mechanics to flow in open channels. Criteria for analy-
sis of uniform, gradually varied and rapidly varied flows. Study of movement and transporta-
tion of sediments. Design problems utilizing numerical techniques.

593 PRESTRESSED CONCRETE 3 credits
Basic concepts. Design of double-tie roof girder; shear; development length; column; piles; design of highway bridge girders; pretensioned, post-tensioned; continuous girders; corbels; volume-change forces; connections.

594 MULTISTORY BUILDING DESIGN 3 credits
Floor systems; staggered truss system; framed frame design; drift indices; monocoque (tube and partial tube) systems; earthquake design; fire protection. Analy-
sis by STRUDL.

595 FINE ELEMENT ANALYSIS 3 credits
Prerequisite: 564 or equivalent. Introduction of development of finite element method as applied to various topics from continuum mechanics. Such areas as plane, axisymmetric and 3-D stress analysis; conduction, fluid mechanics; transient problems an geometric and material nonlinearly.

596 COMPOSITE MATERIALS IN CIVIL INFRASTRUCTURE 3 credits
Prerequisite: 564 or equivalent. Constituent materials; manufacturing processes; panel prop-
erties; micro/macro-mechanics; simplified analysis of composite beams; columns, and appli-
cations to highway bridges; composites in concrete and wood structures.

597 FUNDAMENTALS OF SOIL BEHAVIOR 2 credits
Theoretical examination of soil mechanics and material behavior of geomaterials. Design of geotechnical structures.

598 ADVANCED SOIL MECHANICS 3 credits
Study of mechanics of behavior of soil as continuum. Principles of stress, strain, deformation, shear strength and pore water pressure as applied to mechanical behavior of soil masses.

599 ADVANCED GEOTECHNICAL TESTING 3 credits
Prerequisite: 608, 612. Theories of static and dynamic in situ and laboratory testing. Testing procedures, applicability, limitations. General evaluation of geotechnical para-
meters for routine and special site conditions. One lecture, two laboratories per week.
AUGMENTED ALKALI CEMENT 3 credits
Discussion of water cycle such as precipitation, evaporation, stream flows, floods, infiltration. Methods of analysis and their application to studies of water demand, storage, transportation including mathematical modeling of urban runoff and statistical hydrology.

COASTAL ENGINEERING 3 credits
Characteristics of linear and nonlinear wave theories. Interaction of structures, waves; design analysis of shore, offshore structures. Movement, transportation of sediments in lake shore areas.

ADVANCED TRANSPORTATION ENGINEERING I 3 credits
Prerequisite: Permission. Highway and parking facility design, transportation planning, highway capacity estimates, signal systems and optimization, incident detection and management, free-flow ramp metering, and highway traffic safety.

ADVANCED TRANSPORTATION ENGINEERING II 3 credits
Prerequisite: Permission. Highway and parking facility design, transportation planning, highway capacity estimates, signal systems and optimization, incident detection and management, free-flow ramp metering, and highway traffic safety.

TRAFFIC DETECTION AND DATA ANALYSIS 3 credits
Prerequisite: Permission. Theory and application of pressure tubes, loop detectors, and imaging sensors. Microwave, infrared, ultrasonic, laser detectors, parameter estimation, reliability, and data mining and fusion.

ADVANCED ENGINEERING MATERIALS 3 credits
Selected topics on principles governing mechanical behavior of materials with respect to elastic, plastic and creep responses, stress rupture, low and high cyclic and thermal fatigue. Failure theories and fracture phenomena in brittle and ductile materials. Crack propagation and life prediction of engineering materials.

ELASTICITY 3 credits

PLASTICITY 3 credits

ADVANCED REINFORCED CONCRETE DESIGN 3 credits

STEEL DESIGN 3 credits
Prerequisite: 683, 682. Design of steel, fabrication, engineering, joints. Gusset plates, bolts in tension, end plates, weld joints, cyclic fatigue, analysis types, detail, torsion, stability design.

EXPERIMENTAL METHODS IN STRUCTURAL MECHANICS 3 credits

LIMIT ANALYSIS IN STRUCTURAL ENGINEERING 3 credits

ADVANCED SEMINAR IN CIVIL ENGINEERING 1-3 credits
Prerequisite: permission. Advanced projects, reading, studies, or experimental in various areas of civil engineering.

ENGINEERING RESEARCH 2 credits
Prerequisite: Permission of advisor. A relevant problem in civil engineering for students electing the non-thesis option. The final engineering report must be approved by the advisor and the advisory committee.

MASTERS RESEARCH 1-6 credits
Prerequisite: Permission of advisor. (May be repeated.) Research on a suitable topic in civil engineering culminating in a master's thesis.

MASTERS THESIS 1-6 credits
Prerequisite: permission. Research and thesis on some suitable topic in civil engineering as approved by department. Defense of thesis is by final examination.

EARTHQUAKE ENGINEERING 3 credits

PLATES AND SHELLS 3 credits

VISCOElasticity and Viscoplasticity 3 credits

FINITE ELEMENT ANALYSIS I 3 credits

ADVANCED COMPOSITE MECHANICS 3 credits
Prerequisite: 682, 700. Analysis of short-fiber composites and statistical behavior including bonded and unbonded joints and of laminated plates. Topics include: longitudinal and shear stresses in composite materials, and applications of these concepts.

DYNAMIC PLASTICITY 3 credits
Prerequisite: 683 or 703. Impulsive and transient loading of structural elements (beams, plates, and shells). Elastic and plastic behavior, in which inelastic deformation occurs. Topics include: longitudinal and transverse wave propagation in thin rods, propagation of plastic hinges, rate-dependent viscoplastic waves, transverse impact on beams and plates, high-rate forming, blast loading, plate perforation, shock waves in solids.

SOIL DYNAMICS 3 credits
Prerequisite: 604 or permission. Vibration and wave propagation theory relating to soils, structures and foundations. Dynamic behavior of soils. Design of foundations for dynamic loading impact, piling and blast loads.

BIOMEDICAL ENGINEERING 3 credits
Prerequisite: 621 or permission. Provide the fundamentals required for understanding and successfully implementing the biodegradation of hazardous compounds coupled with the design and operational techniques of bioremediation systems.

SEEPAGE 2 credits
Discussion of parameters determining permeability of various soils. Analytical, numerical and experimental methods to determine two- or three-dimensional movement of groundwater. Unsteady flows.

PRELIMINARY RESEARCH 1-15 credits
(May be repeated for a total of 15 credits.) Prerequisite: approval of dissertation director. Preliminary investigation prior to the submission of a dissertation proposal to the interdisciplinary Doctoral Committee.

DOCTORAL DISSERTATION 1-15 credits
(May be taken more than once.) Prerequisite: acceptance of research proposal by the interdisciplinary Doctoral Committee and approval of the dissertation director. Original research by the doctoral student.

ELECTRICAL ENGINEERING 4400:

DIGITAL COMMUNICATION 3 credits
Introduction to digital communication theory and systems; coding of analog and digital information; digital modulation techniques. Introduction to information theory.

WIRELESS COMMUNICATIONS 3 credits
Prerequisite: 541. Theory and analysis of wireless communication systems, wireless propagation, multiple access, modulation, demodulation, multipath channel characterization, diversity, cellular, and PCS services and standards.

OPTICAL COMMUNICATION NETWORKS 3 credits
Optical waveguides and optical integrated components, optical transmitters and receivers, optical communication network design.

ANTENNA THEORY 3 credits

MICROWAVES 4 credits
Prerequisites: 543, Maxwell's equation and wave equations. Field analysis of wave guides, microwave components, techniques and systems.

OPTICAL ELECTRONICS AND PHOTONIC DEVICES 3 credits
Lightwave engineering, photonic principles and optical electronic device technology.

CONTROL SYSTEMS II 3 credits
State variable analysis, design of control systems. Discrete systems, analysis, digital computer control. Experiments include hybrid, AC control system, digital computer control.

POWER ELECTRONICS I 3 credits
Principles of power electronics circuits. Rectifiers, converters, inverters analysis and design.

POWER ELECTRONICS LABORATORY AND DESIGN PROJECT 2 credits
Prerequisite: 583 or equivalent. Experiments on different types of power electronic converters: AC/DC, DC/DC, DC/AD, and AC/AC. Design project to include design, simulation, building, and testing of a power electronic circuit.

ELECTRIC MOTOR DRIVES 3 credits
Application of electric machines, choice of motor for particular drive. Application of power semiconductor circuits in electric machinery.

DESIGN OF ELECTRIC AND HYBRID VEHICLES 3 credits

SPECIAL TOPICS: ELECTRICAL ENGINEERING 1-3 credits
(May be taken more than once.) Prerequisite: permission of department chair. Special topics in electrical engineering.

RANDOM SIGNAL ANALYSIS 3 credits
Analysis, interpretation and engineering data through application of statistical and probability methods.

IMAGING SYSTEM ENGINEERING 3 credits
Prerequisite: 561. Engineering aspects of imaging systems, analysis, design, and evaluation of imaging systems, processing techniques, and applications.

INFORMATION THEORY 3 credits
Prerequisite: 564 or permission. Source and channel models, entropy, relative entropy, mutual information, data compression, random coding bound and channel coding theories.

DIGITAL SIGNAL PROCESSING 3 credits

DIGITAL SPECTRAL ANALYSIS AND SIGNAL MODELING 3 credits
Prerequisites: 645 or permission of instructor. Methods and theory of spectral analysis and signal modeling are investigated in detail. Applications of theory include speech processing, optical filtering, biomechanical systems, digital communications.

OPTICAL NETWORK ARCHITECTURE 3 credits
Prerequisite: 584. Principles of optical network architecture, design, analysis, design, and control, and fault management.

ELECTROMAGNETIC THEORY I 3 credits

ELECTROMAGNETIC THEORY II 3 credits
Prerequisite: 650 or permission of the course instructor. Scattering, TEM waves: guided wave theory; transmission lines, closed-boundary guides and cavities, modal orthogonality and completeness, Green's function, excitation and coupling, open-boundary waveguides.

COMPUTATIONAL ELECTROMAGNETICS 3 credits
Prerequisite: 650 or permission of course instructor. Analytical and numerical techniques for electromagnetic fields, conformal mapping, finite difference method, finite element method, and the method of moments.

ADVANCED ANTENNA THEORY AND DESIGN 3 credits
Prerequisite: 553 or equivalent. Basic properties and recent advances of microstrip antennas. Analysis and design of reflector antennas. Antennas and synthesis of linear and planar antenna arrays.

NANOSCALE AND MOLECULAR-SCALE SYSTEMS 3 credits
The course describes modern simulation techniques for the analysis of nanoscale phenomena: molecular dynamics, fast algorithms for multithreaded and multiparticle systems, ab initio methods in electronic structure calculation.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>661</td>
<td>COMPUTER ARCHITECTURE</td>
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<td>663</td>
<td>VLSI DESIGN AND AUTOMATION</td>
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<td>664</td>
<td>COMPUTER NETWORKS</td>
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<td>665</td>
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<td>667</td>
<td>ANALOG INTEGRATED CIRCUIT DESIGN</td>
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<td>668</td>
<td>VLSI CIRCUITS AND SYSTEMS</td>
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<td>669</td>
<td>SPECIAL TOPICS: COMPUTER ENGINEERING (May be taken more than once) Prerequisite: permission of department chair. For a qualified graduate student. Supervised research or investigation in student’s major field. Credit depends upon nature and extent of project.</td>
<td>1-3 credits</td>
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<td>670</td>
<td>REAL-TIME SCHEDULING</td>
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<td>676</td>
<td>DYNAMICS AND CONTROL OF POWER ELECTRONIC CIRCUITS</td>
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<td>POWER ELECTRONIC CIRCUITS</td>
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<td>686</td>
<td>CONTROL OF ELECTRIC MACHINES</td>
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<td>688</td>
<td>POWER SEMICONDUCTOR DEVICES</td>
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<td>689</td>
<td>SPECIAL PROBLEMS (May be taken more than once) Prerequisite: permission of department chair. For a qualified graduate student. Supervised research or investigation in student’s major field. Credit depends upon nature and extent of project.</td>
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<td>690</td>
<td>MASTER’S RESEARCH</td>
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<td>691</td>
<td>MASTER’S THESIS</td>
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<td>692</td>
<td>TOPICS IN ELECTROMAGNETICS</td>
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<td>693</td>
<td>MODEL REDUCTION TECHNIQUES FOR CONTROL SYSTEMS</td>
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<td>694</td>
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<td>697</td>
<td>ADVANCED SEMINAR (May be taken more than once) Prerequisite: permission of department chair. Advanced level coverage of specialized topics. For student seeking Ph.D. in engineering.</td>
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<tr>
<td>698</td>
<td>PRELIMINARY RESEARCH</td>
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<td>699</td>
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<td>COMPUTER ENGINEERING</td>
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<td>701</td>
<td>EMBEDDED SCIENTIFIC COMPUTING</td>
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<td>703</td>
<td>OBJECT ORIENTED DESIGN</td>
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<td>704</td>
<td>COMPUTER SYSTEM DESIGN</td>
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<td>705</td>
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<td>706</td>
<td>EXPERIMENTAL STRESS ANALYSIS</td>
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<td>707</td>
<td>MACHINE DYNAMICS</td>
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<td>FUNDAMENTALS OF MECHANICAL VIBRATIONS</td>
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<td>VEHICLE DYNAMICS</td>
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<td>710</td>
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<td>713</td>
<td>FLUIDS AND THERMAL SYSTEMS</td>
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<td>714</td>
<td>FUNDAMENTALS OF FLIGHT</td>
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<td>715</td>
<td>INTRODUCTION TO AERODYNAMICS</td>
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<td>716</td>
<td>INTRODUCTION TO AEROSPACE PROPULSION</td>
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<td>717</td>
<td>ENERGY CONVERSION</td>
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<td>721</td>
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</table>
540 SYSTEM DYNAMICS AND CONTROL
4 credits

541 CONTROL SYSTEMS DESIGN
Methods of feedback control design such as minimum error, root-locus, frequency domain. Compensation techniques. Multivariable and nonlinear design methods and computer-aided control design.
3 credits

542 INDUSTRIAL AUTOMATIC CONTROL
Operating digital and analog controllers. Study of mechanical, hydraulic, pneumatic, fluidic control systems, including application areas. Tuning of control devices for optimum performance of the system. Case studies on control applications from industry, e.g. boilers, furnaces, process heaters.
3 credits

543 OPTIMIZATION METHODS IN MECHANICAL ENGINEERING
Development and method of solution of optimization problems in mechanical engineering. The use of linear and quadratic programming and operational research methods for optimization including computer utilization and applications.
3 credits

544 ROBOT DESIGN, CONTROL AND APPLICATION
Robotics - kinematic and dynamic modeling, velocities and accelerations, path planning, trajectories and dynamics, control and sensing in robotics. The automated factory with robot applications.
3 credits

550 INTRODUCTION TO COMPUTATIONAL FLUID FLOW AND CONVECTION
Numerical modeling of fluid/thermal systems, numerical solution of the momentum and thermal boundary layer equations; flow simulation using advanced heat transfer/flush/graphics packages.
3 credits

552 PRESSURE VESSEL DESIGN
Introduction to modern pressure vessel technology. Topics include basic structural considerations, materials and their environment and design-construction features.
3 credits

553 COMPUTER AIDED DESIGN AND MANUFACTURING
The use of computer systems to assist in the creation, modification, analysis, or optimization of products and processes, design, and to plan, manage, and control manufacturing plants.
3 credits

600 GAS DYNAMICS
3 credits

608 THERMODINAMICS
Extension of generalization of basic laws of thermodynamics with application to atomic, chemical, physical and biological systems. Introduction to irreversible thermodynamics, the third law and statistical thermodynamics.
3 credits

609 FINITE ELEMENT ANALYSIS I
Prerequisite: 622. Inversion and development of finite element method as applied to various topics from continuum mechanics. Areas covered include plane; axisymmetric and 3-D stress analysis; conduction; fluid mechanics; transport problems and geometric and material nonlinearities.
3 credits

610 DYNAMICS OF FUSCIOUS FLOW I
Derivation and solution of equations governing laminar viscous flow. Applications include unturbulent flows, slow viscous flows, parallel flows, lubrication theory and laminar boundary layers.
3 credits

611 COMPUTATIONAL FLUID DYNAMICS I
Prerequisite: 610 or permission of instructor. Study of numerical methods in fluids; numerical errors and stability, finite differencing, nonlinear convection terms, Poisson equations, boundary conditions, turbulence, spectral and finite element techniques.
3 credits

615 CONDUCTION HEAT TRANSFER
3 credits

616 CONVECTION HEAT TRANSFER
Heat transfer from laminar, turbulent external, internal flows. Convective heat transfer at high velocities. Heat transfer to liquid metals; high Prandtl number fluids.
3 credits

617 RADIATION HEAT TRANSFER
Study of energy transfer and wave propagation in nuclear, black and real systems, geometric factors, gray enclosures, non-grey/gas radiation, radiation equipment.
3 credits

618 BOILING HEAT TRANSFER AND TWO-PHASE FLOW
Current techniques to determine heat transfer and pressure drop in components such as boilers, heat exchangers, chemical processors, boiling. Boiling mechanism, slip ratio, critical heat flux and instabilities in boiling flow systems.
3 credits

620 EXPERIMENTAL STRESS ANALYSIS II
Prerequisite: 522. Dynamic strain gage methods, transducer design, Moire fringe techniques, and topics in photoelasticity.
2 credits

621 INTRODUCTION TO TIRE MECHNICS
Prerequisite: permission. Topics include tire as vehicle component, tire traction and wear, laminated structures, tire stress and strains and advanced tire models.
3 credits

622 CONTINUUM MECHANICS
Analysis of stress and deformation at a point. Derivation of fundamental field equations for fluid and solid mechanics by applying basic laws of dynamics, conservation of mass and energy. Development of constitutive laws.
3 credits

623 STRESS ANALYSIS I
Prerequisite: 622. Continuation of 622 with specific application to solid mechanics. Development of energy theorems due to Reissner, Washizu and generalized Hamilton’s principle. Application to static and dynamic problems.
3 credits

624 FUNDAMENTAL OF FRACTURE MECHANICS
3 credits

625 ANALYSIS OF MECHANICAL COMPONENTS
Theories of failure and plastic flow. Fatigue, creep analysis and introduction to fracture mechanics.
3 credits

626 FATIGUE OF ENGINEERING MATERIALS
Prerequisite: 624 or permission. Quasi-static and cyclic behavior: dislocation networks and their interaction; correlation to dislocation microstructure interactions; crack initiation; crack propagation; short cracks; crack closure; environmental effects.
3 credits

627 ADVANCED MATERIALS AND MANUFACTURING PROCESSES
Manufacturing processes for advanced materials; classification: technological aspects of bulk deformation, casting, joining, forming, machining, molding, powder metallurgy, rapid solidification, casting, plastic deformation; technological aspects; electrical activity.
3 credits

628 MECHANICAL BEHAVIOR OF MATERIALS
Mechanical behavior of engineering materials; metallurgy of deformation; dislocation effects and deformation; strengthening mechanisms; thermomechanical processing; mechanical test.
The course will incorporate elements of experimental error analysis, optics, and optical ray tracing, principles of testing, methods and devices for fluid flow quantification and temperature measurement. Laboratories work with series designed to produce students to current topics in biomedical engineering research, design, and business.

694 DEFORMATION AND FAILURE OF POLYMERS AND SOFT MATERIALS 3 credits
This course introduces the concepts of deformation, fracture, and failure analyses of engineering polymers, soft, and biological materials.

696 SPECIAL TOPICS IN MECHANICAL ENGINEERING 1-4 credits
Prerequisite: Permission of instructor. For qualified candidate for graduate degree. Supervised research in the student’s major field of training or experience. Credit depends upon nature and extent of project as determined by advisor and department chair.

697 ENGINEERING REPORT 2 credits
Prerequisite: Permission of advisor. A relevant problem in mechanical engineering for students electing the non-thesis option. The final engineering report must be approved by the advisor and the advisory committee.

698 MASTER’S RESEARCH 1-6 credits
Prerequisite: Permission of advisor. (May be repeated.) Research on a suitable topic in mechanical engineering culminating in a master’s thesis.

699 MASTER’S THESIS 1-6 credits
Prerequisite: permission of advisor. (May be repeated.) Supervised research in a specific area of mechanical engineering.

704 FINITE ELEMENT ANALYSIS II 3 credits

705 FINITE ELEMENT ANALYSIS III 3 credits

710 DYNAMICS OF VISCOS FLOW II 3 credits
Prerequisite: 630. Introduction to turbulence. Turbulence modeling and turbulent boundary layers. Practical methods of solution of boundary layer problems. Transition process.

711 COMPUTATIONAL FLUID DYNAMICS II 3 credits
Prerequisite: 631. Development of advanced computational techniques for convection-dominated flows. Higher order explicit and implicit schemes including nonoscillatory front-capturing methods applied to benchmark problems.

715 HYDRODYNAMICS STABILITY 3 credits

719 ADVANCED HEAT TRANSFER 3 credits
Prerequisites: 615, 616. Topics include nonhomogeneous or nonlinear boundary value problems of heat conduction, heat transfer with melting, solidification and ablation of heat transfer in porous systems and hydrodynamically and thermally unsteady convection.

723 APPLIED STRESS ANALYSIS II 3 credits
Prerequisite: 623. Development of approximate solution methods for plane stress problems including finite elements, method of weighted residuals (Rayleigh-Ritz, Galerkin, Trefftz, collocation, least squares, etc.) and finite differences.

