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The University of Akron

GRADUATE BULLETIN
Calendar 2002-2003

Fall Semester 2002
Day and evening classes begin Mon., Aug. 26
*Labor Day (day and evening) Mon., Sept. 2
Spring 2003 graduation applications due Mon., Sept. 16
Veterans Day (classes held; staff holiday) Mon., Nov. 11
Last day to withdraw for Fall 2002 Fri., Nov. 15
**Thanksgiving Break Thu.-Sat., Nov. 28-30
Classes resume Mon., Dec. 2
Final instructional day Sat., Dec. 7
Final examination period Mon.-Sat., Dec. 9-14
Commencement Sat., Dec. 14
Winter Intercession Mon.-Sat, Dec. 16-Jan. 11

Spring Semester 2003
Day and evening classes begin Mon., Jan. 13
*Martin Luther King Day Mon., Jan. 20
Summer 2003 graduation applications due Mon., Feb. 17
*Presidents' Day Tue., Feb. 18
Spring Break Mon.-Sat., Mar. 24-29
Last day to withdraw for Spring 2003 Fri., Apr. 11
Final instructional day Sat., May 3
Final examination period Mon.-Sat., May 5-10
Commencement Sat.-Sun., May 10-11

Summer Sessions I, II and III 2003
First 5- and 10-week Sessions begin Mon., May 12
Fall 2003 graduation applications due Thurs., May 15
Commencement for School of Law Sun., May 18
*Memorial Day Mon., May 26
First 5-week Session ends Sat., Jun. 14
Second 5- & 10-week Sessions begin Mon., Jun. 16
*Independence Day Fri., Jul. 4
First 10- and second 5-week Sessions end Sat., Jul. 13
Third 5-week Session begins Mon., Jul. 21
Second 10- and third 5-week Sessions end Sat., Aug. 23
Summer Commencement Sat., Aug. 23

*Classes cancelled 1 day and evening
**Classes cancelled from Wednesday at 5 p.m. through Monday at 6:45 a.m.

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


Inquiries
Address inquiries concerning:
Graduate study to the Graduate School, The University of Akron, OH 44325-2101. 330-972-7663.
Athletics to the Athletic Director, The University of Akron, OH 44325-5201. 330-972-7080.
Registration, scheduling, residency requirements, and veteran’s affairs to the Office of the Registrar, The University of Akron, OH 44325-6208. 330-972-8300.
Undergraduate admissions information, campus tours, housing, and transfer credit to the Office of Admissions, The University of Akron, OH 44325-2001. 330-972-7077 or toll-free inside Ohio, 1-800-665-4884.
The University switchboard number is 330-972-7111.

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

Disclaimer
While every effort is made to provide accurate and up-to-date information, the University reserves the right to change, without notice, statements in the Bulletin series which include, but are not limited to rules, policies, procedures, fees, curricula, courses, programs, activities, services, schedules, course availability, or other matters. For example, programs may be modified due to limited resources or facilities, unavailability of faculty, insufficient enrollment, or such other reasons as the University deems necessary.
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• Application for Graduate School
• Application for Graduate Assistantship
Important Phone Numbers

University Area Code (330)
All phone numbers are subject to change without notice.
For numbers not listed, call the University Switchboard 330-972-7111.
General Campus Information Center 330-972-INFO (4636)

Graduate School
Vice President for Research, & Dean, Graduate School
Dr. George R. Newkome ..................................... 972-6458
Associate Dean, Graduate School
Dr. Lathardus Goggins ...................................... 972-6783
Assistant to the Vice President for Research, & Dean Graduate School
Mrs. Dolli Quattrochi Gold ................................ 972-6737
Senior Executive Administrative Assistant
Mrs. Cynthia S. Angerstien .................................. 972-6458
Administrative Assistant Senior Coordinator, Graduate Degree Completion
Ms. Heathen A. Blake ....................................... 972-7664
Coordinator, Graduate Financial Assistance
Mrs. Karen L. Caswell ....................................... 972-6310
Coordinator, Graduate Degree Completion
Ms. Jessica N. Fritz ......................................... 972-5169
Coordinator, Graduate School Admissions
Miss Brenda J. Henry ...................................... 972-7695
International Admissions Officer
Ms. Theresa M. McCune .................................... 972-6045
Graduate Student Government
Mrs. Diane L. Sotnak ........................................ 972-7664