728 MODERN CONTINUUM MECHANICS 3 credits
Prerequisite: 622. Finite deformation and strain, stress, constitutive equations, strain energy functions. Solution of finite deformation problems in hyperelasticity, coupled thermoviscoelasticity and plasticity, electroelasticity and micropolar theories.

730 VIBRATIONS OF CONTINUOUS SYSTEMS 3 credits
Prerequisite: 630. Continuation of 630. Analysis of continuous vibrating systems, using separation of variables, energy, variational, Rayleigh-Ritz and other approximate techniques. Concepts and solutions of integral equations as applied to continuous systems.

732 ADVANCED MODAL ANALYSIS OF STRUCTURES 3 credits
Prerequisites: 623 or equivalent. Structural eigenvalue calculation. System modification; mass/stiffness/damping matrices substructuring. Prediction and evaluation of structural modified dynamic characteristic.

741 OPTIMIZATION THEORY AND APPLICATIONS 3 credits
Prerequisite: Permission of instructor. Theory of optimization in engineering systems, development and method of solution optimization problems for physical processes, large systems. Use of the calculus programming, operational research methods of system optimization, solving practical engineering problems.

763 ADVANCED METHODS IN ENGINEERING ANALYSIS 3 credits
Applications of finite difference and finite element methods, variational methods, integral methods and similar transforms to engineering problems in heat transfer, fluid mechanics and vibrations.

790 ADVANCED SEMINAR IN MECHANICAL ENGINEERING 1-4 credits
(Prerequisites: for a total of nine credits) Prerequisite: permission of department chair. Advanced projects and studies in various areas of mechanical engineering. Intended for student seeking PhD in engineering degree.

898 PRELIMINARY RESEARCH 1-15 credits
Prerequisite: approval of dissertation director. Preliminary investigations prior to the submission of a dissertation proposal to the Interdisciplinary Doctoral Committee.

989 DOCTORAL DISSERTATION 1-15 credits
[Not more than once] Prerequisite: approval of dissertation director by the Interdisciplinary Doctoral Committee and approval by the dissertation chair. Original research by the doctoral student.

**BIOMEDICAL ENGINEERING 4800:***

522 PHYSIOLOGICAL CONTROL SYSTEMS 3 credits
The basic techniques employed in control theory, systems analysis, and model identification as they apply to physiological systems.

530 DIGITAL MEDICAL IMAGING SYSTEMS 3 credits
Prerequisites: Permission of instructor. Physical principles and engineering design of medical imaging systems, with emphasis on digital radiography, computed tomography, nuclear medicine, and magnetic resonance.

560 EXPERIMENTAL TECHNIQUES IN BIOMECHANICS 3 credits
Prerequisites: Permission. Principles of testing and measuring devices commonly used for biological and biomedical mechanics studies. Laboratories for demonstration and hands-on experience.

570 HUMAN FACTORS ENGINEERING 3 credits
Prerequisites: Human capabilities and limitations, crew control, displays, controls, and control actions, interface design principles, risk management, safety and accident prevention.

600 BIOMEDICAL ENGINEERING COLLOQUIUM 1 credit
(May be repeated for a maximum of 16 credits) The Biomedical Engineering Colloquium is a seminar series designed to introduce students to current topics in biomedical engineering research, design, and business.

605 FUNDAMENTALS OF BIOMEDICAL ENGINEERING 4 credits
Prerequisite: Graduate standing in College of Engineering or permission of instructor. This course covers the fundamental areas of biomedical engineering including biomechanics, bio-materials, signal/image processing, biotransport phenomena, controls, and emerging areas.

611 BIOMETRY 3 credits
Statistical analysis of experimental design topics for the biomedical and biomedicoengineering disciplines including: distributions, hypothesis testing and estimation, ANOVA, probablity analysis and nonparametrics 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 biological and modern neural network architectures. Comparisons will be made with traditional serial machines and applications for which neural networks seem most promising will be examined.

627 ADVANCES IN DRUG AND GENE DELIVERY SYSTEMS 3 credits
This course will examine technological innovations for the delivery of drugs and genes. Methods of introducing drugs and genes into the body, modeling drug transport, and metabolic responses of cells and organs will be analyzed.

630 BIOMEDICAL COMPUTING 3 credits
Computer applications in health care, clinical laboratories, AMIB, medical records, direct order entry, A-D, D-A conversion, patient monitoring, peripherals and interfaces, diagnostic algorithms, automated EEG, ECG systems.

631 BIOMEDICAL INSTRUMENTATION I 4 credits
Prerequisite: 605 or permission of instructor. This course covers biomedical equipment, biosignals and processing techniques, biomedical sensors/transducers, signal conditioning, data acquisition, noise control, device safety, and modern medical imaging systems.

632 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.

634 MEDICAL IMAGING DEVICES 3 credits
Imaging modalities including radiation, magnetic resonance, and sound. The formation of images. Specific devices including computer tomography, magnetic resonance, ultrasound, gamma cameras and PET.

640 SPINE MECHANICS 3 credits

642 HARD CONNECTIVE TISSUE BIOMECHANICS 3 credits
Prerequisites: 3000:561 or equivalent; or permission. Physical properties and functional biomechanics of bone. The tissue and mechanics of fracture and fracture healing. Mechanics of external and internal fixations. Total joint implants and reconstruction techniques.

645 MECHANICS IN PHYSIOLOGY AND MEDICINE 3 credits
Blood rheology, mechned of microcirculation, finite deformation theory, soft tissue mechanics, mechanics of blood and lymph circulation, kinetics and kinematics of orthopedic joints. Clinical applications.

651 KINETEMATICS OF THE HUMAN BODY 3 credits
Prerequisite: Graduate standing in the College of Engineering or by permission. Analytical methods used to model and quantify human body motion. Three-dimensional kinematics, joint coordinate systems, functional anatomy, segment center of mass and joint centers.

660 CARDIOVASCULAR DYNAMICS 3 credits
Analysis of blood pumping action, pressure/flow waveform transmission and blood rheology factors. Use of modeling and direct measurement techniques. Clinical implications of disease.

662 TRANSPORT PHENOMENOLOGY 3 credits
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.

663 MICROFLUIDS FOR BIOTECHNOLOGY 3 credits
Prerequisite: 605 or permission of instructor. This course integrates principles of fluid mechanics, surface and polymer sciences, and microfabrication to analyze flow of biofluids at the microscale.

665 REHABILITATION ENGINEERING 3 credits
Prerequisites: Graduate standing in engineering, mathematics, or science; or permission of instructor. Devices for rehabilitation, interfacing the motor and/or sensory impaired, quantitative assessment techniques, prosthetics and orthotics, biodesign mechanics, emerging technologies with materials to regenerate tissue.

666 BIOMATERIALS AND LABORATORY 4 credits
Corequisite: Biomedical Laboratory. Material used in biomedical applications. Effect of physiological environment and sterilization on materials. Controlled and uncontrolled degradation. Effect of materials on soft tissue, hard tissue and blood. Laboratory experiments using materials designed for biomedical use and demonstrations of biological/materials interactions.

667 ADVANCED BIOMATERIALS 3 credits
Prerequisites: 660 or permission of instructor. The objective of this course is to provide the fundamental understanding of the host responses when exposed to various implantable devices and biomaterials. Methods for testing biocompatibility will be analyzed.

668 TISSUE ENGINEERING AND REGENERATIVE MEDICINE 3 credits
Prerequisite: 661 or permission of instructor. This course will cover topics including basic developmental biology, genetics and description, physiology of regeneration and integration of cells with materials to regenerate tissue.

669 BIOMATERIALS AND TISSUE ENGINEERING METHODS 3 credits
Prerequisites: 660 or permission of instructor. Corequisites: 661 or permission of instructor. This course is designed to equip students with knowledge and skills to evaluate biomaterials and to design scaffolds for tissue engineering. Analytical techniques include principles of microscopy, cell culture techniques, and biocompatibility testing.

670 MATHEMATICAL MODELLING IN BIOLOGY AND MEDICINE 3 credits
Prerequisites: graduate standing in engineering, mathematics, or physics; or permission of instructor. Modelling of physiological systems, cardiovascular, neuromuscular, and immune systems, 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, tissue constraints, optimization techniques, government regulations, and legal liability.

697 SPECIAL TOPICS IN BIOMEDICAL ENGINEERING 1-4 credits
(May be repeated) Specialized areas of study as defined by the instructor.

698 MASTER’S RESEARCH 1-6 credits
Prerequisite: Permission of advisor. (May be repeated.) Research on a suitable topic in biomedical engineering culminating in a master’s thesis.


**EDUCATION FOUNDATIONS AND LEADERSHIP** 5100:

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  WORKSHOP

590  Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. Delivered in face-to-face, web-enhanced, and fully online formats.

591  WORKSHOP

592  WORKSHOP

593  WORKSHOP

600  PHILOSOPHIES OF EDUCATION  3 credits
Examines major philosophical problems underlying educational questions that confront society. Intended to provide a foundation for understanding of questions of modern society and education.

602  COMPARATIVE AND INTERNATIONAL EDUCATION  3 credits
Comparative study of selected national school systems 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
Issues and related problems in study of educational institution, theories and/or ideas. Different topics will be offered from section to section. Delivered in face-to-face, web-enhanced, and fully online formats.

610  INTRODUCTION TO STATISTICS IN HUMAN SERVICES  3 credits
Applying basic statistical concepts and use statistics to address real world problems in social science.

620  PSYCHOLOGY OF INSTRUCTION FOR TEACHING AND LEARNING  3 credits
Current theories and research in the areas of cognition, learning, development, and motivation that underlie approaches to teaching in any context.

624  SEMINAR: EDUCATIONAL PSYCHOLOGY  3 credits
In-depth study of research in selected areas of learning, development, evaluation, and motivation. Delivered in face-to-face and online formats.

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/curriculum will be discussed.

630  TOPICAL SEMINAR IN COMPUTER-BASED EDUCATION  3 credits
May be repeated for a total of six credits. Advanced topics related to development, implementation, and use of computer-based instruction, in C.B.I.E. Student involvement emphasized, required. Knowledge of programming language recommended.

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.

640  USING RESEARCH TO INFORM PRACTICE  3 credits
Research methods and techniques commonly used in education and behavioral sciences; preparation of a research report and library, historical, survey and experimental research and data analysis. Delivered in face-to-face, web-enhanced, and fully online formats.

642  INTRODUCTION TO CLASSROOM ASSESSMENT FOR TEACHERS  3 credits
The foundation for the use of instructional skills future and practicing teachers need for decision-making about student learning. Delivered in face-to-face, web-enhanced, and fully online formats.

643  VISION, MISSION, PLANNING AND PROFESSIONAL PRACTICE FOR TEACHER LEADERS  3 credits
This course reviews the main research, theories, and practices that make for effective organizational leadership and professional practice for teacher leaders.

646  MULTICULTURAL COUNSELING  3 credits
Prerequisites: 5600:643 or permission of instructor. An examination of multicultural counseling models and potential for such models to work with culturally diverse people.

647  DATA AND EVIDENCE-BASED PRACTICE FOR LEADER LEADERS  3 credits
An examination of applied research techniques for school leadership and improvement efforts.

650  INDIVIDUAL AND FAMILY DEVELOPMENT ACROSS THE LIFESPAN  3 credits
An examination of individual and family development. Emphasis will be placed on understanding the relationship between the individual and his/her family.

650A  DATA COLLECTION METHODS FOR EDUCATORS  3 credits
Students will develop, implement, and evaluate various data collection methods such as achievement tests, commercially published instruments, surveys, and individual and group interviews.

651  DATA-DRIVEN DECISION MAKING FOR EDUCATORS  3 credits
The purpose of this course is to facilitate the understanding and utilization of data to identify classroom/school improvement needs and make informed decisions in effecting change. Delivered in face-to-face, web-enhanced, and fully online formats.

652  INTRODUCTION TO EDUCATIONAL EVALUATION  3 credits
Introduction to core concepts of educational evaluation including the purpose, process, standards, models of evaluation. Students will develop skills in interpreting and critiquing evaluation reports. Delivered in face-to-face, web-enhanced, and fully online formats.

653  PRACTICAL APPLICATIONS OF EDUCATIONAL EVALUATION  3 credits
Prerequisite: 652. This course is designed as the second part of educational evaluation with a focus on the application of evaluation concepts and theory to real world situations. Delivered in face-to-face, web-enhanced, and fully online formats.

654  MASTER'S PROJECT IN ASSESSMENT AND EVALUATION: PART 1  3 credits
Prerequisite: permission of advisor. This capstone course is the culminating learning experience for the master's degree in Assessment and Evaluation. Students complete a comprehensive evaluation project of their choice. Delivered in face-to-face, web-enhanced, and fully online formats.

655  MASTER'S PROJECT IN ASSESSMENT AND EVALUATION: PART 2  3 credits
Prerequisite: 654. Permission of advisor. This capstone course is the culminating learning experience for the master's degree in Assessment and Evaluation. Students complete a comprehensive evaluation project of their choice. Delivered in face-to-face, web-enhanced, and fully online formats.

695  FIELD EXPERIENCE: MASTER'S  1-3 credits
Prerequisites: permission of department chair and instructor. Area determined in accordance with student's program and professional goals.

697  INDEPENDENT STUDY  1-3 credits
Prerequisite: permission of advisor. 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.

698  MASTER'S PROJECT  2-4 credits
Prerequisite: permission of advisor. Independent study of a research problem in educational studies. Student must be able to demonstrate critical and analytical skills in dealing with problems in educational studies.

699  MASTER'S THESIS  4-6 credits
Prerequisites: permission of department chair and instructor. In-depth study of research problem within humanistic and behavioral foundation.

701  HISTORY OF EDUCATION IN AMERICAN SOCIETY  3 credits
Historical development of education in American social order, with special emphasis on 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 United States. Delivered in face-to-face, web-enhanced, and fully online formats.

705  SEMINAR: SOCIAL-PHILOSOPHICAL FOUNDATIONS OF EDUCATION  3 credits
May be repeated for a total of six credits. Prerequisite: permission of advisor. Examination of major educational philosophers or educational programs of instruction. In consultation with the instructor, a student may design a seminar to be offered in this course or may propose the development of a seminar in another area. Delivered in face-to-face, web-enhanced, and fully online formats.

711  RESEARCH DESIGN AND DATA INTERPRETATION  3 credits
Prerequisites: Admission to a College of Education doctoral program or permission. Emerging theories of intelligence; theories of adult learning; stage theories of adult cognitive, conceptual and moral development; cycle development; adult-like transitions.

714 endering processes  3 credits
Prerequisites: Admission to a College of Education doctoral program or permission for study of principles underlying classroom learning or evaluation. Emphasis on research problems in areas of individual interests.

714  RESEARCH DESIGN  3 credits
Prerequisites: Admission to a College of Education doctoral program or permission. Topics include problem statement, research questions, literature review, choosing a sample, selecting and preparing research design and data collection methods, and ethico-legal issues.

741  DATA COLLECTION METHODS  3 credits
Prerequisites: 740 and admission to a College of Education doctoral program or permission. Emphasis on qualitative research. Techniques of participant-observation, interviewing, and content analysis.

743  STATISTICS IN EDUCATION  3 credits
Prerequisites: Admission to a College of Education doctoral program or permission. Statistical methods and techniques used in educational measurement and in educational research. Emphasis on hypothesis testing.

745  ADVANCED EDUCATIONAL STATISTICS  3 credits
Prerequisites: 741 and admission to a College of Education doctoral program or permission. Emphasis on interpreting advanced statistics in education and the social sciences.

745  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 dissertation topics.

746  research project in special areas  1-3 credits
Prerequisite: permission of department chair and instructor. In-depth study of special problem in educational foundations.

801  RESEARCH SEMINAR  3 credits
Prerequisite: Admission to a College of Education doctoral program or permission. Emphasis on research methods applicable to education. Emphasis on developing a dissertation proposal.

801  INDEPENDENT STUDY  1-4 credits
Prerequisite: permission of advisor. May be repeated for a total of eight credits. Prerequisites: permission of department chair and instructor. Specific area of study determined in accordance with student's program and professional goals.

900  WORKSHOP  1-3 credits
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. Delivered in face-to-face, web-enhanced, and fully online formats.

901  INTRODUCTION TO INSTRUCTIONAL TECHNOLOGY  3 credits
Prerequisite: Corequisite: 610. Emphasizes the process of planning for the use of technology in schools, businesses, institutions. Includes plans for faculty support and alternative management of computer hardware and software.
631 INSTRUCTIONAL DESIGN
Corequisite: 610. The theory and practice of Instructional Design (ID) includes a systematic approach to the analysis, design, development, evaluation, and implementation of effective instruction.
3 credits

632 WEB-BASED LEARNING SYSTEMS
Corequisite: 610. Help students become proficient in the design, development, and evaluation of web-based learning systems for training and education. This course is offered fully online.
3 credits

633 MULTIMEDIA/HYPERMEDIA
Prequisite: 610. Introduces students to a variety of Multimedia and Hypermedia tools (digital, interactive, video, audio, printing) and demonstrates how these products can be delivered via web to support learning.
3 credits

634 VISUAL LITERACY
This course will combine a basic understanding of design principles and concepts with research findings on the use of visuals in the learning process.
3 credits

635 EMERGING TECHNOLOGIES IN INSTRUCTION
This course examines emerging technologies (hardware, software, systems) that support teaching/learning, and methods for assessing the utility of any technology used for instructional purposes.
3 credits

636 TOPICAL SEMINAR IN EDUCATIONAL TECHNOLOGY
Corequisite and practices in educational technology; computer authoring software, tools and processes for instructional video production, presentation systems.
3 credits

637 INTEGRATING AND IMPLEMENTING TECHNOLOGY
Corequisite: 610. Designed to equip teachers with tools, resources, and strategies to support the integration and implementation of effective use of technology in the classroom.
3 credits

638 STRATEGIES FOR ONLINE TEACHING AND LEARNING
Corequisite: 610. Prepare instructors to make the transition from teaching in a physical classroom to facilitating learning in a virtual classroom. Delivered in a fully online format.
3 credits

659 MASTER’S TECHNOLOGY PROJECT
Prerequisites: permission of advisor and supervisor of the independent study. Area of study chosen by the student and his/her advisor.
2-3 credits

697 INDEPENDENT STUDY
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.
1-3 credits

GENERAL ADMINISTRATION
5170:

590 WORKSHOP
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. Delivered in faced-to-face web-enhanced format and fully online format.
1-3 credits

591 WORKSHOP
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. Delivered in faced-to-face web-enhanced format and fully online format.
1-3 credits

601 ORGANIZATIONAL LEADERSHIP
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.
3 credits

602 MANAGEMENT OF PHYSICAL RESOURCES
A comprehensive view of the principles, practices, and new dimensions involved in the planning and management of educational facilities.
3 credits

603 MANAGEMENT OF HUMAN RESOURCES
An orientation to the major dimensions of the personnel function.
3 credits

604 SCHOOL CONTEXTS AND COMMUNITY INVOLVEMENT
Prerequisites: 601 and 5100:640. This course is for graduate students interested in P-12 school leadership. It focuses on understanding strategies for collaborating with members of the school community.
3 credits

606 EVALUATION IN EDUCATIONAL ORGANIZATIONS
Prerequisites: 601 and 5100:640. An examination of the general concepts, models, practical applications and considerations involved in the evaluation of educational organizations.
3 credits

609 SCHOOL LAW
Prerequisites: 5000:601 and 5000:640. An examination of the legal principles underlying education in the United States as reflected in statutory provisions, court decisions and administrative interpretations. Field-based research required. Course also available fully online.
3 credits

610 SCHOOL FINANCE AND ECONOMICS
A study of financial operations of school systems, including, taxes, other sources of revenue, expenditures, budgeting and effects of economic factors.
3 credits

619 PRINCIPLES OF CURRICULUM DEVELOPMENT
Corequisite: 610 and 5100:640. An introduction to the school function that improves instruction through direct assistance, curriculum, staff and group development and action research.
3 credits

613 STUDENT SERVICES AND INTERAGENCY COLLABORATION
Prerequisites: 601 and 5100:640. Overview of pupil services including analysis of the design, development of each component and program and discussion of current issues and trends. Field based research required.
3 credits

615 STUDENT SERVICES AND DISABILITY LAW
Prerequisites: 601 and 5100:640. The course examines the statutory and case laws and regulations affecting students with disabilities. Laws are reviewed, policy implications identified, and legally compliant practices proposed.
3 credits

620 SCHOOL CULTURE AND GOVERNANCE
An examination of leadership as it relates to the development and maintenance of a school climate and culture conducive to teaching and learning.
3 credits

695,6 PRINCIPALSHIP
Students are required to successfully complete a two-semester internship in a school district chosen by the student and his/her advisor.
3 credits

697 INDEPENDENT STUDY
Prerequisites: permission of advisor and supervisor of the independent study. Area of study determined in accordance with student's program and professional goals. (May be repeated for a total of six credits.)
1-3 credits

704 ADVANCED ORGANIZATIONAL LEADERSHIP
Prerequisites: Admission to a College of Education doctoral program or permission. Study of organizations and strengths and weaknesses of common methods of administering them. Practical means by which overcoming bureaucratic weaknesses of bureaucracies are offset or lessened by educational institutions.
3 credits

705 DECISION MAKING IN EDUCATIONAL ADMINISTRATION
Prerequisites: Admission to a College of Education doctoral program or permission. Decision making is portrayed as a central function of the educational administrator with a united presentation of the theory, research and practice of decision making.
3 credits

707 THE SUPERINTENDENCY
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.
3 credits

708 ECONOMICS IN EDUCATION
Prerequisites: Admission to a College of Education doctoral program or permission. Issues related to the changing roles of public and private schooling and higher education institutions as they relate to an urban environment.
3 credits

709 ADVANCED PRINCIPLES OF CURRICULUM DEVELOPMENT
A second course in curriculum development with an emphasis on the performance competencies needed to engage in curriculum planning and decision making.
3 credits

710 ADVANCED SCHOOL LAW
Prerequisites: Admission to a College of Education doctoral program or permission. An in-depth study of the law as it pertains to the function and role of the administrator as instructional leader, disciplinarian, building, facilities, and auxiliary services manager.
3 credits

716 ADVANCED EVALUATION OF EDUCATIONAL ORGANIZATIONS
Prerequisites: Admission to a College of Education doctoral program or permission. An evaluation course to help educational leaders plan and assess educational priorities and outcomes.
3 credits

720 TOPICAL SEMINAR
(May be repeated with change of topic for a total of six credits.) Prerequisites: Admission to a College of Education doctoral program or permission. An intensive examination of a particular area of Educational Leadership.
1-3 credits

730 RESIDENCY SEMINAR
Prerequisites: Admission to a College of Education doctoral program or permission. Focus on recent research in administration and educational administration theory.
3 credits

731 RESIDENCY SEMINAR
Prerequisite: 601. Focus on recent research in administration and educational administration theory.
3 credits

732 PUBLIC AND MEDIA RELATIONS IN EDUCATIONAL ORGANIZATIONS
Prerequisites: Admission to a College of Education doctoral program or permission. A course in educational public relations intended to help educational administrators facilitate the development of common perceptions about school issues with multiple constituencies.
3 credits

740 THEORIES OF EDUCATIONAL SUPERVISION
Extends 670, including surveyary models, staff development, and the organizational environment's impact on the climate for effective supervision.
3 credits

745 SEMINAR: URBAN EDUCATIONAL ISSUES
Prerequisites: Admission to a College of Education doctoral program or permission. A study of the linkages between educational organizations and their social contexts, particularly as they relate to educational change. Research project required.
3 credits

746 POLITICS OF EDUCATION
Prerequisites: Admission to a College of Education doctoral program or permission. Emphasis given to recent efforts to bring about reform at all levels of the educational enterprise and to conceptual perspectives and research findings.
3 credits

759,6 INTERNSHIP IN EDUCATIONAL ADMINISTRATION
Prerequisites: Admission to a College of Education doctoral program or permission. Students are required to successfully complete a two-semester internship in a school district chosen by the student and his/her advisor.
1-5 credits

895,6 DOCTORAL INTERNSHIP
Candidates for the doctoral degree in educational administration must prepare and complete a research proposal that includes research questions, a literature review, and a research design. They must collect, analyze, and interpret data.
1-6 credits

897 INDEPENDENT STUDY
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.)
1-3 credits

899 DOCTORAL DISSERTATION
Prerequisite: permission of advisor. Specific research problem that requires student to apply research skills and techniques to the problem being studied.
1-20 credits

HIGHER EDUCATION ADMINISTRATION
5190:

515 ADMINISTRATION IN HIGHER EDUCATION
In-depth study of administrative roles, functions, knowledge and skills requirements, and administrative behavior. Trends in administrative theory and application also explored. Delivered in face-to-face web enhanced format and fully online format.
3 credits

521 LAW AND HIGHER EDUCATION
Legal aspects of higher education, sources of law and authority presented; impact on, interaction with, and implications of the administration of higher education discussed. Delivered in face-to-face web-enhanced format and fully online format.
3 credits

525 TOPICAL SEMINAR: HIGHER EDUCATION
(May be repeated.) Topical study in a variety of areas related to public and/or private higher education institutions, organizations. Maximum of six credits applied to degree. Delivered in face-to-face web-enhanced format and fully online format.
3 credits

526 STUDENT SERVICES AND HIGHER EDUCATION
Examination of issues related to the delivery and evaluation of student services in higher education. Delivered in face-to-face web-enhanced format and fully online format.
3 credits

527 THE AMERICAN COLLEGE STUDENT
Introduction to the sociopolitical context of literature concerning the impact of college on students and student development theory. Delivered in face-to-face web enhanced format and fully online format.
3 credits

530 HIGHER EDUCATION CURRICULUM AND PROGRAM PLANNING
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. Delivered in face-to-face web-enhanced format and fully online format.
3 credits

590 WORKSHOP
(May be repeated for a total of six credits.) Emphasizing the development and demonstration of leadership behavior appropriate to the college or university setting. Delivered in face-to-face web-enhanced format and fully online format.
1-3 credits

600 ADVANCED ADMINISTRATIVE COLOQUIUM IN HIGHER EDUCATION
Prerequisites: permission. (To be taken during student's final semester of coursework) Examination of higher education administration perspectives and issues, including those that pose particular concern to students. Capstone experience for students poised for program completion. Delivered in face-to-face web enhanced format and fully online format.
3 credits
### CURRICULAR AND INSTRUCTIONAL STUDIES 5500:

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<td>520</td>
<td>ADVANCED INSTRUCTIONAL TECHNIQUES</td>
<td>3</td>
<td>Methods of teaching a particular area of the 7-12 school curriculum for students in the Master’s with Licensure program.</td>
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<td>521</td>
<td>FIELD EXPERIENCE: ADVANCED INSTRUCTIONAL TECHNIQUES</td>
<td>2</td>
<td>Content experience in the 7-12 classroom to apply theory and research to practice.</td>
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<td>522</td>
<td>CONTENT AREA LITERACY</td>
<td>3</td>
<td>Examines instructional strategies for constructing meaning in content subjects (e.g., science, social studies, mathematics) using print and electronic texts.</td>
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<tr>
<td>524</td>
<td>TEACHING READING TO CULTURALLY DIVERSE LEARNERS</td>
<td>3</td>
<td>Knowledge, skills and abilities to employ effective methods of teaching reading to diverse populations and/or learners whose language patterns are nonstandard.</td>
</tr>
<tr>
<td>539</td>
<td>ENGINEERING FOR EDUCATORS</td>
<td>3</td>
<td>Design and engineering concepts and their applications course for teachers. Students will engage in engineering problem solving activities and design lesson plans.</td>
</tr>
<tr>
<td>540</td>
<td>PRINCIPLES OF BILINGUAL/MULTICULTURAL EDUCATION</td>
<td>3</td>
<td>An introduction to the theoretical, cultural, sociolinguistic bases of bilingual/multicultural education. Legislation, court decisions, program implementation included.</td>
</tr>
<tr>
<td>541</td>
<td>TEACHING LITERACY TO ENGLISH LEARNERS</td>
<td>3</td>
<td>Course applies methods for teaching literacy to English learners, assessment of literacy skills, and development of materials.</td>
</tr>
<tr>
<td>543</td>
<td>TECHNIQUES FOR TEACHING ENGLISH AS A SECOND LANGUAGE</td>
<td>3</td>
<td>(10 field hours) Course includes teaching language skills to Limited English Proficient students in grades K-12, administration of language assessment tests, selection and evaluation of materials.</td>
</tr>
<tr>
<td>550</td>
<td>NATURE, HISTORY, AND PHILOSOPHY OF SCIENCE</td>
<td>3</td>
<td>(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.</td>
</tr>
<tr>
<td>555</td>
<td>LITERACY FOR MULTIAGE LICENSURE</td>
<td>3</td>
<td>Pre/Secondary admission to Teacher Education program. Organizing instruction, use of oral language development protocols, strategies for word skill development, comprehension and assessment as they relate to diverse areas.</td>
</tr>
<tr>
<td>565</td>
<td>SCAFFOLDING LANGUAGE AND CONTENT LEARNING FOR ENGLISH LEARNERS</td>
<td>3</td>
<td>Pre/Secondary education majors, 5550:333, 336, 337: secondary education majors. This course introduces and explains quality, research-based sheltered instruction to accelerate academic achievement for English learners.</td>
</tr>
<tr>
<td>575</td>
<td>INSTRUCTIONAL TECHNOLOGY APPLICATIONS</td>
<td>3</td>
<td>Focus on developing learner competencies in the use of instructional technologies to enhance both the instructor’s personal and professional productivity.</td>
</tr>
<tr>
<td>583</td>
<td>PRACTICUM: TEACHING ENGLISH AS A SECOND LANGUAGE</td>
<td>2</td>
<td>(10 field hours) Practical experience for teacher candidates to practice teaching in an English as a second language classroom supervised by a TESOL-endorsed teacher. 10 hours of observation and teaching.</td>
</tr>
<tr>
<td>590, 1, 2</td>
<td>WORKSHOP</td>
<td>1-3</td>
<td>Workshop for educators to improve teaching skills in a specific area of the curriculum. (May be repeated for a maximum of 6 credits.)</td>
</tr>
<tr>
<td>594</td>
<td>EDUCATIONAL INSTITUTES</td>
<td>1-4</td>
<td>Special courses designed as in-service upgrading programs. Frequently provided with support of national foundations.</td>
</tr>
<tr>
<td>600</td>
<td>CONCEPTS OF CURRICULUM AND INSTRUCTION</td>
<td>3</td>
<td>A study of the underlying research and theory of curriculum and instruction with special attention to educational decision in the metropolitan setting. (3 field hours)</td>
</tr>
<tr>
<td>605</td>
<td>SEMINAR IN TRENDS AND ISSUES IN CURRICULUM AND INSTRUCTION</td>
<td>3</td>
<td>A study of current research and instruction with special attention to applications to educational decision making.</td>
</tr>
<tr>
<td>609</td>
<td>GLOBAL EDUCATION</td>
<td>3</td>
<td>This course focuses on theories, materials, and methods for teaching global education through e-learning and web-based tools. The focus will be the opportunities and challenges in using technology to teach about the world, its peoples, and issues.</td>
</tr>
<tr>
<td>611</td>
<td>GLOBAL EDUCATION AND TECHNOLOGY</td>
<td>3</td>
<td>Theories, materials, and methods for teaching global education through e-learning and web-based tools. The focus will be the opportunities and challenges in using technology to teach about the world, its peoples, and issues.</td>
</tr>
<tr>
<td>612</td>
<td>MODELS OF EPISTEMOLOGY AND INQUIRY</td>
<td>3</td>
<td>An examination of various epistemological and methodological frameworks that are the foundation for systematic and complex educational inquiry. Doctoral-level status is preferred but any interested student is encouraged to participate.</td>
</tr>
<tr>
<td>615</td>
<td>PHILOSOPHY AND ORGANIZATION OF MIDDLE SCHOOLS</td>
<td>3</td>
<td>Philosophical theory, research, and exemplary organizational, assessment, and evaluation components of middle level education.</td>
</tr>
</tbody>
</table>
616 MIDDLE SCHOOL CURRICULUM AND INSTRUCTION 3 credits
Theories, research, and exemplary practices focusing on middle school curriculum and instruction.

617 LICENSURE SEMINAR IN CURRICULUM AND INSTRUCTIONAL STUDIES 3 credits
This course should be taken at the beginning of the Master's with Licensure program as an introduction to curriculum and the pragmatics of teaching.

619 INSTRUCTIONAL AND MANAGEMENT PRACTICES 3 credits
Subsequent to using teaching models and management strategies to become effective in instructors. Also included are educational issues that relate to effective management and instructional strategies. 60 field hours per credit.

621 ADVANCED INSTRUCTIONAL TECHNIQUES: MODERN LANGUAGES I-8 3 credits
Prerequisite: 617 or permission of instructor. Focus is on theories of language acquisition, model, and pronunciation suited to teaching foreign languages and cultures in the (I-8) classroom. Strategies that promote appropriate levels of language competence and proficiency for young learners. (35 field hours)

622 CHILDREN'S LITERATURE IN THE CURRICULUM 3 credits
Examination of literary genre with emphasis on methods and techniques for presenting literature to children in preschool, elementary, and middle grades.

625 CONTEMPORARY ISSUES IN LITERACY INSTRUCTION AND PHONICS 3 credits
Survey course explores current research in reading and writing as constructive processes of meaning-making.

626 ASSESSMENT OF READING DIFFICULTIES 3 credits
Prerequisite: 625. Examines formal and informal assessments and intervention strategies for children with reading difficulties.

627 SPECIAL TOPICS: CURRICULAR AND INSTRUCTIONAL STUDIES 3 credits
Prerequisite: permission of instructor. May be repeated with a change in topic for a maximum of 9 credits Group study of special topics of critical, contemporary concern in elementary education.

628 LITERACY ASSESSMENT PRACTICUM 3 credits (25.5 field hours)
Prerequisite: 628. Laboratory experience within classroom, small groups and individuals. A student diagnoses, 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. Materials, organization, and procedures for teaching reading programs for all secondary school and college students.

631 ADVANCED BEHAVIORAL STRATEGIES FOR THE EDUCATOR 3 credits
This course provides the student with an advanced examination of strategies designed to improve student behavior in the school setting.

635 SEMINAR IN TEACHING FOREIGN LANGUAGES 3 credits
Prerequisite: 634. The course should be taken by teachers who need to update their knowledge in foreign language education and language learning theories. Different topics will be offered from section to section.

640 CHILDREN'S LITERATURE IN RESEARCH AND THEORY IN FOREIGN LANGUAGE EDUCATION 3 credits
May be repeated for a total of six credits. Issues and subject related to research in foreign language education and language learning theories. Different topics will be offered from section to section.

641 INTRODUCTION TO TEACHER LEADERSHIP 3 credits
This course focuses on the philosophical, scientifically, and historically explores contemporary teacher leader- ship in the United States through scholarly, critical and practical inquiry in addition to reflect- ive action in diverse learning environments.

642 DEVELOPMENT OF CHILDREN: GRADES FOUR AND FIVE 3 credits
Prerequisite: Early Childhood P-3 teaching license. Course focuses on nature/needs of grades four to five to adolescents' development including physical, cognitive/intellectual, moral, psycholog- ical and social-emotional. Explore related issues in home, school and community contexts.

643 FOURTH GRADE CURRICULUM AND INSTRUCTION 3 credits
Prerequisite: 640. The language arts, mathematics, science and social studies, arts, and technology curriculum content and the knowledge of inquiry and problem-based instruction necessary for fourth grade learners.

645 FIFTH GRADE CURRICULUM AND INSTRUCTION 3 credits
Prerequisite: 640 Models an inquiry-based format that integrates math, science, social studies, and technology standards where students learn to create, implement, manage, and evaluate student-centered learning environments.

646 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 constructivism and national standards.

651 SECONDARY SCIENCE CURRICULUM AND INSTRUCTION 3 credits
A critical analysis of the theory and practice of curriculum and instructional methods in science for early adolescent and adolescent learners.

656 CURRICULUM IN DIVERSE COMMUNITIES 2 credits
This course focuses on the preparation of literacy specialists to coach teachers in the imple- mentation of culturally responsive literacy instruction for diverse learners.

657 COACHING FOR EFFECTIVE ASSESSMENT PRACTICE 2 credits
Designed for future reading specialists, this course teaches knowledge, skills and dispositions in school-based professional development and coaching on classroom-based literacy assessment and instruction.

658 PEDAGOGY OF EFFECTIVE LITERACY INSTRUCTION 2 credits
The course enables candidates to demonstrate knowledge of a wide range of instructional practices, methods, and curriculum materials, including technology, that support effective liter- acy instruction.

663 PROFESSIONAL DEVELOPMENT IN LITERACY 2 credits
An introduction to research and knowledge bases related to teacher professional development with an examination of coaching as one venue of supporting teacher professional develop- ment.

664 ADVANCED LITERACY RESEARCH 2 credits
This course introduces an introduction to literacy research as an integral part of professional development and supports engagement in inquiry that advances candidates’ understanding of litera- cy instruction.

665 LITERACY SPECIALIST INTERNSHIP 4 credits
(Repeatable for a maximum of eight credits) The internship is a school-based practicum that integrates the accomplishment of the Literacy Specialist Endorsement Standards and focuses on data-based decision making to inform coaching.

690 MASTER'S RESEARCH 3 credits
Prerequisite: 765. The implementation of a research design for an inquiry into a curricular and/or instruction problem within an educational setting.

702 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. (May be repeated with a change in topic for a maximum of 20 field hours per credit)

704 FIELD EXPERIENCE: CLASSROOM INSTRUCTION 1-3 credits
Prerequisites: admission to student teaching corequisite: 695. Planned teaching experience in school selected and supervised by Office of Extended Educational Experiences.

710 FIELD EXPERIENCE: MASTER'S PROJECTS 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 research and theory in science education and learning for preschool through senior high school students.

760 ACTION RESEARCH 3 credits
Prerequisite: Admission to the program. Students develop skills needed to conduct Action Research studying their own instruction to identify means to improve the effectiveness of teaching and learning.

780 SEMINAR IN CURRICULAR AND INSTRUCTIONAL STUDIES 1-3 credits
(Repeatable for a maximum of six credits) Focus is on theories 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 processes and procedures will be addressed.

820 ADVANCED STUDY AND RESEARCH IN READING INSTRUCTION 3 credits
Survey of research, comparison and evaluation of programs, design and development of pro- jects in reading through group or individual study.

826 DOCTORAL SEMINAR IN CURRICULAR AND INSTRUCTIONAL STUDIES 1-3 credits
Prerequisite: admission to Ph.D. program in Elementary Education or Secondary Education or department consent. Intensive examination of a particular area of teacher edu- cation. (May be repeated with change of topic and for a total of 9 credits.)

830 FIELD EXPERIENCE 1-6 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.

835 INDEPENDENT STUDY 1-6 credits
(May be repeated for a total of 6 hours.) Area of study determined by student's needs.

850 DOCTORAL DISSERTATION 1-20 credits
Study and in-depth analysis of a research problem in curriculum and instruction.

SPECIAL EDUCATION 5610:

540 INDIVIDUALS WITH EXCEPTIONALITIES: EDUCATIONAL AND SOCIETAL ISSUES 3 credits
Prerequisite: Admission to College of Education Teacher Preparation Program or permission of instructor. A survey course covering the identification, developmental characteristics, and intervention strategies for exceptional children and youth across education and community settings (1 field hour).

544 DEVELOPMENTAL CHARACTERISTICS OF INTELLECTUALLY GIFTED INDIVIDUALS 3 credits
Prerequisite: 540. Survey of etiology, identification, classification and developmental characteris- tics of intellectually gifted individuals.

547 INDIVIDUALS WITH MILD/MODERATE EDUCATIONAL NEEDS: CHARACTERISTICS AND IMPICILATIONS 4 credits
Survey of the etiology, identification, classification, developmental characteristics and inter- vention strategies for infants with disabilities (20 field hours).

548 INDIVIDUALS WITH MODERATE/INTENSIVE EDUCATIONAL NEEDS: CHARACTERISTICS AND IMPLICATIONS 4 credits
Prerequisite: 540. Survey of etiology, identification, classification, and developmental character- istics of individuals with moderate/intensive educational needs.

550 SPECIAL EDUCATION PROGRAMMING: EARLY CHILDHOOD 3 credits
Prerequisite: 540. Developmental patterns of young children with disabilities and develop- mentally/exceptionally appropriate approaches to programming and adaptations (20 field hours).

551 SPECIAL EDUCATION PROGRAMMING: MILD/MODERATE 3 credits
Prerequisites: 540 or 547. Educational implications regarding assessment, teaching strate- gies, and adaptive materials, necessary to meet the needs of school age students with mild/moderate educational needs (20 field hours).

552 SPECIAL EDUCATION PROGRAMMING: SECONDARY/TRANSITION 3 credits
Study of diagnostic prescriptive service delivery systems designed to accommodate develop- mental patterns of secondary level students with exceptionalities (20 field hours).

553 SPECIAL EDUCATION PROGRAMMING: MODERATE/INTENSIVE I 3 credits
Prerequisite: 540. Developmental characteristics of intellectually gifted individuals.

554 SPECIAL EDUCATION PROGRAMMING: MODERATE/INTENSIVE II 4 credits
Prerequisites: 540. Advanced program for providing educational planning and intervention for individuals with moderate to intensive educational needs. Focus is on developing a comprehensive educa- tional program which will facilitate optimum functioning and independence (20 field hours).
637 CONTEMPORARY ACCOUNTING ISSUES 3 credits
Prerequisite: Permission of instructor. Critical examination of contemporary issues and trends in accounting, including professional ethics and corporate social responsibility, standard setting process, regulatory compliance, and international issues.

640 ADVANCED AUDITING 3 credits
Prerequisite: 540 or equivalent or permission. Conceptual foundations and current research on professional auditing and internal auditing. Includes governmental regulation and litigation, statistics, computer systems as well as current and prospective developments in auditing.

641 TAXATION OF PARTNERSHIPS 3 credits
Prerequisites: 601 and 627 or equivalent courses. Examines intensively provisions of subchapters K and S of Internal Revenue Code and uses of partnerships for tax planning.

642 CORPORATE TAXATION II 3 credits
Prerequisite: 631 or special permission. Focuses on corporate reorganization; covers A, B, C, D, and E reorganizations, corporate split-offs and spin-offs, carryovers of tax attributes; and limitations on carryovers.

644 TAX ACCOUNTING 3 credits
Prerequisites: 601 and 627 or equivalent courses. Attention focused on timing of income and expenses for individuals and its relation to tax planning.