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

Colleges
Buchtel College of Arts and Sciences .................... 972-7880
Community and Technical College ....................... 972-7220
College of Business Administration ............. 972-7040
College of Education ...................................... 972-6970
College of Engineering .................................... 972-7818
College of Fine and Applied Arts ...................... 972-7564
College of Nursing ........................................ 972-7551
College of Polymer Science and Polymer Engineering 972-7500
The University of Akron-Wayne College ............. 1-800-221-8308
NEOUCOM (Northeast Ohio Univ. College of Medicine) 325-2511
University College ....................................... 972-7066

Other Offices
Accessibility, Office of .................................... 972-7928
TTY/TDD .................................................. 972-5764
Buchtelite, The (student newspaper) .................. 972-7919
Careers Program, Arts and Sciences ................. 972-5714
Center for Child Development .......................... 972-6210

Cooperative Education Programs .................... 972-7747
Counseling, Testing, and Career Center
Counseling .................................................. 972-7082
Testing ..................................................... 972-7084
English Language Institute ............................ 972-7544
Financial Aid, Office of Student ....................... 972-7032
Scholarships (non-University) ......................... 972-6369
Scholarships (University) .............................. 972-6343
Student Employment ..................................... 972-7405
Student Volunteer Program ............................. 972-6841
Work Study ............................................... 972-8074

Gardner Student Center
Director's Office .......................................... 972-7866
Information Center ....................................... 972-INFO (4636)
Health Services, Student ................................. 972-7808

Information Centers
Gardner Student Center ................................. 972-INFO (4636)
Polsky's High Street Info Center ....................... 972-3531
Polsky's Main Street Info Center ..................... 972-3532

International Programs ................................ 972-6194
Academic Advising ....................................... 972-6278
Immigration ................................................. 972-6170
International Admissions ................................ 972-6405

Libraries, University
Bierce Library .............................................. 972-7236 or 972-7497
Law Library ............................................... 972-7330
Photocopying, Bierce Library ......................... 972-6278
Science and Technology Library ..................... 972-7195
University Archives ...................................... 972-7870

Multicultural Development, Office of...
Academic Support Services/Access and Retention . 972-6769
Pan-African Culture and Research Center .... 972-7030
Parking Services .......................................... 972-7213
Peer Counseling Program .............................. 972-8288

Photocopying
Bierce Library .............................................. 972-6278
DocuZip (Gardner Student Center) ................. 972-7870
Polsky's Center ........................................... 972-2043
Registrar, Office of the University ............. 972-8300
Graduation Office ....................................... 972-8300
Records and Transcripts .............................. 972-8300
Residence Life and Housing ......................... 972-7800
Student Affairs, Vice President for Special Services for Students . 972-6048
Student Conduct .......................................... 972-7021
Study Abroad .............................................. 972-7460
Ticketmaster ................................................. 972-6684
Tours (of the University) ............................. 972-7077
University Program Board ............................ 972-7014
Veterans Affairs Coordinator and Counselor ... 972-7838
WZIP-FM, Radio Station .............................. 972-7105

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 stretched along the Ohio Canal. The growth of the W. Knight's laboratory would evolve the world's first metropolitan, state-assisted university.

Excels in Many Other Areas

The University of Akron now offers 18 doctoral degree programs and four law degree programs as well as more than 90 master's degree programs and options. Students and adult students of all economic, social, and ethnic backgrounds. Committed to a diverse campus population, the University is at the forefront of all Ohio universities in recruiting and retaining minority students. The University of Akron intends to be recognized as the public research university for Northern Ohio.

For more than 130 years, The University of Akron has been an active participant in Akron's renaissance as a commercial and artistic endeavor, leader in the metropolitan area's intellectual and professional advancement, a center for internationally lauded research efforts, a source of enrichment, education, and vitality for northeast Ohio. Our history is a long and proud one—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 services to the community. The University pursues excellence in undergraduate and graduate education and in distinction in selected areas of graduate instruction, inquiry, and creative activity.

CHARTING THE COURSE

Today, the University stands on the threshold of a fundamental shift in thinking and a sweeping recommitment of institutional talents, energies and resources toward attaining even greater excellence. The blueprint for change is "Charting the Course," an ongoing and dynamic process of strategic thinking that begins with the University's fundamental strategies and builds to where the institution envisions itself in the future.