646 INCOME TAXATION OF DECEDAENTS, ESTATES AND TRUSTS 3 credits
Prerequisite: 533. An in-depth examination of the decedent's last income tax returns and the analysis of income tax of trusts and estates and their creators, fiduciaries and beneficiaries.

648 ADVANCED INDIVIDUAL TAXATION 3 credits
Prerequisites: 601 and 627 or equivalent courses. In-depth study of some of the more involved individual tax issues.

649 CONSOLIDATED TAX RETURNS 3 credits
Prerequisite: 611. Intensive study of tax provisions concerning use of consolidated tax returns.

651 QUALIFIED PENSIONS AND PROFIT SHARING 3 credits
Prerequisite: Admission to Master of Tax program or special permission. Nature, purpose and operation of various forms of deferred compensation examined with much emphasis on pension and profit-sharing plans.

653 TAX POLICY AND ETHICS 3 credits
Prerequisites: 601 and 627 or equivalent courses. In-depth study of administration and proceedings of Internal Revenue Service and responsibilities of tax practitioners.

659 STATE AND LOCAL TAXATION 3 credits
Prerequisites: 601 and 627 or equivalent courses. Examines common types of taxes imposed by state and local governments and includes taxation of multistate businesses.

650 ESTATE PLANNING 3 credits
Prerequisite: 633. Considers entire process of planning the estate with due regard for disposition of property, tax minimization, liquidity requirements and administrative costs.

651 INTEGRATED TAXATION 3 credits
Prerequisites: 601 and 627 or equivalent 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 3 credits
Prerequisite: Admission to Master of Tax program or special permission. Analysis of tax aspects of tax-exempt organizations, including nature and limitations of its exemption.

653 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.)

654 ADVANCED INFORMATION SYSTEMS 3 credits
Prerequisites: 603 or equivalent and 610. Advanced study of accounting information system theory, elements, principles, design and implementation. Practical data processing and network controls to control flow of information.

655 ENTERPRISE RISK ASSESSMENT AND ASSURANCE 3 credits
Prerequisite: 540 or equivalent or special permission. An examination of the risks, controls, and assurance services in contemporary organizations.

656 ADVANCED DATA AND DATABASES 3 credits
Prerequisite: 603 or equivalent. Application of data mining and quantitative techniques to fraud risk assessment, error detection, financial distress, going concern, and information assurance.

660 ACCOUNTING AND ASSURANCE PROJECT 3 credits
Prerequisites: 540 or equivalent, 658, or special permission. Comprehensive accounting and assurance project and a project management module completed in the final semester of the MSA program.

662 C ORP TAXATION 3 credits
Prerequisite: 631 or special permission. This course involves an in-depth study of Subchapter S of the Internal Revenue Code.

665 FRAUD AND FINANCIAL FORENSICS 3 credits
Prerequisites: 620/640, 620/603, 620/622, 640/602, 650/605, or permission. Provides students with comprehensive background in fraud risk assessment and financial forensics.

670 CORPORATE PERFORMANCE EVALUATION AND CONTROL SYSTEMS 3 credits
Prerequisite: 610. Investigation of the role of financial information systems in developing strategy, directing, measuring results, and motivating managers to define and pursue organizational goals and objectives.

680 INTERNATIONAL ACCOUNTING 3 credits
Prerequisite: Examination of accounting theory and practice from international perspective with emphasis on multinational investment, business and auditing activities and reporting problems.

693 SELECTED TOPICS IN TAXATION 3 credits
Prerequisites: 631 or special permission. Provides study in contemporary issues in taxation that are not covered in current courses.

695 GRADUATE INTERNSHIP IN ACCOUNTING 3 credits
Prerequisites: 610, 620, and 640. This course provides an opportunity for graduate accounting students to apply classroom instruction to practice problems in a professional working environment.

697 INDEPENDENT STUDY IN ACCOUNTING 1-3 credits
(May be repeated for a total of six credits) Focus on special topics of study and research in accounting on an independent basis.

698 FINANCIAL REPORTING & SYSTEMS 3 credits
Prerequisites: 615 and 643. This course introduces students to the operation of various accounting systems and the principles of financial statement analysis.

699 ACCOUNTING INFORMATION SYSTEMS 3 credits
Prerequisites: 631 and 643. This course introduces the use of accounting information systems in business decision making.

700 INDEPENDENT STUDY IN ACCOUNTING 1-3 credits
(May be repeated for a total of six credits) Focus on special topics of study and research in an independent basis.

MANAGEMENT

650: DATA NETWORKS AND SECURITY 3 credits
Prerequisite: 601. Principles of the design and management of data networks for business communications.

571 MANAGEMENT PROJECT 3 credits
Prerequisite: 663 or permission of instructor. Students develop skills in real-world problem solving by interacting with organizations on issues of importance to them.

575 SELECTED TOPICS IN MANAGEMENT 3 credits
(May be repeated for a total of six credits) Prerequisite: 600 or equivalent. Provides study of contemporary issues and areas not covered in current finance graduate courses.

577 INDEPENDENT STUDY IN MANAGEMENT 1-3 credits
(May be repeated for a total of six credits) Focus on special topics of study and research in management on an independent basis.

650: MANAGEMENT AND ORGANIZATIONAL BEHAVIOR 3 credits
Course examines management principles, concepts, functions and process, as well as human behavior in organizations.

651 BUSINESS ANALYTICS AND INFORMATION STRATEGY 3 credits
Covers information systems foundations, strategic use of computer techniques including statistics and data mining to enable firms to better compete.

652 COMPUTER TECHNIQUES FOR MANAGEMENT 3 credits
Introduction to the use of integrated spreadsheet software, database management software and the analysis and design of management information systems.

655 BUSINESS APPLICATIONS DEVELOPMENT 3 credits
The analysis and automation of standard business processes with examples from diverse business functions. Students will integrate these applications for business decision making.

658 ENTREPRENEURSHIP 3 credits
Prerequisite: Graduate standing. Students develop new products and work with entrepreneur- al businesses in the development of business plans that are presented to investors and entre- preneurs in local and international business plan competitions.

660 E-BUSINESS FOUNDATIONS 3 credits
Provides an understanding of the foundation of Electronic Business focusing on business and application issues.

662 E-BUSINESS TECHNOLOGIES 3 credits
Prerequisites: 602 or 620. This 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.

664 INFORMATION SYSTEMS AND IT GOVERNANCE 3 credits
Prerequisite: 601. Covers issues, strategies, tactics for managing organizational use of information technology and includes strategic alignment, project management, offshoring, security, application systems, and emerging technologies.

665 BUSINESS DATABASE SYSTEMS 3 credits
Introduction to issues underlying the analysis, design, implementation, and management of busi- ness databases.

643 ANALYSIS AND DESIGN OF BUSINESS SYSTEMS 3 credits
A hands-on treatment of the methods used to develop different types of business information systems.

644 KNOWLEDGE MANAGEMENT AND BUSINESS INTELLIGENCE 3 credits
Prerequisite: 601. Explores the technologies of Business Intelligence (data warehouses, data mining, data portals) and how organizations successfully manage the creation, sharing, transfer, and exploitation of knowledge.

645 SOFTWARE DEVELOPMENT AND QUALITY ASSURANCE 3 credits
Prerequisites: 601. Introduction to software development and quality assurance. Student teams will work on projects with an emphasis on implementation of business systems.

646 ENTERPRISE SYSTEMS IMPLEMENTATION 3 credits
Prerequisite: 602. The configuration and implementation of Enterprise Systems to support the cross functional integration of business processes.

648 MANAGEMENT OF TELECOMMUNICATIONS 3 credits
Prerequisites: 602 or 620/603. An introduction to the use and management of telecommuni- cations resources to support the activities of the organization.

FINANCE

640 FINANCIAL MANAGEMENT 3 credits
Prerequisites: 631 or equivalent, 640/602. May be taken concurrently with 620/601. Emphasis on financial decision making related to goal of firm; specifically, the investment deci- sion, the financial decision and the dividend decision.

641 FINANCIAL RISK MANAGEMENT 3 credits
Prerequisites: 631 and 645. Explores risk issues at the firm level with emphasis upon identi- fying, measuring and managing risk and financial risk value.

642 BUSINESS LAW AND REGULATION 3 credits
Advanced legal analysis of contracts, UCC, debtor-creditor relationships, business organiza- tions, property, and government regulation. (Not open to students with six credits of under- graduate business law.)

643 FINANCIAL MARKETS AND INSTITUTIONS 3 credits
Prerequisite: 602 or equivalent. A study of major financial markets and financial institutions with an emphasis on the decision making processes within a rapidly changing, but regulated operating environment.

644 INVESTMENT ANALYSIS 3 credits
Prerequisite: 602 or equivalent. Study of the economic and market forces that influence secu- rity prices. Techniques of analysis used in evaluating limited income and equity securities.

650 TECHNOLOGIES OF FINANCIAL MODELING 3 credits
Prerequisites: 5250/520 or 6400/602. Current techniques and methods of financial analysis are examined, including the use of financial models for short and long run probability deci- sions.

655 GOVERNMENT AND BUSINESS 3 credits
Public policy with regard to business institutions and issues are considered from an econom- ic, legal, ethical, political framework.

674 STRATEGIC FINANCIAL DECISION MAKING 3 credits
Prerequisite: 602. Examines the role of financial decision makers as strategic consultants to other business units/functionalities with integrative risk management as a unifying theme.

780 CAPITAL BUDGETING 3 credits
Prerequisite: 602 or equivalent. Attempt to integrate various theories of capital budgeting into comprehensive conceptual scheme. Theoretical concepts and practical applications blended for better understanding of capital problems.

790 SELECTED TOPICS IN FINANCE 3 credits
(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.

650: INDEPENDENT STUDY IN FINANCE 1-3 credits
(May be repeated for a total of six credits) Focus on special topics of study and research in finance on an independent basis.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>688</td>
<td>INDEPENDENT STUDY IN HEALTH SERVICES ADMINISTRATION</td>
<td>3</td>
<td>685. A broad survey of the fundamental principles, research findings and prac-</td>
<td>May be repeated for a total of six credits. Prerequisite: 682. Selected topics in history, com-</td>
</tr>
<tr>
<td>685</td>
<td>ORGANIZATIONAL TRANSFORMATION</td>
<td>3</td>
<td>tices related to the acquisition, development, maintenance and effective utilization of a business firm's human resources.</td>
<td>temporary and/or operational and functional areas of management.</td>
</tr>
<tr>
<td>686</td>
<td>MANAGING PEOPLE IN ORGANIZATIONS</td>
<td>3</td>
<td>685. A comprehensive study of innovations in organizations designed to increase productivity and efficiency through changes in human management.</td>
<td>-</td>
</tr>
<tr>
<td>687</td>
<td>BIOINNOVATION AND DESIGN</td>
<td>3</td>
<td>Introduction to the employee issues that managers face in organizations. The aspects of organizational behavior that influence performance and issues related to managing human resources will be examined.</td>
<td>-</td>
</tr>
<tr>
<td>689</td>
<td>ORGANIZATIONAL THEORY</td>
<td>3</td>
<td>680. Examine the structure, design and overall effectiveness of a business organization from a macro-perspective.</td>
<td>-</td>
</tr>
<tr>
<td>690</td>
<td>MANAGEMENT OF ORGANIZATIONAL CONFLICT</td>
<td>3</td>
<td>685 686 or equivalent. Count emphasizes ensuring that the organization is free from inevitable conflicts that occur and provides skills in diagnosis, negotiation, and building trust and cooperative working relationships in organizations.</td>
<td>-</td>
</tr>
<tr>
<td>691</td>
<td>COMPENSATION AND PERFORMANCE MANAGEMENT</td>
<td>3</td>
<td>686 690 or equivalent. The development and analysis of systems of payment and rewards in business organizations with special attention placed on performance evaluation methods and productivity enhancement.</td>
<td>-</td>
</tr>
<tr>
<td>692</td>
<td>GLOBAL SUPPLY CHAIN AND OPERATIONS</td>
<td>3</td>
<td>680 or equivalent or permission. Study and explore the elements and issues related to globalization of supply chain, production, and service operations.</td>
<td>-</td>
</tr>
<tr>
<td>693</td>
<td>THE LEADERSHIP ROLE IN ORGANIZATIONS</td>
<td>3</td>
<td>685. 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 study assignments.</td>
<td>-</td>
</tr>
<tr>
<td>694</td>
<td>MANAGING A GLOBAL WORKFORCE</td>
<td>3</td>
<td>685. The formulation, design and implementation of human resource practices designed to generate competitive cost advantages for business firms operating in domestic and international markets.</td>
<td>-</td>
</tr>
<tr>
<td>695</td>
<td>INTERNATIONAL HUMAN RESOURCE MANAGEMENT</td>
<td>3</td>
<td>680. A survey course focused on the identification, analysis, and resolutions of human resource problems in business firms with global operations.</td>
<td>-</td>
</tr>
<tr>
<td>696</td>
<td>STAFFING AND EMPLOYMENT REGULATION</td>
<td>3</td>
<td>685 686 or equivalent. Design and implementation of staffing practices and policies for businesses with an emphasis on the implications of federal regulations on the staffing function.</td>
<td>-</td>
</tr>
<tr>
<td>697</td>
<td>SUPPLY CHAIN ANALYSIS</td>
<td>3</td>
<td>675. Application of quantitative models in the analysis and design of systems in the supply chain and in manufacturing and service operations environments.</td>
<td>-</td>
</tr>
<tr>
<td>698</td>
<td>DATA ANALYSIS FOR MANAGERS</td>
<td>3</td>
<td>685 690 or equivalent. Design, evaluation and interpretation of research in business and organizations. Integrates quantitative and behavioral concepts and processes encountered producing such research including ethical issues.</td>
<td>-</td>
</tr>
<tr>
<td>699</td>
<td>MANAGEMENT OF TECHNOLOGY</td>
<td>3</td>
<td>Survey of the principles and management practices of technology driven organizations are discussed with concepts, models and case studies for managers of technology intensive operations.</td>
<td>-</td>
</tr>
<tr>
<td>700</td>
<td>POLYMORPHISM DECISIONS</td>
<td>3</td>
<td>Introduces major polymer concepts, production processes, and uses of polymeric materials in an easy-to-comprehend interdisciplinary instructional way. Industrial case studies help integrate enterprise-wide innovation and technology management related decisions.</td>
<td>-</td>
</tr>
<tr>
<td>701</td>
<td>MANAGEMENT OF SUPPLY CHAINS AND OPERATIONS</td>
<td>3</td>
<td>An overview of the issues directly related to the management of supply chains and operations at the strategic, tactical, and operational levels of the organization.</td>
<td>-</td>
</tr>
<tr>
<td>702</td>
<td>QUALITY AND PRODUCTIVITY TECHNIQUES</td>
<td>3</td>
<td>680 690 or equivalent. Analysis of statistical process control (SPC), material requirements planning (MRP), just-in-time (JIT) inventory control and management of the process.</td>
<td>-</td>
</tr>
<tr>
<td>703</td>
<td>GLOBAL SUPPLY CHAIN MANAGEMENT</td>
<td>3</td>
<td>685. Graduate standing. Focuses on the integration of activities and information/material flows across multiple organizations that comprise the supply chain, and the relationships among those organizations.</td>
<td>-</td>
</tr>
<tr>
<td>704</td>
<td>SUPPLY CHAIN SOURCING</td>
<td>3</td>
<td>670 or 675. Introduces the student to fundamental sourcing concepts as well as the sourcing responsibilities and critical role of the sourcing function within the principal organization in a supply chain network.</td>
<td>-</td>
</tr>
<tr>
<td>705</td>
<td>PROJECT MANAGEMENT</td>
<td>3</td>
<td>680 685 or equivalent. 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.</td>
<td>-</td>
</tr>
<tr>
<td>706</td>
<td>SUPPLY CHAIN LOGISTICS MANAGEMENT</td>
<td>3</td>
<td>675. Emphasizes the importance of planning and operation of supply chain logistics systems that includes transportation, inventory and warehousing, with particular emphasis on international logistics, regulatory and documentation.</td>
<td>-</td>
</tr>
<tr>
<td>707</td>
<td>INTRODUCTION TO HEALTH-CARE MANAGEMENT</td>
<td>3</td>
<td>680. Graduate standing. Introductory course for health professionals covering principles and concepts of medical care applied to health services organizations.</td>
<td>-</td>
</tr>
<tr>
<td>708</td>
<td>HEALTH SERVICES OPERATIONS MANAGEMENT</td>
<td>3</td>
<td>680 681 or equivalent or permission of instructor. Application of operations and systems analysis to health services organizations.</td>
<td>-</td>
</tr>
<tr>
<td>709</td>
<td>HEALTH SERVICES SYSTEMS MANAGEMENT</td>
<td>3</td>
<td>685. Graduate standing. 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.</td>
<td>-</td>
</tr>
<tr>
<td>710</td>
<td>BIOINNOVATION AND DESIGN</td>
<td>3</td>
<td>Bring together students with different academic backgrounds to work in teams and identify and develop new medical technologies and solutions to healthcare problems.</td>
<td>-</td>
</tr>
<tr>
<td>711</td>
<td>HEALTH SERVICES RESEARCH PROJECT</td>
<td>3</td>
<td>683 or permission of instructor. In-depth field study in health services admin-</td>
<td>Major research paper required.</td>
</tr>
</tbody>
</table>
Graduate Courses 125

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 multinational cor- poration.

630 INTERNATIONAL MARKETING POLICIES 3 credits
Explores the problems of formulating and implementing marketing strategies and tactics with- in a multinational and cross-cultural perspective. Global marketing strategies and the organizational framework are emphasized.

685 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 indi- dependent basis.

Health Professions

PHYSICAL EDUCATION 5550:

500 MUSCULOSKELETAL ANATOMY I: UPPER EXTREMITY 3 credits
Designed to address the upper portions of the musculoskeletal system in a comprehensive detail. Includes articulations, cytology, histology, neurological integration with lab and practical experiences.

501 MUSCULOSKELETAL ANATOMY II: LOWER EXTREMITY 3 credits
Designed to address the lower portions of the musculoskeletal system in a comprehensive detail. Includes articulations, cytology, histology, neurological integration with lab and practical experiences.

505 ADVANCED STRENGTH AND CONDITIONING 3 credits
This course teaches strength and conditioning programs designed for heterogeneous popula- tions. The course covers high-level sport specific exercise prescriptions that aid injury pre- vention and performance enhancement.

510 INTRODUCTION TO SPORT SOCIOLOGY 3 credits
Provides information to students about the sociological aspects of sport. Delivered in a totally online format, web-based format, or face-to-face format.

518 CARDIORESPIRATORY FUNCTION 3 credits
This course is designed to study the normal structure and function of the respiratory system and how it is affected by different types of disease.

520 SPORT MANAGEMENT 3 credits
This course seeks to explore, acquire, and discuss knowledge within the theoretical and applied management practices of sport, fitness, and instructional programs. Delivered in a totally online format, web-based format, or face-to-face format.

522 SPORTS PLANNING/PROMOTION 3 credits
Analysis of marketing/promotions from a sport manager's perspective. Emphasis on market- ing strategy, tactics, and development in sport delivery systems. Delivered in a totally online format, web-based format, or face-to-face format.

524 SPORT LEADERSHIP 3 credits
Introduces students to current issues related to leadership, management, and supervision. Examines current sport leadership research and governance structure of amateur and profes- sional sport organizations. Delivered in a totally online format, web-based format, or face- to-face format.

526 NUTRITION FOR SPORTS 3 credits
This course will provide an exploration of the consumption, absorption, and recommendation for diet of athletes and the physically active individual.

528 NUTRITION FOR TEACHERS AND COACHES 3 credits
Covers nutritional basics and current topics related to teaching physical education/health and coaching athletes.

536 FOUNDATIONS AND ELEMENTS OF ADAPTED PHYSICAL EDUCATION 3 credits
Principles, components, and strategies necessary in providing motor activities for handi- capped students via application of a neuro-developmental model and alternative methods. Three hour lecture.

538 CARDIAC REHAB PRINCIPLES 3 credits
This course will teach students the core competencies for cardiac rehab professionals, based upon the American Association of Cardiovascular and Pulmonary Rehabilitation Specialists (AACVPR).

540 INJURY MANAGEMENT FOR TEACHERS AND COACHES 2 credits
This course challenges the graduate student to understand ways to provide and care for the safety of individuals they teach.

541 ADVANCED ATHLETIC INJURY MANAGEMENT: UPPER EXTREMITY 4 credits
This course is designed to cover recognition, evaluation, and rehabilitation of upper extremity injuries as well as general medical pathologies of the upper extremity.

546 INSTRUCTIONAL TECHNIQUES IN SECONDARY PHYSICAL EDUCATION 3 credits
Instructional strategies for secondary physical education. The course content is to improve teh teaching skills of students who will be teaching physical education at the secondary level. It is a required course for the physical education licensure.

547 INSTRUCTIONAL TECHNIQUES FOR CHILDREN IN PHYSICAL EDUCATION 3 credits
Instructional strategies for elementary physical education. The course content is to improve the teaching skills of students who will be teaching physical education for children. It is a required course for the physical education licensure.

550 ORGANIZATION AND ADMINISTRATION OF PHYSICAL/HEALTH EDUCATION, INTRAMURAL AND ATHLETICS 3 credits
Corequisites: Study of administration and organization in physical/health education, intramural, and athletic programs.

552 FOUNDATIONS OF SPORT SCIENCE, PHYSICAL AND HEALTH EDUCATION 3 credits
Overview of the emergence of sport science, physical and health education as a profession and the supporting role of the underlying scholarly and scientific disciplines.