Objective and documented excellence tells us that The University of Akron is already the leading public university in northern Ohio and signals a clear promise and destiny. We have framed our vision as a Statement of Strategic Intent:

The University of Akron intends to be recognized as the public research university for Northern Ohio.

That recognition will be gained by building upon the documented excellence that has enabled the University to achieve its current high level of achievement, and by strategic investments, partnerships and initiatives.

The University will continue to build a leadership position in information technology—to better prepare our students for today's technologically advanced knowledge economy, to make learning more accessible and dynamic, and to increase the effectiveness of the University's planning and operations.

We will attain technological and programmatic excellence throughout the University by taking full advantage of our metropolitan setting and long-standing relationships with area business and industry. We will act decisively to form and optimize strategic partnerships that will benefit our students and our community.

Enabling student success will continue to be the hallmark of The University of Akron. We recognize, importantly, that students are the responsibility of all of us at the University. We will work to strategically shape and determine the quality, diversity and size of our student body. And, we will strive to offer students the chance to apply what they are learning in the classroom through hands-on research, service, internships, cooperative education or similar opportunities.

Student success is our number one priority.

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 are all agreed on 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 respect the needs of students, faculty, contract professionals, staff, administrators, maintenance and service personnel, and everyone else whose work and dedication enables us to pursue our individual and collective academic goals.

Together we maintain an intellectual culture that is accessible, disciplined, free, safe, and committed to excellence. By our behavior with one another we endorse a culture of diversity, celebrating the uniqueness of the individual and developing our understanding and tolerance of differences in gender, ethnicity, age, spiritual belief, sexual orientation, and physical or mental potential. We take responsibility for sustaining a caring culture, nurturing growth and fulfillment in one another and in the larger communities with which we are apart. We insist on a culture of civility, united in our rejection of violence, coercion, deceit, or terrorism. We work to increase collaboration, cooperation, and consensus within rational dialogue characterized by mutual respect and consideration. Ours is a responsible culture. We expect each member of our community to carry out responsibly his or her duties for preserving the integrity, quality, and decency of our environment and our discourse.

Expectations and Responsibilities

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

Inside the Classroom

Inside the classroom, faculty are expected to respect the sincerity of the teaching/learning process by honoring their commitment to students in terms of fairness, enthusiasm, dedication, and we respect the needs of one another and in the classroom, fairness, for 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 sincerity 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 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 and duty 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.

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 D30 North Lane Salle Street, Suite 2400 Chicago, IL 60601-1800-621-7440 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.

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

Specialized Accreditations:
AACSB-The Association to Advance Collegiate Schools of Business
American Association of Nurse Anesthesia-Council on Accreditation
American Chemical Society
American Dietetic Association
American Psychological Association
Association of Collegiate Business Schools and Programs
Committee on Allied Health Education and Accreditation of American Medical Association
Council for the Accreditation of Counseling and Related Educational Programs (provisional)
Council on Social Work Education
Foundation for Interior Design Education Research
International Association of Counseling Services
National Accrediting Agency for Clinical Laboratory Sciences
National Association of Education for Young Children
National Association of Schools of Art and Design
National Association of Schools of Dance
National Association of Schools of Music
National Council for Accreditation of Teacher Education
National League of Nursing Accrediting Commission
North Central Association for Teacher Education
Ohio Board of Nursing
Ohio Department of Health
Ohio State Department of Public Instruction

The School of Law is accredited by or holds membership in the following organizations:
American Bar Association
Association of American Law Schools
League of Ohio Law Schools
Council of the North Carolina State Bar
State of New York Court of Appeals

The University also holds membership in the following educational organizations:
American Association of Colleges for Teacher Education
American Association of Colleges of Nursing
American Association of Community Colleges
American Association of State Colleges and Universities
American Council on Education
American Society for Engineering Education
American Society for Training and Development
Council of Graduate Schools
Department of Baccalaureate and Higher Degree Programs (National League for Nursing)
Institutional Council on Education for Teaching (associate)
Midwestern Association of Graduate Schools
National Association of Graduate Admission Professionals
National Association of State Universities and Land-Grant Universities
North American Association of Summer Sessions
Ohio College Association
Ohio Continuing Higher Education Association
United States Association of Evening Students
University Council on Education for Public Responsibility
University Continuing Education Association

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

Accreditation assures that degrees are recognized and approved by select regional and national education associations, societies and councils. Accreditation serves two fundamental purposes: quality assurance and institutional and program improvement.
The Campus

Currently, the Akron campus covers 191 acres and encompasses 77 buildings. Although the University of Akron has been in existence since 1911, when the Akron campus covered 13 acres and encompassed 10 buildings, today's Master Plan, "A New Landscape for Learning," is well underway with the addition of new academic, administrative, and recreational buildings in addition to major renovations to several existing buildings.

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 the Akron area and to nearby neighboring communities. 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 air travel, the 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 at 125 East Mill Street is an instructional classroom and laboratory facility for Polymer Engineering and Science. It was opened in 1983.
- **Ayers Hall.** Named for the first dean of the College of Engineering, Frederic E. Ayer, Ayer Hall provides classrooms and offices for the department of Physics and interim meeting space for Gardner Student Center.
- **Ballet Center.** This center, located at 354 East Market Street, houses dance studios, a choreography laboratory, faculty offices, and offices for the School of Dance, the Ohio Ballet, and the Dance Institute.
- **Bierce Library.** Named for General Lucas V. Bierce, an Akron mayor, lawyer, historian, state senator, philosopher, philanthropist, and soldier, the building opened in the spring of 1973. Located on the second floor, the library houses audio-visual materials, maps, and microforms. University Libraries, including science and technology materials located in the Bierce Library, have holdings of more than 2.8 million items.
- **Buchtel Hall.** Originally built in 1870, this structure was destroyed by fire in 1899 and rebuilt in 1901. The administrative center of campus, Buchtel Hall was completely restored in 1975 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.
- **Buckingham Center.** Located at 220 Wolf Ledges Parkway in the renovated Union Depot Building. This building houses the offices of the Associate Provost, Multicultural Development, Office of Multicultural Development, Black Cultural Center, Academic Achievement Programs, classrooms, and a repository of African-American history.
- **Business Administration Building.** This $31 million facility, located at 259 South Broadway, was completed in 1991. The structure consolidates office, classroom, and laboratory facilities for the department of the College of Business Administration, the George W. Davenport School of Accountancy, and the departments of Finance, Marketing, and Management.
- **Carroll Hall.** Adjacent to the Gardner Student Center, Carroll Hall houses offices of the Faculty Senate, New Student Orientation, Adult Focus, and interim space for Gardner Student Center; in addition to classrooms, laboratories, and offices for the department of Counseling and Developmental Programs.
- **Center for Child Development.** The former Girl Scout regional headquarters building at 108 Fir Hill has been renovated to accommodate the University Center for Child Development.
- **Central Services Building.** At 185 South Forge Street, this building houses the administrative service departments of Central Stores, Printing Services, and the Mail Room. These departments will be relocated in Fall 2002 to the Student and Administrative Services Building.
- **Computer Center.** This building at 185 Carroll Street houses the University's information services offices, main computer, and engineering workstations.
- **Crouse Hall.** Crouse Hall houses the Department of Geology, the Center for Environmental Studies, classrooms, and some of the College of Education offices.
- **E.J. Thomas Performing Arts Hall.** Named for Edwin J. Thomas, prominent industrialist and dedicated member of the University Board of Trustees from 1952 to 1979, this cultural center, which cost more than $13.9 million, was formally opened in October 1973. Designed to accommodate concerts, operas, operettas, and other productions, the hall is a masterpiece in architecture, acoustics, and creative mechanisms. It stands at the corner of University Avenue and Hill Street.
- **Firestone Conservatory.** On the first floor of Guggenbain Hall, this facility provides classrooms, practice rooms, and offices for music.
- **Folk Hall.** This building, at 150 East Exchange Street, provides modern, well-equipped laboratories for the Mary Schiller Myers School of Art. The School's available for the arts, photography, electronic painting, multimedia, ceramics, and computer design. The Emily Davis Art Gallery is also located in the facility.