553 PRINCIPLES OF COACHING 3 credits
Basic principles for becoming a successful coach. Discussion of principles applying to most sports, players, and coaches. Ten (10) clinical hours required. Delivered in a totally online format, web- based format, or face-to-face format.

562 LEGAL/EthICAL ISSUES IN PHYSICAL AND LEISURE ACTIVITIES 2 credits
Overview of legal and ethical elements of greatest concern to specialists in sport and physical activity. Cases are used to illustrate legal and ethical points. Topics vary. Delivered in a totally online format, web-based format, or face-to-face format.

565 PSYCHOLOGY OF INJURY REHABILITATION 2 credits
This course will address the cognitive and affective aspects of injury and rehabilitation of injury. Emphasis will be given to the stages of rehabilitation and techniques to aid in the rehabilitation process.

570 ORTHOPEDIC INJURY AND PATHOLOGY 3 credits
This course will discuss musculoskeletal pathology and surgical procedures associated with a physically active population.

592 WORKSHOP 1-3 credits
Practical, intensive, and concentrated involvement with current curricular practices in areas related to physical education.

594 STUDENT TEACHING COLOQUIUM 2 credits
Prerequisites: Core courses and program studies courses. Corequisites: 595. Students who hold a bachelor’s degree but no teaching license who are completing the master’s with licen- sure program will meet while completing student teaching to discuss concerns about the stu- dent teaching experience to analyze previous learning as it relates to this future teaching.

595 PRACTICUM: STUDENT TEACHING 8 credits
Prerequisites: Core courses and program studies courses. Corequisites: 594. Student teach- ing for 16 weeks in primary and secondary school settings.

600 BIOMECHANICS APPLIED TO SPORT AND PHYSICAL ACTIVITY 4 credits
Training future professionals and approach to qualitative diagnosis of motor skills for a variety of professional settings. Required clinical/field experiences.

601 SPORTS ADMINISTRATION AND SUPERVISION 3 credits
A course designed to provide the students with a sound theoretical basis of sport admin- istration. May be taught online, web-enhanced, or face-to-face.

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 used in the competitive environment.

604 CURRENT ISSUES IN SPORT AND PHYSICAL EDUCATION 3 credits
This course represents a planned experience in interpretation and articulation of information with the context of selected aspects 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, lec- tures, discussions.

606 STATISTICS: QUANTITATIVE AND QUALITATIVE METHODS 3 credits
Prerequisite: 5000.640. Research methods/designs, statistics (application and interpretation), use of computers and appropriate software as they relate to various disciplines in the area of physical activity.

609 MOTIVATIONAL ASPECTS OF PHYSICAL ACTIVITY 3 credits
The focus of this course is on coaching the mental skills of athletes, coaches, and fitness par- ticipants in physical activity settings.

610 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 10-20 credit/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 pro- fessional competencies needed to become an effective teacher of physical education.

612 GENERAL MEDICAL ASPECTS 4 credits
Covers various topics related to sports medicine and general medical conditions. Students will gain perspectives and exposure to a variety of allied health care professionals.

615 CURRENT TOPICS IN EXERCISE PHYSIOLOGY 3 credits
Class teaches students to be critical readers of the literature. Readings in several areas in exercise science will be done. Exact areas of concentration will vary with the instructor.

620 LABORATORY INSTRUMENTATION TECHNIQUES IN EXERCISE PHYSIOLOGY 3 credits
This course is designed to provide hands-on laboratory experiences for students in the area of exercise science.

630 BUSINESS OF SPORT 3 credits
The focus of this course is related to the important knowledge that administrators should have related to the sport business field.

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.

695 FIELD EXPERIENCE: MASTER'S 1-6 credits
Prerequisite: permission of advisor. Participation in a work experience related to physical edu- cation. The experience may not be part of current position. Documentation of project required.

697 INDEPENDENT STUDY 1-3 credits
Prerequisite: Permission of advisor. In-depth analysis of current practices or problems related to physical education. Documentation of the study required.

698 MASTER'S PROBLEM 2-4 credits
Prerequisite: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in physical education.

699 MASTER'S THESIS 4-6 credits
Prerequisite: permission of advisor. In-depth research investigation. Student must be able to demonstrate necessary competencies to deal with a research problem in physical education.

OUTDOOR EDUCATION 5560:

550 APPLICATION OF OUTDOOR EDUCATION TO THE SCHOOL CURRICULUM 4 credits
Provides knowledge, skills and techniques useful in application of outdoor education to school curriculum.

552 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 materials unique to the process of teaching.

554 RESIDENT OUTDOOR EDUCATOR 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.
OUTDOOR PURSUITS 4 credits
Investigation and participation in practical experiences in outdoor pursuits.

OUTDOOR EDUCATION: RURAL INFLUENCES 3 credits
Prerequisite: 650 or 552. Utilization of resources of rural area as a learning/teaching environment. Content and methodology appropriate for teaching school-age children in rural settings.

OUTDOOR EDUCATION: SPECIAL TOPICS 2-4 credits
(May be repeated with change in topic) Prerequisite: permission of instructor. Group and individual study of special therapies of contemporary concern in outdoor education.

PRACTICUM IN OUTDOOR EDUCATION 2-4 credits (60-120 field hours)
Prerequisites: 550, 552 and permission of advisor. Supervised practical experience with existing or future outdoor education programs. In conjunction with practical work student meets regularly with advisor.

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.

INDEPENDENT STUDY 1-3 credits (70-90 field hours)
Prerequisite: permission of advisor. In-depth analysis of current practices or problems related to outdoor education. Documentation of study required.

MASTER’S PROBLEM 2-4 credits
Prerequisite: permission of advisor. Intensive research study related to a problem in outdoor education or related discipline.

MASTER’S THESIS 4 credits
An original composition demonstrating independent scholarship in a discipline related to outdoor education.

HEALTH EDUCATION 5570:

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.

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.

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).

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.

COUNSELING 5600:

MENTAL ILLNESS AND MEDIA 2 credits
Mental illness is often portrayed negatively in the media. This course focuses on mental illness, stigma, and how movies portray specific mental disorders.

COUNSELING PROBLEMS RELATED TO LIFE-THREATENING ILLNESS AND DEATH 3 credits
Prerequisite: permission. Consideration of the global issues, current research, coping behaviors, support systems and family and individual needs in regard to life-threatening situations.

WORKSHOP 1-3 credits
Special instruction designed as in-service and/or upgrading individuals on current issues and practices in counseling.

PROFESSIONAL ORIENTATION AND ETHICS 2 credits
Addresses professional orientation and ethical standards in the counseling professions as well as an introduction to Department of Counseling programs and missions.

RESEARCH AND PROGRAM EVALUATION IN COUNSELING 3 credits
Overview of research methods and statistics, understanding and conducting counseling research, program assessment and evaluation knowledge.

COUNSELING SKILLS FOR TEACHERS 3 credits
Prerequisite: 631 or 633 or permission. The study and practice of selected counseling techniques can be used by teachers in working with students, parents and colleagues.

ISSUES IN SEXUALITY FOR COUNSELORS 3 credits
A seminar covering, in addition to changing current topics, sexuality across the lifespan, diversity and sexuality orientation, and assessment.

COUNSELING YOUTH AT RISK 3 credits
This course is designed to prepare counselors and other helping professionals to work with at-risk children and adolescents in school and community settings.

INTRODUCTION TO PLAY THERAPY 3 credits
Prerequisites: enrolled in a master’s or doctoral program in counseling or related field, or special nondegree student (i.e., professional counselor). 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.

MARRIAGE AND FAMILY COUNSELING/HERAKETHYS AND PROFESSIONAL IDENTITY 3 credits
This course is designed to help students learn about marriage and family counseling/therapy as a craft profession and about its corresponding ethical codes.

ELEMENTARY/SECONDARY SCHOOL COUNSELING 3 credits
Introductory class; examines elementary and secondary school counseling practices.

INTRODUCTION TO CLINICAL COUNSELING 2 credits
Overview of clinical counseling identity, philosophy, roles, work settings, laws, advocacy, and related professional duties.

COLLEGE ADMISSION COUNSELING I 3 credits
Through readings, websites, class activities, discussion, and experiential projects students will learn underlying skills needed to assist counselors in ten college admission processes.

COLLEGE ADMISSION COUNSELING II 3 credits
Prerequisite: 636. Students will continue to enhance their knowledge in guiding students through the college admission process through extensive field work at surrounding college campus locations.

COUNSELING ADOLESCENTS 3 credits
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.

COUNSELING THEORY AND PHILOSOPHY 3 credits
Examination of major counseling systems including client-centered, behavioral and existential theories. Philosophical and theoretical dimension stressed.

TESTS AND APPRAISAL IN COUNSELING 3 credits
Prerequisites: 6100:601. Study of the nature of tests and appraisal in counseling including reliability, validity, test construction and selection, administration, scoring, and basic interpretation of selected measures.

MULTICULTURAL COUNSELING 3 credits
An examination of multicultural counseling theory and research necessary to work with culturally diverse people.

CAREER DEVELOPMENT AND COUNSELING ACROSS THE LIFE-SPAN 3 credits
Overview of career development and choice over the life-span. Personal, family, and societal factors that affect choice, career choice, and implementation are discussed.

INDIVIDUAL AND FAMILY DEVELOPMENT ACROSS THE LIFESPAN 3 credits
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.

FILIAL THERAPY 3 credits
Prerequisites: 590 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.

TECHNIQUES OF COUNSELING 3 credits
Prerequisites: 625, 643 (pre-Reqs or Coreqs). Corequisites: 669. Study and practice of selected counseling techniques and skills with emphasis on structuring, listening, leading and establishing a therapeutic relationship.

GROUP COUNSELING 4 credits
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.

MARRIAGE AND FAMILY THERAPY: THEORY AND TECHNIQUES 3 credits
An overview of the theory and techniques of marital and family therapy, including exposure to the history, terminology and contributions of significant persons in the field.

CONSULTANT: COUNSELING 3 credits
Prerequisites: 631, 651 or permission. Examination of consultation models with focus on process and product.

ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES 3 credits
Prerequisites: 631 or 633 or permission. Development of a comprehensive articulated guidance and counseling program.

COUNSELING CHILDREN 3 credits
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.

PERSONALITY AND ABNORMAL BEHAVIOR 3 credits
This course will examine several major theoretical approaches to personality and how they account for abnormal and psychopathological behavior related to clinical practice.

DEVELOPMENTAL GUIDANCE AND EMOTIONAL EDUCATION 3 credits
An experimental seminar designed for school counselors/teachers to learn developmental guidance strategies for affective education, classroom guidance, deliberate psychological education and developmental counseling.

TREATMENT IN CLINICAL COUNSELING 3 credits
This course teaches students practical assessment and diagnostic skills related to using the most recent version of the Diagnostic and Statistical Manual of Mental Disorders.

TREATMENT OF MENTAL ILLNESS AND MEDIA 3 credits
This course teaches students practical assessment and diagnostic skills related to using the most recent version of the Diagnostic and Statistical Manual of Mental Disorders.

TREATMENT OF FAMILY THERAPY 3 credits
Prerequisite: 655. In-depth study of theories of interventions which focus on the nature and quality of marital relationships.

SYSTEMS THEORY IN FAMILY THERAPY 3 credits
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.

PREPRACTICUM IN COUNSELING 2 credits
Prerequisites: 643 and 651. Application of clinical knowledge and skills needed for Practicum, including the counseling process, documentation, supervision, and special topics.

PRACTICUM IN COUNSELING 5 credits
Prerequisites: See specific program student handbook and program plan for required prerequisites. Supervised clinical experience including counseling direct service and related professional duties.

PRACTICUM IN PRACTICE 3 credits
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/non-credit.

FIELD EXPERIENCE: MASTER’S 1-10 credits
Prerequisites: permission of advisor and department chair. Placement in selected setting for purpose of acquiring experiences and/or demonstration skills related to student’s counseling program.

INDEPENDENT STUDY 1-3 credits
May be repeated for a total of nine credits) Prerequisites: permission of advisor and department chair. Specific area of investigation determined in accordance with student needs.

ADVANCED COUNSELING PRACTICUM 2 credits
(May be repeated for a total of 12 credits) Prerequisite: 675, 720, 710. Supervised counseling experience in selected settings.

SUPERVISION IN COUNSELING PSYCHOLOGY I, II 4 credits each
Prerequisites: doctoral residency or career choices and experience in supervising graduate student in counseling.

INTRODUCTION TO COUNSELING PSYCHOLOGY 2 credits
Prerequisites: graduate standing. This course is a collaborative program in Counseling Psychology that will introduce to historical foundations of and recent developments in counseling psychology, with an emphasis on contemporary research literature in the field.

THEORIES OF COUNSELING 4 credits
Prerequisites: 7350:630 or departmental permission. Major systems of counseling psychotherapy explored within a philosophy of science framework. Freudian, behavioral, Rogerian, cognitive and other. Includes research, contemporary problems and ethics.

VOCATIONAL BEHAVIOR 4 credits
Prerequisite: 3750:630 or departmental permission. Themes and research on vocational behavior and vocational counseling. Topics include major theories on vocational behavior, empirical research on these theories, applied work in vocational counseling and applied research.

PRINCIPLES AND PRACTICE OF INDIVIDUAL INTELLIGENCE TESTING 4 credits
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.
713 PROFESSIONAL, ETHICAL AND LEGAL ISSUES IN COUNSELING PSYCHOLOGY 3 credits
Prerequisite: Doctoral residency or permission. Examination of major issues in the field of counseling psychology, with focus on the role of the counselor as a professional and as a person, and issues, problems and trends in counseling.

714 EVALUATION OF MENTAL STATUS 4 credits
Prerequisites: completion of 3750:400/500, 3750:420/520, and 3750:750 or 5680:645 or permission. Study of the development, administration, and interpretation of objective instruments for personality assessment (MMPI, CPI, MBTI, 16 PF and selected additional inventories).

715 RESEARCH DESIGN IN COUNSELING I 3 credits
Prerequisite: doctoral residency or permission. Study of research designs, evaluation procedures and interpretation of research reports.

716 RESEARCH DESIGN IN COUNSELING II 3 credits
Prerequisite: doctoral residency or permission. This course is designed for doctoral students utilizing the qualitative approach for conducting research. Theory, methods, and design of qualitative research are reviewed.

717 ISSUES OF DIVERSITY IN COUNSELING PSYCHOLOGY 4 credits
Prerequisites: 3750:630; one semester of practicum work. Critical examination and application of theory and method 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: 3750:630. Philosophical and scientific antecedents of psychology and details of the development of systematic viewpoints in the 19th and 20th centuries.

720 TOPICAL SEMINAR: COUNSELOR EDUCATION AND SUPERVISION 1-4 credits
Prerequisite: permission of instructor. A topical study with a variety of disciplinary input. Staffing will be by department faculty and other professionals in counselor and related fields. A maximum of six credits may be applied to a degree.

722 HOSPITALIZATION TO PLAY THERAPY 3 credits
Prerequisites: enrolled in a master's or doctoral program in counseling or related field, or special nondegree students (i.e., professional counselor). This course is designed to give students an intensive introduction to play therapy from a client-centered perspective. Students will develop competencies in client-centered play therapy.

723 LEGAL AND ETHICAL ISSUES IN COUNSELOR EDUCATION 4 credits
Prerequisite: Admission to the Counselor Education and Supervision Program. Examination of major ethical/legal issues in the field of counseling and marriage and family therapy.

724 PEDAGOGY IN COUNSELOR EDUCATION AND SUPERVISION: THEORY AND PRACTICE 3 credits
This course provides an in-depth study of instructional principles, pedagogy, and evaluation procedures in counselor education and supervision.

725 DOCTORAL PROFESSIONAL SEMINAR IN COUNSELOR EDUCATION 3 credits
Prerequisite: Admission to the doctoral program in Counselor Education and Supervision. To be taken the first Fall term upon admission. This course is required of all Counselor Education and Supervision doctoral students from both Counselor Education and Marriage and Family Therapy tracks. Professional issues in the counseling field and doctoral identity acculturation and development are covered. (Course offered only once per year).

726 DOCTORAL RESEARCH PROPOSAL IN COUNSELOR EDUCATION 3 credits
Prerequisites: 5660:715 and 5100:744. This course provides theoretical and practical aspects of designing dissertation research in counseling and counselor education and supervision and successfully defending a dissertation proposal.

728 ADVANCED DIVERSITY IN COUNSELOR EDUCATION 3 credits
This course examines issues of human diversity broadly, including knowledge, awareness and skills especially related to mental health service and training in counselor education and supervision.

730 USE OF ASSESSMENT DATA 4 credits
Prerequisite: doctoral level status. Study of the methods and materials used to assess individuals and the effective use of the data obtained leading to professional decisions regarding the diagnosis of individuals present condition, and recommendations for appropriate treatment/intervention.

732 ADDICTION COUNSELING I: THEORY AND ASSESSMENT 3 credits
This course is designed to teach graduate-level students the history, foundations, theoretical models, assessment strategies, and diagnostic procedures associated with addictive disorders.

734 ADDICTION COUNSELING II: TREATMENT PLANNING AND INTERVENTION STRATEGIES 3 credits
This course is designed to teach graduate-level students the process of treatment planning and treatment interventions used with addictive disorders.

737 CLINICAL SUPERVISION I 4 credits
Prerequisite: Successful completion of advanced practicum. Instruction and experience supervising graduate students in counseling.

740 CLINICAL SUPERVISION II 4 credits
Prerequisite: Successful completion of advanced practicum and Supervision I. Instruction and experience supervising graduate students in counseling.

755 ASSESSMENT METHODS AND TREATMENT ISSUES IN MARRIAGE AND FAMILY THERAPY 3 credits
Prerequisite: 645. Provides advanced counseling students with the knowledge and skills in assessment methods, techniques and instruments relevant to the practice of marriage and family therapy.

756 OUTCOME RESEARCH IN MARRIAGE AND FAMILY THERAPY 3 credits
Prerequisites: 667, 5901:640, and 744. This course will provide an in-depth examination of marriage and family therapy outcome research.

760 COUNSELING CHILDREN 3 credits
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.

762 COGNITIVE ASSESSMENT 2 credits
Prerequisite: 3750:750 and enrollment in the Collaborative Program in Counseling Psychology. History, principles, and methodology of Cognitive assessment, supervised practice in administration, scoring and interpretation of objective measurements of personality assessment (MMPI, CPI, MBTI, and selected additional inventories).

763 OBJECTIVE PERSONALITY ASSESSMENT 2 credits
Prerequisite: 3750:750. Study of the development, administration, and interpretation of objective measures of personality assessment (MMPI, CPI, and selected additional inventories).

766 APPLICATIONS OF ASSESSMENT 2 credits

785 DOCTORAL INTERNSHIP 3 credits
(May be repeated for a maximum of 6 credit hours.) Prerequisites: completion of 5600:702, 737, and 738. Supervised experience in clinical settings, teaching, supervision, or research. A minimum of 600 clock hours must be completed over two consecutive semesters. Credit/No credit.

796 COUNSELING PSYCHOLOGY PRACTICUM 4 credits
(May be repeated for a total of 12 credits) Advanced counseling psychology students will have supervised training with clients in a variety of settings and will focus on supervised development of specialized theoretical applications. Credit/No credit.

797 INDEPENDENT READING AND/OR RESEARCH IN COUNSELING PSYCHOLOGY 1-5 credits
(May be repeated) Permission of instructor. Independent reading and/or research in an area of counseling psychology under the direction of a faculty member.

895 FIELD EXPERIENCE: DOCTORAL 1-6 credits
(May be repeated) Prerequisite: doctoral candidate status. Placement in selected setting for supervised experience and/or developing skills related to student's doctoral program.

897 INDEPENDENT STUDY 1-3 credits
(May be repeated for a total of nine credits) Prerequisites: permission of advisor and department chair. Specific area of investigation determined in accordance with student needs.

899 DOCTORAL DISSERTATION 1-20 credits
Prerequisites: permission of major doctoral advisor and department chair. Study, design and analysis of counseling program.

SCHOOL PSYCHOLOGY 5620:

600 SEMINAR: ROLE AND FUNCTION OF THE SCHOOL PSYCHOLOGIST 3 credits
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.

610 COGNITIVE FUNCTION MODELS FOR PRESCRIPTIVE EDUCATIONAL PLANNING 3 credits
Prerequisite: Permission of instructor. Consideration of cognitive development theories and their application for educational programming.

611 BEHAVIORAL ASSESSMENT 3 credits
Prerequisite: Permission of instructor. Overview of behavioral theory and its application focusing upon the role of the school psychologist as an agent of behavior change.

613 CONSULTATION STRATEGIES IN SCHOOL PSYCHOLOGY 3 credits
Prerequisite: Permission of instructor. A consideration of consultant roles in the practice of school psychology as related to consultant process and with school and agency personnel, students, teachers, and children.

616 EDUCATIONAL DIAGNOSIS FOR SCHOOL PSYCHOLOGISTS 4 credits
Prerequisites: Permission of instructor. Clinical study and application of current assessment approaches applicable in assessment of children's learning problems.

617 PRACTICUM IN SCHOOL PSYCHOLOGY 4 credits
Prerequisite: Permission of instructor. Laboratory experience in psycho-educational study of individual children who have learning problems in school. (Repeat requirement).

630, 1 INTERNSHIP IN SCHOOL PSYCHOLOGY: FALL/SPRING 3 credits each
Prerequisite: permission of instructor. Full-time paid work assignment under supervision of a qualified school psychologist for an academic year structured according to provisions of State Department of Education. Additional readings required.