- **Gardner Student Center.** This complex was named for Donhred H. Gardner, who was appointed dean of men in 1926, the University's first dean of students in 1937, the first dean of administration in 1955, and later in 1958, was promoted to vice president, retiring in 1962. This facility, which serves as a unifying force in the life of the institution, houses nearly 80 percent of all non-academic activities on campus. It provides bowling alleys, meeting rooms, lounges, student activity and publication offices and workrooms, a game and billiard room, a bookstore, bank facilities, a computer laboratory, and the Gardner Theather, which includes a state-of-the-art computer learning center.
- **Goodyear Polymer Center.** Construction of the $17 million Polymer Science Building was completed in 1991. This two-tower structure of steel, concrete, and glass, located at 167 University Avenue, houses offices for the Vice President for Research and dean of the Graduate School and the dean of the College of Polymer Science and Engineering. The facility features a 200-seat lecture hall, offices, classrooms, and a laboratory and Department of Chemical Engineering.
- **Guggenbain Hall.** Complementing the E.J. Thomas Performing Arts Hall, this facility was constructed directly across Mill Street. The $5.5 million structure, dedicated in October 1976, houses the Office of the Dean of the College of Fine and Applied Arts and departmental space for the School of Dance, Theatre and Arts Administration, and the School of Music. In addition to providing more than 40 student practice rooms, the complex houses a small experimental theater and a 300-seat recital hall.
- **James A. Rhodes Health and Physical Education Building (JAR).** This structure on Buchtel Common is connected to Memorial Hall by a pedestrian bridge over the Union Street, and connects to intercollegiate basin field seating 7,000, an indoor jogging track, physical education laboratories, classrooms, the athletic director's office, the sports information office, athletic offices, and a ticket office.
- **Hower House.** Located on Fire Hill, this 19th-century mansion has been designated a Historic Place by the National Park Service.
- **Knight Chemical Laboratory.** This $10 million complex is named in honor of Dr. Charles M. Knight, who taught the first courses in rubber chemistry at Buchtel College as early as 1903. Opened in 1979, the building houses the Department of Chemistry and features many innovative laboratories with the most sophisticated safety equipment, as well as classrooms and faculty and administrative offices.
- **Kolbe Hall.** Named for the first president of the Municipal University of Akron, this building was remodeled for the School of Communication at a cost of $7.3 million. Additions to and remodeled space within the building have provided space for faculty and staff offices, TV studio areas, WZIR-FM radio station, computer labs and classrooms. The building also houses the Paul A. Darrow Theatre.
- **Leigh Hall.** Named in honor of Warren W. Leigh, first dean of the College of Business Administration, this facility on Buchtel Common is under renovations that will convert the existing classrooms/office building into a state-of-the-art "Distance Education Center." 
- **Paul E. Martin University Center.** Located at 105 Fir Hill, the Paul E. Martin University Center has changed from a private club serving dues-paying members to a University-operated restaurant and banquet center. The table service restaurant is open for lunch between 11:30 a.m. and 2 p.m. Business and departmental functions, banquets, receptions, and parties can be scheduled during the hours of 7:30 a.m. to 10 p.m. The office of the Department of Development is located on the upper floors of the building.
- **McDowell Law Center.** Named for C. Blake McDowell, prominent local attorney, and a life benefactor of the University, the center houses School of Law opened in 1973. At a cost of $2.5 million, it provides space for the law library, classrooms, moot courtroom, appellate-review office, seminar rooms, and faculty offices. A $2.8 million addition provides library and support space, and a $1.5 million second
expansion has linked McDowell Law Center to West Hall, providing additional administration office space. The law complex stands at the corner of University Avenue and Wolf Lodges Parkway.

Memorial Hall. Dedicated to the memory of Summit County men and women who died in World War II, this is the companion building to the JAR. It contains offices of the Department of Sport Science and Wellness Education, a main gymnastics, a gymnastics area, a combative arts area, a motor learning lab, a human performance lab, an athletic training lab for sports medicine, a weight training and fitness center, an athletic training cage, the main sports office and classrooms.

Oacek/Natorium. The $6 million natorium, completed in 1998, is a 70,000-square-foot structure that houses an Olympic-size swimming pool with adjacent spectator seating area, and locker rooms and showers. The center also houses nine racquetball courts as well as weight room facilities. The natorium is named for former Ohio State Senator Oliver Oacek.

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

Olson Research Center. This facility, adjacent to the new Polymer Engineering Academic Center on Forge Street, houses spaces for the Department and Institute of Biomedical Engineering and the Department and Institute of Polymer Engineering.

Physical Facilities Operations Center. This building, located at 1464 Hall Street, houses physical facilities offices, craft shops, the central heating and cooling distribution center, and the Campus Police/Security Department.

The Polsky Building. The largest academic building in Ohio, this renovated downtown department store is home to the Graduate School. Also located here are the University Archives, Archives of the History of Psychology, the School of Speech and Hearing Sciences, the School of Physical Education, the Department of Physical Education, the School of Social Work, the Continuing Education Office, the Office of International Programs, the Associate Vice President for Research and Technology Transfer, the Office of Research Services and Sponsored Programs, the Institute for Policy Studies offices, and the Center for Health and Social Policy. A University food service facility and a campus book store are in operation on the High Street level (third floor).

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

Robertson Dining Hall. This building at 248 East Bucshel Avenue has a cafeteria and dining room for students, as well as the campus infirmary, which provides health services for the University.

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

Schrank Hall. Named for Harry P. Schrank, longtime member and chairman of UA's Board of Trustees, this four-story, 200,000-square-foot facility which adjoins Auburn Science and Engineering Center, is composed of two academic structures and a parking deck. Schrank Hall North contains space for the Counseling, Testing, and Career Center (including placement services), some Civil and Mechanical Engineering faculty offices and research space, a College of Engineering/Physics study area, the Biology lab and Learning Resources Center, and general purpose classroom space. Schrank Hall South provides facilities for the School of Family and Consumer Sciences.

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

Student Administrative Services Building. This building located at 186 E. Mill Street houses the Registrar's Office, Cashier, Parking, Library and Receivables, Student Financial Aid, and the Office of Accessibility.

Whitby Hall. Named for G. Stafford Whitby, a pioneer in the development of polymer science, this building opened in 1975. Houses in this facility are some polymer science laboratories and the Department of Chemical Engineering. Occupants will vacate the building (temporarily to ASEC) for a major remodeling project from January 2002 to August 2003.

Zook Hall. Named to honor George F. Zook, president of the University from 1925 to 1933, this Bucheri common facility houses the College of Education offices of the Dean, Associate Dean for Academic Affairs, Assistant Dean for Student Affairs, and admission advisement offices. Other facilities include a lecture room that seats 245, general classrooms, a computer laboratory, a distance learning classroom, a Center for Literacy, two technology-enhanced demonstration classrooms, two 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 technologically developed age, for up-to-date facilities and equipment. Many of these facilities are described below.

Buchtel College of Arts and Sciences

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

The Department of Chemistry is located in Knight Chemical Laboratories. The department offers outstanding instrumentation, such as nuclear magnetic resonance spectrometers, research-grade gas chromatographs, and ultraviolet spectrophotometers, and other modern research tools for identification and characterization of compounds. The Chemical Stores facility maintains an inventory of alcohol, acetone, ethyl spirits, and other solvents.

The Department of Classical Studies, Anthropology and Archaeology has a Macintosh-based computer lab which gives easy student access to a collection of several thousand original digital images of ancient Mediterranean buildings, artifacts and art works, to the Perseus program, a digital multimedia database on the Greek world (20,000 images and most of Greek literature both in Greek and in translation), and to the Internet and the Web. The lab includes an extensive suite of graphic software, three dual-monitor authoring workstations as well as desktop machines, flatbed and film scanners, and an accelerated 100 base-T local network connected to the University backbone. Digital investigation and creation are a regular interdisciplinary. Anthropological laboratories contain hominid fossil casts, archaeological collections, and a variety of equipment used in field research projects as well as computers for use with faculty and student research projects using ArchView and qualitative software packages. The Archaeology Program is affiliated with the Institute for Health and Social Policy.

The anthropology website is maintained by the chairperson and current course listings, the "Notes from the Field" Newsletter and information on research.

The Department of Computer Science is located on the second floor of the new College of Arts and Sciences Building. Students in Computer Science have access to a wide variety of computing facilities, operating environments, languages and software in laboratories maintained in and by the department. In addition to a PC lab, a UNIX lab, and a Graduate Student lab that has a dedicated cluster computer available for research and instruction. Our facilities are state-of-the-art and provide a broad range of experience that is attractive to potential employers.

Department computers provide access to the Internet, the World Wide Web, and the extremal resources of the Ohio Supercomputer Center in Columbus. In addition, there are connections to the VBNs Internet II network. Many department computers are accessible via the University dial-up lines or the Internet. The proximity of the faculty offices to the computer laboratories encourages regular interaction between students and faculty. Staff members are always available to help students. A friendly, informal, helpful atmosphere makes the department an enjoyable place to learn and gain practical experience.