640 FIELD SEMINAR I: CURRENT PROFESSIONAL TOPICS/ISSUES IN SCHOOL PSYCHOLOGY 3 credits
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.

641 FIELD SEMINAR II: LOW INCIDENCE/RELATED INQUIRIES 3 credits
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.

675 RESEARCH PROJECT IN SPECIAL AREAS 1-3 credits
Field project in special areas; synthesis of existing knowledge in relation to specific topic.

685 RESEARCH PROJECT IN SPECIAL AREAS 1-3 credits
Prerequisite: Permission of advisor. Thorough study, analysis and reporting in depth of an educational problem: field projects in special areas; synthesis of existing knowledge in relation to specific topic.

697 INDEPENDENT STUDY 1-4 credits
Prerequisite: 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.

698 MASTER'S PROBLEM 2-4 credits
Prerequisite: permission of instructor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in school psychology.

699 MASTER'S THESIS 4-6 credits
Prerequisite: permission of instructor. Thorough study, analysis and reporting in depth of an educational problem: field projects in special areas; synthesis of existing knowledge in relation to specific topic.

SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY 7700:

530 ASPECTS OF NORMAL LANGUAGE DEVELOPMENT 3 credits
(Not open to communicative disorders major) Introduction to acquisition and development of comprehension and production of language -- phonologically, semantically and syntactically. Relates language acquisition to perceptual development of child and looks at function of language in individual, group and family. School.

540 AUGMENTATIVE COMMUNICATION 3 credits
Prerequisites: Graduate standing in speech-language pathology. Overviews augmentative communication systems–candidates, symbol systems, devices, vocabulary, funding. Considerations related to specific topic.

541 MULTICULTURAL CONSIDERATIONS FOR AUDIOLOGISTS AND SPEECH-LANGUAGE PATHOLOGISTS 2 credits
Prerequisite: 7700:110 or graduate standing. This course introduces the multicultural considerations faced by audiological and speech language pathologists providing services to families and individuals with communication disorders.

552 CHILD, ILLNESS AND LOSS 3 credits
This course examines the phenomena of illness, loss and bereavement in modern society with a special emphasis on children and families.
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>553 FACILITATING SUPPORT GROUPS</td>
<td>3</td>
<td>Theories, strategies and skills needed to facilitate support groups for children and adults during a variety of interactions including participation in support groups.</td>
</tr>
<tr>
<td>554 CHILD IN THE HOSPITAL</td>
<td>4</td>
<td>Prerequisite: Permission of instructor. Seminar dealing with special needs and problems of hospitalized child and family. Literature related to effects, separation, illness and stress. Introduction of strategies for coping.</td>
</tr>
<tr>
<td>555 PRACTICUM EXPERIENCE IN A CHILD LIFE PROGRAM</td>
<td>3</td>
<td>Prerequisite: 561 or permission of instructor. Field experience in a child life program and classroom setting, including critical analysis of a currently functioning program and program administration.</td>
</tr>
<tr>
<td>560 SPEECH AND HEARING DISORDERS IN THE PUBLIC SCHOOLS</td>
<td>2</td>
<td>Prerequisite: Permission of instructor. Special attention to speech, language, and hearing disorders in public schools. Special reference to role of teacher of the deaf in identifying and referring student with suspected problems and in working with school clinician.</td>
</tr>
<tr>
<td>561 ORGANIZATION AND ADMINISTRATION IN PUBLIC SCHOOL SPEECH AND HEARING PROGRAMS</td>
<td>2</td>
<td>Prerequisites: Senior or graduate standing or permission. For clinicians who plan to work in public school systems. Covers program requirements and professional/ethical issues related by PL 94-442.</td>
</tr>
<tr>
<td>580 EARLY INTERVENTION FOR PRESCHOOLERS</td>
<td>2</td>
<td>Prerequisite: Graduate status. This course explores model programs currently being offered to the three to five year old population, with and without disabilities at two different levels.</td>
</tr>
<tr>
<td>584 HOSPITAL SETTINGS, CHILDREN AND FAMILIES</td>
<td>3</td>
<td>Prerequisite: Permission of instructor. Focuses on hospital as a major social institution; introduces procedures and functions of the hospital; roles played by various hospital personnel plus cursory knowledge of medical terminology, common childhood illnesses, illnesses and injuries.</td>
</tr>
<tr>
<td>585 DEVELOPMENTAL DISABILITIES</td>
<td>2</td>
<td>Prerequisite: Graduate status. Current practice related to clinical intervention designed for individuals with developmental disabilities. Explores the use of the natural environment and the computer as intervention tools.</td>
</tr>
<tr>
<td>590 WORKSHOP: SPEECH-LANGUAGE PATHOLOGY AND/OR AUDIOLOGY</td>
<td>1-3</td>
<td>Prerequisite: Full admission for a total of six credits. Prerequisite: Group membership. Investigation of particular phase of speech pathology and/or audiology not offered by other courses.</td>
</tr>
<tr>
<td>594 CHILD LIFE INTERNSHIP</td>
<td>5</td>
<td>Prerequisite: Acceptance to the program. Field experience in a child life program at an approved pediatric facility under the supervision of Certified Child Life Specialists.</td>
</tr>
<tr>
<td>602 ASSESSMENT, PLAY AND THERAPEUTIC INTERVENTIONS WITH CHILDREN</td>
<td>3</td>
<td>An overview of the theoretical framework of play and assessment of children’s development and emotional needs. Therapeutic interventions and activities are expected.</td>
</tr>
<tr>
<td>603 CHILD LIFE PROFESSIONAL PRACTICE AND COMMUNICATION</td>
<td>3</td>
<td>Provides the knowledge of child life professional practice, standards of clinical practice, competencies and ethics. Skills related to therapeutic communication with patients, families, and staff will be explored and practiced.</td>
</tr>
<tr>
<td>610 INSTRUMENTATION IN SPEECH PATHOLOGY AND AUDIOLOGY</td>
<td>2</td>
<td>Opportunities to use clinical and research instrumentation in speech and hearing.</td>
</tr>
<tr>
<td>611 RESEARCH METHODS IN COMMUNICATIONAL DISORDERS</td>
<td>3</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. Introductory to experimental design and scientific method.</td>
</tr>
<tr>
<td>615 FLUENCY DISORDERS: ASSESSMENT, COUNSELING, AND TREATMENT</td>
<td>3</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. This course provides information and discussion on theories, classification, diagnosis, and treatment of fluency disorders.</td>
</tr>
<tr>
<td>620 ARTICULATION</td>
<td>2</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. Historical background, current theories and research related to etiology, evaluation and treatment of articulation and phonology disorders.</td>
</tr>
<tr>
<td>623 SUPPORT SYSTEMS FOR INDIVIDUALS AND FAMILIES WITH COMMUNICATION DISORDERS</td>
<td>2</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. Enhances students’ abilities to provide educational information, and create support systems for persons with communicative handicaps and their families.</td>
</tr>
<tr>
<td>624 NEUROGENIC SPEECH AND LANGUAGE DISORDERS</td>
<td>3</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. Prerequisite: current theoretical knowledge related to neuropsychological, neurological, classification and treatment of adults with neurologically based communication disorders.</td>
</tr>
<tr>
<td>626 VOICE AND CLEFT PALATE</td>
<td>3</td>
<td>Prerequisite: Full admission to the SLP program or the school director. Back-ground and current research related to normal vocal and velopharyngeal function as well as strategies, diagnosis, and treatment of voice and cleft palate.</td>
</tr>
<tr>
<td>627 STUTTERING: THEORIES AND THERAPIES</td>
<td>2</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. Course provides information and discussion on theories, classification, diagnosis, and treatment of fluency disorders.</td>
</tr>
<tr>
<td>628 TOPICS IN DIFFERENTIAL DIAGNOSIS OF SPEECH AND LANGUAGE DISORDERS</td>
<td>2</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. May be repeated for a total of four credits. Prerequisite: Full admission to the SLP program or permission of the school director.</td>
</tr>
<tr>
<td>630 CLINICAL ISSUES IN CHILD LANGUAGE</td>
<td>4</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. Focus on current research perspectives on child language disorders and clinical methodologies in language assessment and intervention.</td>
</tr>
<tr>
<td>631 COGNITIVE COMMUNICATIVE ISSUES IN SPEECH-LANGUAGE</td>
<td>3</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. A study of behavioral deficits, stages of assessment, treatment techniques, and principles of cognitive rehabilitation related to closed head injury.</td>
</tr>
<tr>
<td>632 DYSPHAGIA</td>
<td>3</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. Outlines etiology, assessment, and treatment for infants, children, and adults with feeding and swallowing disorders (dysphagia). It provides actual experiences in diagnosis and feeding techniques.</td>
</tr>
<tr>
<td>633 PROFESSIONAL ISSUES</td>
<td>2</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. Ethical, moral, and legal processes within current SLP professional issues are discussed. Students are encouraged to develop personal professional viewpoints and identity.</td>
</tr>
<tr>
<td>639 AUDIOLOGY FOR THE SPEECH-LANGUAGE PATHOLOGIST</td>
<td>3</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. Advanced information on the assessment and competent communication patterns with special orientation toward the speech-language pathologist.</td>
</tr>
<tr>
<td>650 ADVANCED CLINICAL PRACTICUM: SPEECH-LANGUAGE PATHOLOGY</td>
<td>1-6</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. May be repeated). Supervised clinical practicum in evaluation and treatment of speech and language disorders; includes preparation of written reports.</td>
</tr>
<tr>
<td>673 PUBLIC SCHOOL ISSUES IN SPEECH-LANGUAGE HEARING SERVICES</td>
<td>3</td>
<td>Prerequisites: Full admission to the SLP program or permission of the school director (May be repeated). Supervised practice in the evaluation and treatment of speech and language disorders in school settings.</td>
</tr>
<tr>
<td>683 NEUROSCIENCE FOR COMMUNICATIVE DISORDERS</td>
<td>3</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. Familiarizes students with anatomy and physiology of the normal and abnormal nervous system. Discusses identification, management, and course of common disorders of the nervous system.</td>
</tr>
<tr>
<td>690 INTERNSHIP: ADVANCED CLINICAL PRACTICUM: SPEECH-LANGUAGE PATHOLOGY</td>
<td>5</td>
<td>Prerequisite: 594. Field experience in a specialized area in a child life program in an approved pediatric facility under the supervision of a certified child life specialist.</td>
</tr>
<tr>
<td>691 SCHOOL-BASED EXTERNSHIP SEMINAR</td>
<td>1</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. Seminar on the theories, classification, diagnosis, and treatment of speech and language disorders in public schools. Special reference to role of classroom teacher in identifying and referring student with suspected problems and in working with school clinician.</td>
</tr>
<tr>
<td>693 SCHOOL-BASED EXTERNSHIP: SPEECH PATHOLOGY</td>
<td>6</td>
<td>Directed professional experience under supervision of a licensed and certified speech-language pathologist and a University supervisor.</td>
</tr>
<tr>
<td>695 EXTERNSHIP: SPEECH PATHOLOGY</td>
<td>6</td>
<td>Prerequisites: Full admission to the SLP program or permission of the school director. May be repeated once. Clinical practicum in a selected speech-language pathology or audiology facility.</td>
</tr>
<tr>
<td>696 EXTERNSHIP SEMINAR</td>
<td>1</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. Coreq: 695. (May be repeated once). Taken concurrently with externship in speech-language pathology. Review and discussion of issues raised during externship experience.</td>
</tr>
<tr>
<td>697 SPECIAL PROBLEMS: SPEECH PATHOLOGY AND/OR AUDIOLOGY</td>
<td>1-3</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. (May be repeated for a total of six credits) Supervised research or reading in selected topics in speech pathology, audiology, or language disorders.</td>
</tr>
<tr>
<td>699 MASTER’S THESIS</td>
<td>4-6</td>
<td>Prerequisite: Full admission to the SLP program or permission of the school director. May be repeated once for a total of six credits.</td>
</tr>
</tbody>
</table>
718 COCHLEAR IMPLANTS 2 credits
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.

719 COUNSELING IN AUDIOLOGY 3 credits
Prerequisite: admission to the Au.D. program or permission of instructor. Focus on interviewing, communication, and interacting with individuals with hearing impairments, their families, and significant others.

720 PEDIATRIC AMPLIFICATION 3 credits
Prerequisites: 713, 716, 717. The focus of study is on amplification systems and fitting techniques for the pediatric population.

721 EVALUATION AND MANAGEMENT OF BALANCE DISORDERS 3 credits
Prerequisite: admission to the Au.D. program or permission of instructor. Study of the balance mechanism; differential diagnostic assessment of balance disorders including electronystagmography, posturography and rotational testing; rehabilitation of the balance disorders patient includes 1 credit hour lab.

722 AUDIOLOGIC MANAGEMENT OF THE SCHOOL-AGED CHILD 3 credits
Prerequisite: 717. Focus on educational audiometry. Features delivery of audiological services designed to access the school environment for children ages 4-21.

723 AUDIOLOGIC REHABILITATION OF ADULTS 3 credits
Prerequisite: 715. Study of current methodologies employed in the audiological rehabilitation of adults with hearing impairments. Implementation of remedial strategies is emphasized.

724 HISTORY OF AUDIOLOGY 1 credit
Prerequisite: admission to the Au.D. program or permission of instructor. An examination the history of deafness/hearing impairment and the profession of audiology.

725 MEDICAL MANAGEMENT OF AUDITORY DISORDERS 2 credits
Prerequisite: 712. A study of the multidisciplinary approach to medical/surgical management of patients with auditory and vestibular disorders.

726 ELECTROPHYSIOLOGICAL TECHNIQUES IN AUDIOLOGY 3 credits
Prerequisite: 706. Study of evoked responses used in diagnostic audiology, including ABR, MLR, ECochG, ENG, ALR, P300, VER, and SSER.

727 MULTICULTURAL ISSUES IN DEAFNESS 2 credits
Prerequisite: admission to the Au.D. program or permission of instructor. An introduction to Deaf Culture and the audiologist’s roles and responsibilities in planning treatment with members of the deaf community.

728 SEMINAR IN AUDIOLOGY 2 credits
Prerequisite: admission to the Au.D. program or permission of instructor. Selected current topics in audiology with emphasis on review of current literature. Course may be repeated up to six credits.

729 RESEARCH PROJECT IN AUDIOLOGY 3 credits
Prerequisite: admission to the Au.D. program or permission. Completion of a Doctoral Research Project including data collection, analysis, write-up and oral presentation.

730 PRACTICE MANAGEMENT IN AUDIOLOGY 3 credits
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 practice, reimbursement, marketing, record keeping and professional liability.

731 FOURTH YEAR SEMINAR 1 credit
Prerequisite: Admission to the Au.D. program or permission of instructor. Corequisites: 740, 742, 746, 750 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.

732 AUDIOLOGIC TREATMENT ACROSS THE LIFESPAN 4 credits
Study of current methodologies employed in the audiological treatment of people with hearing loss across the lifespan. Implementation of remedial strategies is emphasized.

741 DIRECTED OBSERVATION IN AUDIOLOGY 1 credit
Prerequisite: admission to the Au.D. program or permission of instructor. Introduction to clinical observation in Audiology. Directed observation of clinical practice including audiological diagnosis and audiological rehabilitation are required. Repeatable up to six credits.

742 DIRECTED OBSERVATION IN AUDIOLOGY II 1 credit
Prerequisite: admission to the Au.D. program or permission of instructor. Corequisite: 741. Introduction to clinical practice in Audiology. Directed observation of clinical practice including audiological diagnosis and audiological rehabilitation are required. Repeatable up to six credits.

743 CLERKSHIP II 1 credit
Prerequisite: 752. Supervised clinical practice in audiology during which students will perform discrete clinical tasks while under supervision. Repeatable for up to six credits.

744 INTERNSHIP IN AUDIOLOGY 2 credits
Prerequisite: Credit for 741 and permission. Supervised practicum in audiology requiring the independent performance of basic audiological procedures, including hearing aid management. Repeatable up to eight credits.

745 INTERNSHIP IN AUDIOLOGY II 2 credits
Prerequisites: 744 and permission. Supervised practical audiology in audiology requiring the independent performance of diagnostic audiological, hearing aids, and audiological rehabilitation procedures. Repeatable up to eight credits.

746 GRADUATE AUDIOLOGIST I 3 credits
Prerequisite: 746. Supervised clinical practice in audiology which encompasses audiological assessments and audiological rehabilitation. Repeatable for up to 12 credits.

747 GRADUATE AUDIOLOGIST II 3 credits
Prerequisites: 744 and permission. Supervised clinical audiology in audiology requiring the independent performance of diagnostic audiological procedures, audiological rehabilitation, and vestibular assessment and rehabilitation. Repeatable for up to 9 credits.

748 GRADUATE AUDIOLOGIST III 6 credits
Prerequisites: 748, and permission. Corequisite: 731. Supervised clinical practice in audiology requiring the independent performance of audiological assessment procedures, rehabilitation, and vestibular assessment and rehabilitation. Repeatable up to 24 credits.

749 GRADUATE AUDIOLOGIST IV 2 credits
Prerequisites: 748 and successful completion of the PRAAXIS Examination, Corequisite: 731. Supervised clinical practice in audiology requiring the independent performance of audiological assessment procedures, audiological rehabilitation, and vestibular assessment and rehabilitation. Repeatable up to 24 credits.

750 GRADUATE AUDIOLOGIST V 8 credits
Prerequisites: 750 and permission. Corequisite: 731. Supervised clinical practice in audiology requiring the independent performance of audiological assessment procedures, audiological rehabilitation, and vestibular assessment and rehabilitation. Repeatable up to 24 credits.

751 CLERKSHIP II 1 credit
Prerequisites: Admission to the Doctor of Audiology program or permission of instructor. Directed observation of clinical practice including audiological diagnosis and audiological rehabilitation are required. Repeatable for up to six credits.
631 HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT: SMALL SOCIAL SYSTEMS 3 credits
Prerequisite: graduate status or permission of instructor. This course focuses on understanding the behavior and life cycle development of people as individuals and as members of families and other small groups.

632 HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT: LARGE SYSTEMS 3 credits
Prerequisites: 631 or permission of instructor. This course focuses on the human behavior of people as members of larger social systems including formal and informal organizations, communities and institutions.

646 SOCIAL WELFARE POLICY I 3 credits
Prerequisite: graduate status or permission of instructor. Examines the historical, philosophical and value bases of social welfare as well as the relationship between social work practice, policy and the roles of providers.

647 SOCIAL WELFARE POLICY II 3 credits
Prerequisite: 646 or permission of instructor. This course prepares students with the beginning skills to engage in social problem/policy analysis.

650 ADVANCED STANDING INTEGRATIVE SEMINAR 6 credits
Prerequisite: advanced standing. Provides an integrative view of social work practice with an emphasis on values, foundation knowledge and skills, and evaluation of professional interventions.

651 FOUNDATION IN ADDICTION STUDIES 3 credits
This introductory course provides a broader understanding of theories and issues in the addictions field. The course explores the theories of addiction related to legal and ethical issues; diversity and cultural competence; and the role of addiction in the current health care delivery system.

652 ADDICTION ASSESSMENT AND TREATMENT PLANNING 3 credits
Examines a broad range of instruments, tools, and strategies available for the identification and assessment of substance abuse problems. Content includes four modules: screening, brief intervention and referral (SIBIR), assessment, diagnosis, and treatment planning.

653 EVIDENCE-BASED PRACTICES FOR ADDICTIONS 4 credits
Focuses on knowledge and skills needed for the development and implementation of prevention strategies, treatment approaches, and recovery maintenance in the addictions field. Emphasis is placed on selection and utilization of evidence-based practices.

654 ADDICTION TREATMENT MODALITIES AND MODELS 3 credits
Emphasizes the development and delivery of skills for use of evidence-based group and family therapy practices as they apply to people struggling with substance-related problems.

655 PSYCHOPHARMACOLOGY IN ADDICTION TREATMENT 2 credits
Explores the effects of psychoactive drugs of abuse and principles of pharmacology in the treatment of substance use disorders.

656 SOCIAL WORK PRACTICE WITH GAYS AND LESBIANS 3 credits
Prerequisite: second level graduate status or permission of instructor. This course examines gay and lesbian culture and lifestyles, discrimination based on sexual orientation, and interfering variables appropriate to gay and lesbian populations.

657 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.

658 DIRECT PRACTICE RESEARCH 3 credits
Prerequisite: second level graduate student or permission of instructor. Provides students with advanced knowledge about the methodology of single system design and skills to implement an evaluation study of their intervention with clients.

659 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 in supervision/staff development; and problems encountered.

661 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 hierarchal levels in human service organizations.

662 COMMUNITY ORGANIZATION AND PLANNING 3 credits
Prerequisite: must have completed first year of master’s program. Required for all second year students concentrating on Macro Practice sequence. Prepares students to work in communities and in public and private agencies.

663 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 purposes, and how to agitate and empower diverse community groups.

664 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 of federal, state, and local levels and their impact on communities.

665 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, measurement, design, data collection and analyses employed in program outcome research.

666 FISCAL MANAGEMENT OF SOCIAL AGENCIES 3 credits
Prerequisite: second level graduate student or permission of instructor. This course will concentrate on the financial management of social administration, financial planning and management, principles of economic and fiscal exchange, accountability and fiscal accounting.

667 AGING AND SOCIAL WORK PRACTICE 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 as a field provider.

668 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.

669 SOCIAL WORK PRACTICE: FAMILY AND CHILDREN 3 credits
Prerequisite: second level graduate student or permission of instructor. An examination and evaluation of programs and policies for children and families, including the social environments experienced by children and families in the life cycle and explores intervention strategies and programs to address needs and strengths.

680 SOCIAL WELFARE POLICY 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 substitutive aspects of services.

690 ADVANCED PRACTICE AND POLICY IN SUBSTANCE ABUSE 3 credits
Prerequisite: second level graduate student or permission of instructor. This course provides students with the knowledge and life skills necessary for managing and practice with people involved in substance abuse, evaluating programs, and preventive work.

691 SOCIAL WORK VALUES AND ETHICS 3 credits
Prerequisite: Full admission to the MSW program. This elective ethics course focuses on practical and theoretical ethical issues. Fundamental to ethical decision-making in social work practice are reviewed. Utilized are case materials that illustrate application of normative standards and principles in the NASW Code of Ethics.

692 GROUP WORK PRACTICE 3 credits
Prerequisite: Full admission to the MSW program. Examines the fundamental knowledge and skills required for social work practice with groups across multiple client systems. Knowledge of social work values and ethics is applied as it relates to all aspects of group work. Dynamics of working with special populations will be emphasized (e.g. the effect of the addictive processes and group therapy, age-appropriate communication with children).

693 SPECIAL TOPICS FOR ADVANCED SOCIAL WORK PRACTICE 1-3 credits
Prerequisite: admission to MSW program or permission of program director. Directed study and study of current practice topics and issues. Classes are faced by social work practitioners providing viding services and interventions at advanced levels.

694 THEORIES AND PROCEDURES IN ADDICTION STUDIES 3 credits
Prerequisite: Full admission to the MSW program. Explores historical perspective of addiction abuse in society, models and theories that describe addiction and the effects of addiction on individuals and families; effects of addiction in individuals; and groups. Techniques that have positive outcomes in treatment and prevention fields, and professional issues facing the addiction field.

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 EPIDEMIOLOGIC 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.

NUTRITION AND DIETETICS 7760:

500 NUTRITION COMMUNICATION AND EDUCATION SKILLS 4 credits
Prerequisite: Permission of instructor. Theory and development of communication and education skills essential to dietetics, including: interpersonal communication; interviewing; nutrition counseling; education techniques, media, and current technology.

503 ADVANCED FOOD PREPARATION 3 credits
Prerequisite: permission. Study of advanced techniques of food preparation. Introduction to and interpretation of classic and foreign cuisines. Emphasis on individualized experience, skill development and interpretation of procedures and results.

513 FOOD SYSTEMS MANAGEMENT II 3 credits
Prerequisite: Acceptance into the graduate program or permission of instructor. Advanced concepts in management of diverse service systems relating to achievement of nutritional care goals.

524 NUTRITION IN THE LIFE CYCLE 3 credits
Prerequisite: Permission of instructor. Study of the physiological basis for nutritional requirements, intermediating factors which affect growth, development, maturation and nutritional status from conception through the elderly years.

526 HUMAN NUTRITION 3 credits
Prerequisite: Acceptance into the graduate program or permission of instructor. Corequisite: 543. Application of principles of nutrition, metabolism, and assessment. Analysis and interpretation of current literature.

528 NUTRITION IN MEDICAL SCIENCE II 3 credits
Prerequisite: Acceptance into the graduate program or permission of instructor. Emphasizing nutritional implications of more complex metabolic and pathological conditions as well as nutritional support strategies.

529 NUTRITION IN MEDICAL SCIENCE II CLINICAL 3 credits
Prerequisite: Admission to CP program. Corequisite: 528. Clinical experience in hospitals; emphasis on identification of principles of nutritional care.

543 NUTRITION ASSESSMENT 3 credits
Corequisites: 529 or permission. Application of principles of nutrition and assessment. Analysis and interpretation of current literature.

544 NUTRITION IN MEDICAL SCIENCE LONG TERM CARE - CLINICAL 2 credits
Prerequisite: CP graduate students only. Clinical experiences in long term care facilities for application of principles of nutritional care.

570 THE FOOD INDUSTRY: ANALYSIS AND FIELD STUDY 3 credits
Prerequisite: Permission. Role of technology in extending the food supply. Chemical, physical and biological effects of processing and storage, on-site tours of processing plants.

574 CULTURAL DIMENSIONS OF FOOD 3 credits
Prerequisite: Permission. Study of the chemistry and physics of food components, affecting characteristics of foods. Critical evaluation of current basic and applied research emphasized.

580 COMMUNITY NUTRITION I-LECTURE 3 credits
Prerequisite: Permission of instructor. Corequisite: 581. Socio-cultural aspects of community assessment, program implementation and evaluation, and rationales for nutrition services.

581 COMMUNITY NUTRITION I-CLINICAL 1-3 credits
Corequisite: 580. Field placement in area agencies offering nutrition services. Study of the agency’s goals, organization, and philosophy of nutritional care. Credit/No credit.

582 COMMUNITY NUTRITION II-LECTURE 1-3 credits
Corequisite: 580. Field placement in area agencies offering nutrition services. Study of the agency’s goals, organization, and philosophy of nutritional care. Credit/No credit.

583 HEALTH AND WELLNESS CLINICAL 3 credits
Prerequisite: (CP students only) 581. Field placement in agencies offering health and wellness services related to nutrition. Credit/No credit.

585 SEMINAR IN HEALTH PROFESSIONS 1-3 credits
Prerequisite: permission of instructor. Exploration and evaluation of current developments in health professions.

587 SPORTS NUTRITION 3 credits
Prerequisite: Permission of instructor. In-depth study of energy metabolism and utilization before, during, and after exercise. Factors affecting nutrient needs and peak performance of different athletic populations are emphasized.
Graduate Courses

588 PRACTICUM IN DIETETICS
Prerequisite: approval of advisor/instructor. Practical experience in application of the principals of current issues in nutrition and dietetics.
1-3 credits

590 PROFESSIONAL PREPARATION FOR DIETETICS
Prerequisite: open to those dietetics students in the Didactic Program or Graduate program who plan to apply for a Dietetic Internship. Historical aspects of dietetics and where the profession is going. Specialized areas of dietetic practice are explored. Students prepare the application for dietetic internship.
1 credit

593 NUTRITION FOR ATHLETES
Study of metabolism before, during, and after exercise. Factors affecting nutrient needs and peak performance of different athletic populations.
3 credits

604 ORIENTATION TO GRADUATE STUDIES IN HEALTH PROFESSIONS
Introduction to the concepts and processes necessary for graduate study in health professions.
1 credit

610 MANAGEMENT OF FOOD SYSTEMS
Theoretical concepts in the management of dietetic food service systems and application of principles and procedures to achieve nutritional care goals.
3 credits

615 CLINICAL NUTRITION
Study of Medical Nutrition Therapy (MNT) and its relationship to metabolic and pathological conditions as well as nutrition support strategies.
3 credits

624 ADVANCED HUMAN NUTRITION I
Prerequisites: undergraduate or graduate-level courses in nutrition and biochemistry. In-depth study of human nutrition emphasizing metabolism, physiological functions, and interrelationships of carbohydrates, protein and lipids and the determinants of human energy requirements.
3 credits

625 ADVANCED HUMAN NUTRITION II
Prerequisites: 624 or equivalent in-depth study of human nutrition with emphasis on the utilization, physiological functions and interrelationships of vitamins and minerals.
3 credits

632 ADVANCED FOOD THEORY AND APPLICATIONS
Prerequisites: 520 or permission of advisor/instructor. Advanced study of the chemistry and physics of food components, attesting the characteristics of foods. Critical evaluation of current basic and applied research emphasized.
2 credits

680 CURRENT ISSUES IN NUTRITION
Study of current issues in the field of nutrition science. Each semester that it is offered the course will explore a specific issue relevant to current research and practice in the field of nutrition science. Topics to include biology, immunology, applied nutrition, and epidemiology.
3 credits

685 RESEARCH METHODS IN HEALTH PROFESSIONS
A study of health sciences research methods emphasizing concept and theory development, quantitative and qualitative methodologies.
3 credits

688 PRACTICUM IN NUTRITION AND DIETETICS
Prerequisite: permission of advisor/instructor. A minimum of 150 hours of supervised experience in an approved community setting to acquire skills related to area of specialization.
2 credits

690 RESEARCH READING
Prerequisite: permission of thesis advisor. Supervised reading and research related to approved thesis topic. May be repeated once.
5 credits

694 MASTER'S PROJECT
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.
5 credits

695 INDIVIDUAL INVESTIGATION IN NUTRITION AND DIETETICS
Prerequisite: permission of advisor. Individual investigation and analysis of a specific topic in student's area of specialization of interest at direction of a faculty advisor.
1-3 credits

699 MASTER'S THESIS IN HEALTH PROFESSIONS
Prerequisite: permission of advisor. Supervised research in a specialized area of the health profession which makes a contribution to the field and may lead to publication.
5 credits

NURSING

501 CLINICAL RESEARCH MANAGEMENT
Corequisite: 500. This course provides a discourse concerning the scope of responsibility for professionals coordinating and managing interdisciplinary clinical research, including clinical trials.
3 credits

509 INTERNATIONAL HEALTH
Prerequisite: Admission to MSN program. A comparison of nursing roles and responsibilities in an international environment. The influence of education, ethics, government, demography, and geography on health care will be considered.
2-3 credits

512 GLOBAL PERSPECTIVES OF HEALTH AND HEALTH CARE
Prerequisite: Senior or graduate status. (May be repeated for a maximum of 6 credits) Cultural, political, educational, and economic perspectives of different regions of the world and the impact of these factors on health will be compared and examined.
3 credits

553 SCHOOL NURSE PRACTICUM I
Prerequisite: 5570:521, 523 and 8200:225 or 650; corequisite: 225 or 650 if not previously completed. Emphasis on clinical primary health care nursing to enhance positive health behavior outcomes of well children and adolescents with minor conditions in family, community, and school contexts.
5 credits

554 SCHOOL NURSE PRACTICUM II
Prerequisite: 5570:521, 523; 8200:225 or 650, 620:553. Emphasis on primary health care nursing to enhance positive health behavior outcomes of children/adolescents with minor conditions in family, community, and school contexts.
5 credits

561 ADVANCED PHYSIOLOGICAL CONCEPTS IN HEALTH CARE I
Prerequisite: admission to MSN program. This course presents an in-depth study of physiological processes in the areas of respiratory, renal and endocrine physiology and their interrelationships with therapeutic agents.
3 credits

562 ADVANCED PHYSIOLOGICAL CONCEPTS IN HEALTH CARE II
Prerequisites: 561. This course presents an in-depth study of physiological processes in the areas of respiratory, renal and endocrine physiology and their interrelationships with therapeutic agents.
3 credits

589 SPECIAL TOPICS: NURSING
(May be repeated as new topics are presented) Group studies of special topics in nursing. May not be used to meet requirements for the major in nursing. May be used for elective credit.
1-4 credits

593 WORKSHOPS
(May be repeated as new topics are presented) Selected topics in nursing. May be used to meet undergraduate/graduate requirements at the discretion of the college.
1-4 credits

599 SPECIAL READINGS
Prerequisite: permission of student's advisor or dean. Special readings in an area of concentration may be taken to satisfy elective credit. Special readings may not be used to satisfy requirements of the major.
1-4 credits

602 ADVANCED ADULT/GERONTOLOGICAL ASSESSMENT/FNP
Prerequisite: 608 and admission to Post MSN FNP Certificate Program for Pediatric Nurse Practitioners. Advanced adult/gerontological assessment and clinical reasoning for primary care of the health care nursing of adults with introduction to differential diagnosis and clinical management.
2 credits

603 THEORETICAL BASIS FOR NURSING
3 credits

607 POLICY ISSUES IN NURSING
Prerequisite: admission to MSN program. Analysis of policy issues that impact on nursing and health delivery to diverse populations. Examine methods to shape policy, distribution, and allocation of resources. Web-based course.
2 credits

686 INTRODUCTION TO ADVANCED NURSES IN PRACTICE
Prerequisites: admission to MSN program. An introductory overview of the role and functions of the advanced practice nurse in health care settings.
3 credits

694 MASTER'S PROJECT
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.
3 credits

699 MASTER'S THESIS IN HEALTH PROFESSIONS
Prerequisite: permission of advisor. Supervised research in a specialized area of the health profession which makes a contribution to the field and may lead to publication.
1-3 credits
654 CHILD AND ADOLESCENT HEALTH NURSING III PRACTICUM 2 credits
Prerequisite: 655. Clinical practicum course emphasized on advanced practice in primary health care, using consultation and program development, marketing related to developmental and health promotion of children, adolescents, and their families.

655 CHILD AND ADOLESCENT HEALTH NURSING II 3 credits
Emphasis on primary health care nursing to enhance positive health behavior outcomes of children/adolescents with acute and/or chronic health issues in family/community contexts.

658 CHILD AND ADOLESCENT HEALTH NP RESIDENCY 1-4 credits
Prerequisites/corequisites: Post-MSN CAH certification program students and/or MSN students. May be offered. Opportunity for the advanced graduate nursing practitioner in child and adolescent health.

660 FAMILY PSYCHIATRIC MENTAL HEALTH, APN I PRACTICUM 2 credits
Prerequisite: 608. Corequisite: 661. Development of clinical competencies and therapeutic techniques in the delivery of behavioral health care to individuals.

661 PSYCHIATRIC MENTAL HEALTH, APN 3 credits
Prerequisite: admission to Psychiatric Mental Health Nursing track, 608. Corequisite: 660. Concepts related to mental health promotion and disease prevention for individuals and families are explored with an emphasis on individual interviewing skills and program development.

662 CLINICAL PSYCHOPHARMACOLOGY 3 credits
Prerequisite: 608 or permission of instructor; corequisite: 612. Examines principles of neuroscience, pharmacology and therapeutics for psychopharmacologic agents used to manage adult mental health problems in variety of treatment settings.

663 PSYCHIATRIC MENTAL HEALTH-ACUTE, APN II PRACTICUM 2 credits
Prerequisites: 610, 660, 661. Focus on behavioral health interventions with families and groups. Theoretical framework for direct intervention are examined.

664 PSYCHIATRIC MENTAL HEALTH-ACUTE, APN III PRACTICUM 3 credits
Prerequisites: 660, 661, 665. Concepts related to the management of acute psychiatric problems will be explored with an emphasis upon combining psychotherapy and pharmacotherapy.

666 PSYCHIATRIC MENTAL HEALTH POST MSN RESIDENCY 1-4 credits
Prerequisites: 662, 665, Corequisites: 665, 667. This clinical residency focuses on influencing leadership within a multidisciplinary collaborative environment in complex health systems providing individual, families, and groups with psychiatric mental health care.

667 PSYCHIATRIC MENTAL HEALTH-CHRONIC, APN III PRACTICUM 2 credits

668 PSYCHIATRIC MENTAL HEALTH-CHRONIC, APN II PRACTICUM 2 credits
Prerequisites: 664, 665. Corequisite: 665. Concepts related to the management of chronic psychiatric problems will be explored with an emphasis upon combining psychotherapy and pharmacotherapy.

669 PSYCHIATRIC MENTAL HEALTH-CHRONIC, APN I PRACTICUM 2 credits

670 PSYCHIATRIC MENTAL HEALTH-CHRONIC, APN III PRACTICUM 2 credits
Prerequisites: 664, 665. Corequisites: 667. Students choose clinical settings to develop expertise in providing complex care to selected populations and to advance career goals.

671 PSYCHIATRIC MENTAL HEALTH-SYNTHESIS, APN IV PRACTICUM 2 credits
Prerequisites: 664, 667. Corequisite: 667. Students choose clinical settings to develop expertise in providing complex care to selected populations and to advance career goals.

672 INDEPENDENT STUDY 1-4 credits
Opportunity for advanced graduate nursing practice in a selected area of specialization.

673 ADULT/GERONTOLOGICAL HEALTH NURSING CNS IV 1 credit
Prerequisites: 677, 678. Corequisites: 677. Integration of knowledge and skills for a population of older adults with emphasis on problems of increasing complexity. Issues integral to APN practice are addressed.

674 ADULT/GERONTOLOGICAL HEALTH NURSING CNS I PRACTICUM 2 credits
Prerequisite: admission to Adult/Gerontological Nursing track, and permission of faculty. Corequisites: 610, 612. Emphasis on major categories of pharmacotherapy in adult populations.

675 ADULT/GERONTOLOGICAL HEALTH NURSING CNS II 2 credits

676 ADULT/GERONTOLOGICAL HEALTH NURSING CNS II PRACTICUM 2 credits

677 ADULT/GERONTOLOGICAL HEALTH NURSING CNS III 2 credits
Prerequisite: admission to Adult/Gerontological Nursing track, and permission of faculty. Corequisites: 610, 612. Emphasis on comprehensive care and management of problems common to chronic care and rehabilitation.

678 ADULT/GERONTOLOGICAL HEALTH NURSING CNS III PRACTICUM 2 credits
679 ADULT/GERONTOLOGICAL HEALTH NURSING CNS PRACTICUM IV 3 credits
Prerequisites: Admission to Adult/Gerontological Health Nursing CNS Practicum IV. Corequisites: 621, 622. Clinical management of complex, chronic health problems of adults in primary care settings. Focus on evidence-based practice strategies and evaluation. (KSU 70780)

680 CHILD AND ADOLESCENT HEALTH NURSING IV 3 credits
Prerequisites: 679. Focus on evidence-based knowledge and skills related to pediatric and adolescent health care. Emphasis on implementation of programmatic interventions and evaluation in primary care nursing with a specified population of vulnerable children/adolescents and their families.

685 ADULT AND ADOLESCENT HEALTH NURSING-ACUTE CATE II 3 credits
Prerequisites: 653, 655. Corequisites: 688. Advanced practice in acute and chronic care areas with children with complex acute/chronic conditions, critical care setting, and medical-surgical conditions. Focus on evidence-based practice strategies and evaluation. (KSU 70780)

686 CHILD AND ADOLESCENT HEALTH NURSING-ACUTE CATE II PRACTICUM 2 credits

800 DOCTORAL DISSERTATION II 1 credit
Prerequisite: 899 and permission of the dissertation chairperson. Continuing enrollment to complete the doctoral dissertation research.

810 HISTORY AND PHILOSOPHY OF NURSING SCIENCE 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Students must begin building a foundation for focused intellectual inquiry in a substantive area of nursing.

820 INTRODUCTION TO NURSING KNOWLEDGE DOMAINS 3 credits
Prerequisites: 810 and 815. Introduction to nursing knowledge domains and concepts related to measurement and nursing research including techniques for concept analysis, measurement, and evaluation. Emphasis will be on elements and strategies used in theory building. (KSU 70720)

825 QUANTITATIVE RESEARCH METHODS I 3 credits
Prerequisites: 820 and admission to the Ph.D. Program or permission of the professor. Students must begin building a foundation for focused intellectual inquiry in a substantive area of nursing.

827 ADVANCED HEALTH CARE STATISTICS I 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Focus on advanced statistical methods, including analysis of variance, regression, and analysis of binary data. Emphasis will be on elements and strategies used in theory building. (KSU 70720)

830 QUALITATIVE RESEARCH METHODS I 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Selected qualitative research methods to study nursing phenomena. Focus on qualitative methods. (KSU 70735)

835 NURSING AND HEALTH CARE POLICY 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Focus on qualitative methods. (KSU 70735)

840 NURSING SCIENCE SEMINAR I 3 credits
Prerequisite: 820. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

845 AMNR: APPLICATION OF QUANTITATIVE METHODS 1 credit
Prerequisite: 810. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

848 AMNR: PROGRAM EVALUATION IN NURSING 1 credit
Prerequisite: 810. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

850 NURSING SCIENCE SEMINAR II 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

855 NURSING SCIENCE SEMINAR III 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

860 NURSING SCIENCE SEMINAR IV 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

865 NURSING SCIENCE SEMINAR V 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

870 NURSING SCIENCE SEMINAR VI 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

875 NURSING SCIENCE SEMINAR VII 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

880 NURSING SCIENCE SEMINAR VIII 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

885 NURSING SCIENCE SEMINAR IX 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

890 NURSING SCIENCE SEMINAR X 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

895 NURSING SCIENCE SEMINAR XI 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

896 NURSING SCIENCE SEMINAR XII 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

897 NURSING SCIENCE SEMINAR XIII 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

898 NURSING SCIENCE SEMINAR XIV 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

899 NURSING SCIENCE SEMINAR XV 3 credits
Prerequisite: Admission to the Ph.D. Program or permission of the professor. Seminar on critical analysis of research. Emphasis will be on elements and strategies used in theory building. (KSU 70735)

900 ADVANCED LEADERSHIP IN HEALTH CARE 3 credits
Prerequisite: Doctoral standing or special approval from department. This course focuses on leadership competencies of doctoral-prepared advanced practice nurses.

901 SYNTHEIS AND APPLICATION OF EVIDENCE FOR ADVANCED PRACTICE NURSES 3 credits
Prerequisite: Doctoral standing or special approval from department. This course focuses on leadership competencies of doctoral-prepared advanced practice nurses.