The Department of Economics is housed on the fourth floor of the College of Arts and Sciences Building in a modern office complex with space for faculty and graduate students. Economics as a discipline has become increasingly analytic. In keeping with this trend, the department recently opened a new computer laboratory for faculty and students. The lab is equipped with the latest equipment, running in a Windows environment. In addition, the department has a variety of software, including economic tutorials, word processing programs, SAS/MVS, SAS/IML, and SAS/PC. The lab is also equipped with laser printers. Network access allows faculty to search for books, articles, and electronic databases, remotely from either OhioLink or the World Wide Web. The lab is located in close proximity to the faculty offices which facilitates interaction between faculty and students, and enhances the students' educational experiences.

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

The Department of Geography and Planning has an instructional computer lab and specialized labs for research and production work in cartography, geographic information systems (GIS), remote sensing, and soils analysis. These labs have a variety of cartographic GIS, remote sensing, database, spreadsheet and statistical analysis software as well as digitizers, scanners, printers and plotters. The department also houses a diverse collection of maps, aerial photographs and satellite images.

The Department of Geology has a state-of-the-art computer laboratory. This laboratory includes an advanced instrumentation field and laboratory suite. The suite includes a X-ray diffractometer, ion-coupled plasma spectrometer, atomic absorption spectrometer, ion chromatograph, coal and sulfur analyzers, oxygen bomb calorimeter, gravimeter, resistivity gear, refractoscope, spectrometers, microscopes, image analysis systems, mass spectrometers, computer microscopes, light microscopes, wide-range network plotter, flat-bed and slide scanner, core laboratory, research microscopes, well-equipped darkroom, rock saws, automated thin-section equipment, portable rock core, Gnodings solder probe, a four-wheel-drive vehicle, and two 15-passenger vans.

Background Information
The Department of History occupies one wing on the second floor of the new College of Arts and Sciences Building. This new office complex includes a multimedia computer room and a web-based computer work in close proximity to faculty offices, thus enhancing students-faculty interaction. The endowed interdisciplinary Sally A. Miller Humanities Center is housed within the department and offers fellowships, spon­ sors' speakers, and runs pedagogical workshops. The online Journal of Northeast Ohio History, which offers both editorial experience and opportunities of scholarly publication, has been inaugurated. The department also contains facilitated seminar rooms, where graduate students work closely with faculty. More information about the department can be found on its website: www.uakron.edu/history.

The Department of Modern Languages has a Language Resource Center in Olin Hall. The Language Resource Center contains facilities for students to listen to audiotapes and view videotapes, to look up words in a class or individually. The computer 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. In addition, dictionaries are available for student use. Additional information about the department and its programs is available on the Internet at www.uakron.edu/modlang.

The Department of Philosophy is located on the second floor of Olin Hall. It houses a small computer lab and a 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 multiple research laboratories used for faculty and student research projects, laboratories for experiments associated with coursework and several microcomputer labs for undergraduate and graduate student use. Most of the department’s computers are networked. The department has an e-mail system and a web page (www.physics.uakron.edu) maintained by the faculty and students. The department instructors use this system to distribute course materials and entertain questions and feedback from students. The smallness of the department provides ample opportunity for interaction with all faculty members. This interaction combined with the laboratory spaces, helping facilities, and reading room offers a diverse learning experience to the student in an attractive and hospitable environment.

The Department of Political Science maintains an instructional computer laboratory consisting of 16 computers and a scanner. This laboratory is used by Political Science students assigned research tasks requiring improved computer and Internet skills.

The Department of Psychology is located on the third floor of the new College of Arts and Sciences Building. The department maintains five computer labs that are available for graduate students in Psychology. All labs have access to the Internet. Supported throughout the labs are statistical packages which include SAS, SPSS and LISREL. WordPerfect and MS Word are available throughout the department for word processing. A full-time research programmer/analyst provides hardware and software support for the department and writes custom software for computerized research. In addition to the computer labs, a counseling clinic is maintained by the department and has videotaping capabilities for the study of counseling processes and outcomes. Also, the department’s Center for Organization Research engages in outreach to the greater Akron community and provides applied research and expertise for specific student needs. The Center for Psychology and Counseling includes research areas for individual computer research and for small group behavior research, and a Test Room where current psychological testing materials are kept. Additional information about the department, its faculty, and its programs is available on the Internet at www.uakron.edu/psychology.