904 PRACTICUM: ACADEMIC ROLE OF THE NURSE EDUCATOR 3 credits
Prerequisites: 881, 882, 883. Precepted study and participation in classroom and clinical teaching. Presentation of a researchable topic. Course may be waived based on submission of an approved portfolio.
**PUBLIC HEALTH**

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**POLYMER ENGINEERING & POLYMERIC SCIENCE**

**POLYMER ENGINEERING**

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<td>727</td>
<td>STRESS ANALYSIS OF POLYMERS AND COMPOSITES</td>
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<td>745</td>
<td>LIQUID CRYSTALS</td>
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**Polymer Science & Polymer Engineering**

**POLYMER ENGINEERING**

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<tr>
<th>Course Code</th>
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<tr>
<td>525</td>
<td>INTRODUCTION TO BLENDING AND COMPOUNDING POLYMERS</td>
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<td>527</td>
<td>MOLD DESIGN</td>
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<td>550</td>
<td>ENGINEERING PROPERTIES OF POLYMERS</td>
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<td>POLYMER ENGINEERING LABORATORY</td>
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**The University of Akron 2015-2016**
135
Graduate Courses

747 POLYMER COLLOIDS
3 credits
Prerequisite: permission of instructor. Colloidal dispersions, phase stability, aggregation structures, surface dynamics, kinetics of polymer colloids. Emulsion and solution polymerization, organic/inorganic hybrid materials, coating technology. Rheology of colloidal polymers.

749 PHASE TRANSITIONS IN POLYMER BLENDS AND ALLOYS
3 credits
Prerequisite: permission of instructor. Elucidating thermodynamics of polymer blends, block copolymers, crystalline/liquid crystalline polymers, and kinetics of phase transitions. Structure development and modeling of reactive polymer blends.

761 INJECTION AND COMPRESSION MOLDING FUNDAMENTALS
2 credits
Prerequisite: permission of instructor. This course provides fundamental knowledge in physical, thermal, and rheological properties required for injection and compression molding including theoretical and experimental aspects of various molding processes.

770 POLYMER NANOCOMPOSITES
3 credits
Prerequisite: Permission of instructor. Develops understanding on synthesis, characterization, processing, and properties of polymer nanocomposite materials involving nanoscale fillers in conjunction with thermosetting, thermoplastic, and elastomeric polymer matrices.

773 ADVANCED POLYMER COATING TECHNOLOGY
2 credits
Prerequisite: 641 or equivalent or permission of instructor. The polymeric binders used in water-borne reaction-cureable 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.

777 MODELLING OF NANOSCALE MATERIALS
3 credits
Prerequisite: Permission of instructor. Introduces molecular simulation methods (Monte Carlo, molecular dynamics) and their application to polymer-related materials at the molecular and coarse-grain levels.

778 ADVANCED FUNCTIONAL POLYMERS
2 credits
Prerequisite: 611, 641, or permission of instructor. This course focuses on the recent development of functional polymers for applications as advanced materials and smart devices, which requires the attendant to possess some prior knowledge of polymer science and polymer engineering from such 600-level course(s) as mentioned above.

797 ADVANCED TOPICS IN POLYMER ENGINEERING
2-3 credits
(May be repeated) Prerequisite: permission of instructor. Advanced special topics intended for Ph.D. students in polymer engineering.

896 PRELIMINARY RESEARCH
1-15 credits
(May be repeated) Preliminary investigation of Ph.D. dissertation subject.

899 DOCTORAL DISSERTATION
1-15 credits
(May be repeated) Prerequisite: Successful completion of Ph.D. qualifying exams. Original research by a Ph.D. candidate.

POLYMER SCIENCE

9871:

601 POLYMER CONCEPTS
2 credits
Prerequisite: 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 SYNTHESIS AND CHEMICAL BEHAVIOR OF POLYMERS
2 credits
Prerequisite: 601 or permission of instructor. 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
1-3 credits
Prerequisite: permission of instructor. Research projects of limited nature assigned to student entering polymer science program. Intended to familiarize student with typical problems and techniques in this field.

607 POLYMER SCIENCE SEMINAR I AND II
1 credit each
Prerequisite: limited to first- and second-year resident 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
Prerequisite or corequisites: at least one of the courses 601, 631, 674, 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. Introduction to 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: 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: 3150:313 and 3150:314 or permission of instructor. Presentation of statistical properties 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: 674 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
1-6 credits
Prerequisite: permission. For properly qualified candidate for master’s degree. Supervised original research in polymer science, under direction of faculty member, followed by submission of thesis.

701 POLYMER TECHNOLOGY I
2 credits
Principles of compounding and testing, processing principles and types of operation, design principles.

702 POLYMER TECHNOLOGY II
2 credits
Prerequisite: 701 or permission of instructor. Rubber industry, rubber compounding and processing, vulcanization methods, physical testing, plastics preparation and compounding, manufacturing processes. Lecture/laboratory.

703 POLYMER TECHNOLOGY III
2 credits
Prerequisite: 702 or permission of instructor. Flow properties, extrusion, calendaring and milling, molding, mixing, bond operations, engineering properties, rubber springs, viscoelastic analysis design considerations. Lecture/laboratory.

704 CONDENSAUTION POLYMERIZATION
2 credits
Prerequisite: 3150:463/563 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: 3140:463/563 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: 3150:463/563 or permission of instructor. Covers the scope, kinetics and mechanisms of polymerizations initiation by anions, carbenium ions and cationic ions as well as polymerizations induced by coordination catalysts. Living polymerizations, molecular weights, molecular weight distributions, stereochemistry, solvent effects, counter-ion effects, temperature effects, Ziegler-Natta catalysts, olefin metathesis, functionalization of polymers, graft and block copolymer synthesis.

711 SPECIAL TOPICS: POLYMER SCIENCE
1-3 credits
Prerequisite: permission. Topics of current interest in polymer science, encompassing chemistry, physics or technological aspects of macromolecular substances, including laboratory work where applicable.

712 SPECIAL TOPICS: POLYMER SCIENCE
2 credits
Prerequisite: permission. Topics of current interest in polymer science, encompassing chemistry, physics or engineering aspects of macromolecular science.

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.
APPENDICES

Grievance Procedures for Graduate Students

Purpose
The procedures set forth in this document are intended to provide graduate students with a formal channel of appeal and redress of grievances arising out of their academic and/or employment relationship with the University.

Procedures
1. Any graduate student who believes that he or she has valid grounds for a complaint shall attempt to resolve the problem through a conference with the faculty member involved, the department head, and/or the graduate advisor. Following that, the student may attempt to resolve the problem with the assistance of the academic dean. A graduate student presenting a case to the academic dean must provide a full written statement of the grievance, together with all appropriate supporting material. When or if the problem has not been adequately solved at that level or 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: a) the Dean of the Graduate School wishes to have a Hearing Committee render a recommendation on the grievance; or b) the student wishes to appeal the recommendation of the Dean of the Graduate School. The student must notify the Senior Vice President and Provost 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 two working days. This notification shall include the following information: that a grievance has been filed; the nature of the grievance; and the parties involved.

6. If the charged party in that grievance admits the validity of the grievance, the Chairperson of the Hearing Committee shall waive the hearing and shall direct an appropriate resolution in consultation with the Hearing Committee.

7. If the party charged in the grievance denies the validity of the grievance, the Hearing Committee shall conduct the hearing.

Hearing Committee
A Hearing Committee shall be established as follows:
1. Chairperson – The Chairperson shall be a member of the graduate faculty with full membership, but not from a department involved in the proceedings. This Chairperson shall be selected by the Senior Vice President and Provost and shall serve for only one grievance proceeding. The Chairperson shall conduct the hearing and shall vote only in the case of a tie.

2. Members – Four members shall be selected as follows:
   a. From the complainant’s department - a graduate student not directly involved, selected jointly by the Department 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. From the complainant’s department - a faculty member not directly involved, 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.
   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.
   e. A Hearing Committee shall be organized anew each and every time a grievance is brought forth. A Hearing Committee shall serve through the adjudication and resolution of the complaint.

Hearing Procedure
1. The hearing must take place within two weeks of the Hearing Committee’s formation.

2. At least three working days prior to the hearing, the Hearing Committee Chairperson shall provide the Hearing Committee and the Parties involved with:
   a. The student’s written statement of the grievance.
   b. Written notification of when and where the Hearing Committee shall meet.
   c. A copy of “Grievance Procedures for Graduate Students” and all relevant documents.

3. Each party shall be required to appear in person before the Hearing Committee to present his/her case. Each party may have an advisory/colleague present to protect his/her rights if so desired. However, the parties shall speak and act on their own behalf. Witnesses may be called to present evidence on behalf of the complainant or the charged person. The use of tape recorders is prohibited, except as may be required to accommodate persons with disabilities.

4. All parties shall be entitled to an expeditious 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.
Family Educational Rights and Privacy Act (FERPA)

A student has a right to:
- Inspect and review education records pertaining to the student;
- Request and amendment to the student's records; and
- Request a hearing (if the request for an amendment is denied) to challenge the contents of the education records, on the grounds that the records are inaccurate, misleading, or violate the rights of the student.

The parent or eligible student has a right to:
- Inspect and review the student's education records;
- Request the amendment of the student's education records to ensure they are not inaccurate, misleading, or in otherwise in violation of the student's privacy or other rights.
- Consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent.
- File with the U.S. Department of Education a complaint concerning alleged failures by the school to comply with the requirements of FERPA; and
- Obtain a copy of the school's FERPA policy.

Disclosure of Personally Identifiable Information
- FERPA regulations list conditions under which “personally identifiable information” from a student’s education record may be disclosed without the student’s prior consent.
- Disclosure may be made to authorized representatives of the U.S. Department of Education, the Office of Inspector General, or state and local education authorities. These officials may have access to education records as a part of an audit or program review, or to ensure compliance with Student Financial Assistance program requirements. (Representatives of the Department include research firms that are under contract with the Department to conduct studies of financial aid procedures, using student information provided by the schools selected for the study. The term also includes the Student Financial Assistance program public inquiry contractor.)
- Disclosure may be made if it is in connection with financial aid that the student may receive a request from the Immigration and Naturalization Service (INS) or the Federal Bureau of Investigation (FBI) for access to a student’s records. Such a request may be granted only if the student information is needed to determine the amount of the aid, the conditions for the aid, the student's eligibility for the aid, or to enforce the terms or conditions of the aid.
- Disclosure may be made to the student’s parent, if the student is dependent on the parent, as defined by the Internal Revenue Service. If the student receives more than half of his or her support from the parent, under the IRS definition, the student is a dependent of the parent. (Note that the IRS definition is quite different from the rules governing dependency status for the Student Financial Assistance programs.)
- Disclosure may be made to organizations that are conducting studies concerning the administration of student aid programs on behalf of educational agencies or institutions.

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 expectations. 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 Records.
- Right to File a Complaint
You have the right to file a complaint with the Family Educational Rights and Privacy Act Office at the Department of Education, 600 Independence Avenue, S.W., Washington, D.C., 20202-3887, (202) 260-8801, concerning any belief you may have that The University of Akron has failed to comply with the provisions of FERPA.

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. Directory (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 change online or submit the appropriate form to the Office of the University Registrar for any or all items they do not wish designated as directory information about themselves. If students request a change in their list of designated directory information, this change shall only be effective from the date they submit their signed request or online changes.

Note: The above is a very general summary of the Family Educational Rights and Privacy Act (FERPA) and the University's policy implementing this law. The full text of the University's policy implementing FERPA (University Rule 3359-11-08) may be accessed at:
http://www.uakron.edu/ogc/UniversityRules/
# 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 Technology Transfer using the standard University of Akron invention disclosure form. This form provides a guide to describing and identifying the invention broadly and referencing specific results. Those persons thought to be possible inventors should also be identified on this form.

Patents on inventions made by University faculty, staff, students or anyone using University facilities are automatically owned by The University of Akron, as provided by Ohio Revised Code Section 3345.14. The final decision as to inventorship is a technical legal conclusion and will be made in the course of preparing a patent application by the patent attorney handling the application.

## Proprietary Information

Those engaged in sponsored research may also be involved with developing or receiving proprietary information owned by others outside the University (e.g., sponsors such as corporations and individuals seeking certain research from the University). The University and the principal investigator may have agreed to maintain this proprietary information in confidence. In some situations, proprietary information of a sponsor may be provided to you or other project investigators during a research project. The sponsor desires, in these situations, to keep the information confidential (or secret) for as long as possible.

You are free to use the confidential information in the course of the project and discuss it with other students or faculty members engaged in that project. However, you may not use the information on other projects, nor may you discuss it with other individuals not involved with that project. While these commitments could delay public access to your thesis for a specified time, it will not delay acceptance or approval of your thesis/dissertation nor delay your graduation date.

The University and principal investigator must have written personal commitments from anyone working on a project involving and securing proprietary information. Therefore, all research students are required to execute the Confidentiality Agreement. Prior to the start of your research, it is the responsibility of the research director to inform you in writing of any restrictions on the research with a copy also sent to the Office of Research Administration, if your research is subject to confidentiality provisions. You are also to be informed by the research director about the scope of the research that is covered by any confidentiality provisions.

If you have any questions as to what information is proprietary, seek guidance from your project’s principal investigator or your faculty research advisor.

## Questions of Authorship and Inventorship

In the event you think you have been improperly omitted from the list of authors, you should first discuss the matter with your faculty advisor. If you have further questions or consider the matter unresolved, you should inform 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.

Note: The above is a very general summary of Intellectual Property Rights and Obligations. Full text of the University’s policy on research, copyright, and patents (University Rule 3359-02-05) may be accessed at: http://www.uakron.edu/ogc/UniversityRules
DAVID RITCHIE, Professor of Communication (August 1990) B.A., Georgetown College; M.A., Ph.D., Louisiana State University, 1971.

DAVID ROKE, Assistant Professor of Civil Engineering (2011) B.E., M.S., University of Pittsburgh; Ph.D., University of Kentucky, 2014.

NITA SAHA, Professor of Polymer Science (2011) M.S., University of Rochester; Ph.D., Johns Hopkins University, 1997.

PRISCILLA K. SAKAZELES, Professor of Philosophy; Department Chair of Philosophy (1995) B.A., University of Florida; M.F.A., Florida State University, 1989.

ATEF S. SALEEB, Professor of Civil Engineering (1983) B.Sc., Cairo University; M.Sc., Ph.D., Purdue University, 1981.

LINDA M. SALIGA, Associate Professor of Mathematics (1993) B.S.E., Missouri Western State College; M.Ed., M.S., Ph.D., University of Missouri-Rolla, 1993.

ANTHONY SAMANGY, Professor of Archaeology; Department Chair of Anthropology and Classics (2002) B.E., Bangalore University; M.S., Indian Institute of Technology; Ph.D., The Pennsylvania State University; M.S., University of Central Florida; Ph.D., University of Akron, 2007.

VARUNEE F. SANGANNANAVANICH, Associate Professor of Education (2010) B.S.W., Thammasat University; M.S., Chulalongkorn University; Ph.D., The University of North Carolina at Charlotte, 2003.

LEANN SCHAEFFER, Associate Professor of Nutrition and Dietetics (2009) B.S., Miami University; M.A., Kent State University, 1991.

WILLIAM H. SCHMIDT, Jr., Associate Professor of Electrical and Computer Engineering; Assistant Professor of Computer Engineering (2002) B.E., Bangalore University; M.S., Ph.D., The Pennsylvania State University; M.S., Ph.D., Purdue University, 1993.

JULIA A. SPIKER, Associate Professor of Psychology (2006) B.A., University of California at Los Angeles; M.A., Ph.D., Ohio State University, 2008.

JAMES R. SLOWIAK, Associate Professor of Chemistry (1983) B.S.F., Ohio University; Ph.D., University of Cincinnati, 1988.

ALEXANDER STAPIOTIS, Assistant Professor of Chemical Engineering (2002) B.S., Georgia Institute of Technology; Ph.D., The University of Akron, 1995.


LINDA M. SUBICH, Associate Dean of the Bicentennial College of Arts and Sciences; Professor of Psychology; Fellow, Institute for the Study of Development and Gerontology (1981) B.S., University of Wisconsin at Milwaukee; M.A., Ph.D., The Ohio State University, 1981.

LANCE M. SVEHLA, Associate Professor of English (1997) B.A., University of Nebraska; M.A., Ph.D., The Ohio State University, 1995.


TANG TANG, Associate Professor of Communication (2010) B.A., Communication University of China; M.A., San Diego State University; Ph.D., University of Arizona, 2008.

HOSSEIN TAVAZI, Assistant Professor of Biomedical Engineering (2010) B.A., Tecah University; M.A.Sc., K.N. Toosi University of Technology, Tehran; Ph.D., University of Toronto, 2006.


HUONG TRANG, Assistant Professor of Electrical Engineering (2011) M.S., University of Science, Vietnam; Ph.D., University of Virginia, 2004.


BRAHMA TSANG, Associate Professor of Education (2008) B.B.A., M.A., Tamkang University; Ph.D., University of Missouri at Columbia, 2008.

MARSHA TSANG, Associate Professor of Biomedical Engineering (1996) B.S.M.E., The University of Akron; M.S., Ph.D., Purdue University, 1996.

LENNY TUSCHE, Associate Professor of Psychology; Department Chair of Philosophy (1994) B.M., University of Toronto; M.M., The Julian College, 1997.


ANN L. USHER, Professor of Music; Director of the School of Music (2000) B.M., University of Oregon; M.A., University of North Carolina at Chapel Hill, 1993.


ROBERT J. VEILLETTE, Associate Professor of Electrical and Computer Engineering; ABET Coordinator (August 1990) B.S.E.E., Vincennes University; Ph.D., California State University; M.S.E.E., Clemson University; Ph.D., University of Illinois at Urbana, 1990.

MARC W. VERSTRAETE, Professor of Mechanical Engineering; Fellow, Institute for the Study of Development and Gerontology (1981) B.S., University of Wisconsin at Milwaukee; M.A., Ph.D., The Ohio State University, 1981.


MARTHA C. WITZCO, Associate Professor of Psychology; Director, Institute for Life-Span Development and Gerontology (1971) B.A., Bard College; M.A., Ph.D., The Ohio State University, 1974.

RICHARD P. WITTMAN, Associate Professor of Management; Associate Dean of the Buchtel College of Arts and Sciences; Professor of Psychology; Director and Senior Fellow of the Institute for the Study of Development and Gerontology (1997) B.A., Bard College; M.A., Ph.D., State University of New York at Buffalo; Ph.D., West Virginia University, 1975.


BRAD WRIGHT, Associate Professor of Psychology (2006) B.A., University of Arkansas; M.A., Ph.D., Kent State University, 2006.

JAMES C. WU, Assistant Professor of Psychology (1983) B.A., University of Missouri at Columbia; M.A., Ph.D., University of California at Berkeley, 1987.


IMMO ZUBER-BROCK, Associate Professor of Psychology (1980) B.A., University of Munich; Ph.D., University of California at Berkeley, 1986.
The University of Akron, 2015-2016

The University of Akron

MR. A. B. CHURCH*
1931-1933, M.A., Litt.D. (acting)

CHARLES M. KNIGHT*
1896-1901, D.D.

H. KENNETH BARKER*
1980-1989, M.A.

C. K. A. THOMPSON
1933-1938, M.A., Litt.D.

WILLIAM H. BEISEL

RAYMOND E. EVANS*
1921-1931, M.A.

J. PATRICK WILBER
2011, Ph.D., LL.D.

PARKE R. KOLBE*, 1913-1925, Ph.D., LL.D.

H. J. COLWELL
1925-1926, Ph.D.

RICHARD C. REIDENBACH
1968-1970, Ph.D.

WILLIAM H. CHAMBERLAIN
1890-1891, D.D.

S. H. McCOLLESTER*

ANCELY E. SIMMONS*
1937-1947, B.A., M.A., Ph.D.

GEORGE F. ZOOK*

PARKE R. KOLBE*
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GLENN A. ATWOOD, 1988-1989, Ph.D. (acting)
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IRVING F. MILLER, 1993-1998, Ph.D.
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ROBERTA DEPOMPEI, 2012-2014, Ph.D. (interim)
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College of Polymer Science and Polymer Engineering
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GEORGE R. NEWKOME, 2006-2007, Ph.D. (interim)
STEPHEN Z. CHENG, 2007-2014, Ph.D.
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Wayne College
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CHARLES BULGER*, 1933-1951, Ph.D., Litt.D. (Dean of Graduate Work)
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EDWIN L. LIVELY*, 1968-1974, Ph.D. (Dean of Graduate Studies and Research)
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THE UNIVERSITY OF AKRON IS AN EQUAL EDUCATION AND EMPLOYMENT INSTITUTION


It is the policy of this institution that there shall be no discrimination against any individual at The University of Akron because of age, color, creed, handicap, national origin, race, religion, sex, or status as a veteran.

The University of Akron will not tolerate sexual harassment of any form in its programs and activities and prohibits discrimination on the basis of sexual orientation in employment and admissions.

The nondiscrimination policy applies to all students, faculty, staff, employees, and applicants.

Complaints of possible sex and other forms of discrimination should be referred to:

EE/AA Office
ASB, Room 138B
Akron, Ohio 44325-4709
330-972-7300

Title IX - Issues for Students:
Michael Strong
Deputy Title IX Coordinator
Student Union, Room 306
330-972-6048

Title IX - Issues for Employees:
Bethany Prusky
Deputy Title IX Coordinator
ASB, Room 125L
330-972-6195

Title IX - Policy information and inquiries concerning the application of Title IX:
Mark G. Stasitis
Title IX Coordinator
ASB, Room 125B
330-972-2352

Policy information on the Americans with Disabilities Act may be obtained from:
ADA Coordinator
ASB, Room 140B
330-972-5146

The United States Department of Education
Office of Civil Rights