The Department of Sociology facilities include research laboratories used for funded research projects. The Newmen Library, providing many current professional journals, is open for students’ use. The department is also affiliated with the Institute for Health and Social Policy.

The Department of Statistics maintains two instructional computer labs. One of these labs is used for class laboratory sessions for the general education mathematics requirement course, Basic Statistics, and is located in the College of Arts and Sciences Building, Room 108. The other lab, located in the College of Arts and Sciences, Room 109, is being used for various undergraduate and graduate statistics courses. The Center for Statistical Consulting, housed in the department and maintained by the Buchtel College of Arts and Sciences, provides opportunities for students to gain valuable experience in the practical applications of statistics while interacting with faculty and clients.

The Department of Theoretical and Applied Mathematics is located on the second floor of the new College of Arts and Sciences Building. This department 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 and new facilities are being added by the department. The department also provides Internet access to students and faculty to keep current on subjects of interest. Access to the facilities at the Ohio Supercomputing Center in Columbus, Ohio and the VBNET Internet NN network is also available in a number of facilities in the department. The department’s website at www.math.uakron.edu provides updated information about the department, its facilities, faculty, and programs. The proximity of the faculty offices to the computer laboratories encourages regular interaction between students and faculty. Staff members are always available to help students. A friendly, informal, helpful atmosphere makes the department an enjoyable place to learn and gain practical experience.

College of Business Administration

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

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

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

The Goodyear Tire and Rubber Company Lecture Hall, the building’s largest classroom, is equipped with a state-of-the-art audio-visual system capable of projecting textbook material, transparencies, slides, videotapes, computer screen images, and the like onto the room’s 10-by-10 foot screen. Other classrooms also offer multi-media capabilities.

Facilities for seminars, continuing education programs, and student organization meetings are provided in the John F. Murphy Executive Room and adjacent small-group meeting room.

College of Education

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

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

The Department of Sport Science and Wellness Education prepares students for careers in teaching, athletic training for sports medicine, sport and exercise science, community and school health education, coaching, related recreational fields, and related health fields. There are four academic programs: athletic training, kinesiology, motor behavior, teaching skills (microteaching), and computer utilization in physical and health education. The department has access to the James A. Rhodes Health and Physical Education Building (classrooms, the main gym, an indoor running track, a multi-purpose room, and four teaching station areas), Memorial Hall (classrooms, as well as small and large gyms), Oceask Natatorium (a classroom, a swimming pool, nine raquetball courts, and a weight room), and Lee Jackson Field (an outdoor running track and two softball fields).

The Department of Curricular and Instructional Studies includes the areas of early childhood, middle childhood, secondary (adolescent to young adult), preschool to grade 12 education, and the areas of special education as an intervention specialist for early childhood (P-3 mild/moderate/intensive), mild to moderate (K-12) or moderate to intensive (K-12). Initial teacher preparation programs are available at the undergraduate, post-baccalaureate, and master’s degree levels. The early childhood program prepares teachers to teach age three to grade three. The middle-childhood program prepares teachers to teach grades four through eight. The secondary program prepares teachers for teaching age three to grade three. The middle-childhood program prepares teachers to teach grades four through eight. The secondary program prepares teachers in grades seven to eleven to teach language arts, mathematics, science, social studies, and the arts; in grades 9-12, or vocational education (grades 4-12). The F-12 program prepares teachers of foreign language, music, dance, drama, or visual arts. Endorsements are available in computer/technology, reading, and teaching English as a second language. The special education options prepare graduate students to become classroom teachers and supervisory personnel.

The department also offers the Postsecondary Technical Education degree, which prepares students for teaching/ training and other personnel positions at the post-secondary level and for business and industry settings. The University Center for Child Development, a collaborative unit with the College of Fine and Applied Arts,
provides care for children while serving as an experimental learning site for teacher education students.

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

College of Engineering

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

The Department of Biomedical Engineering is located in the Olson Research Center and has classrooms, instructional laboratories and research laboratories. There are nine major research laboratories located in the Biomedical Engineering Department.

The Musculoskeletal Biomechanics Laboratory is equipped with materials testing equipment and finite element analysis capabilities. The Imaging Devices, Detector and Sensors Laboratory has instrumentation for design, production, and analysis of medical imaging devices. The Image Processing Laboratory is built around Sun Sparc workstations, two of which are equipped with image processing accelerators. The system also includes a real-time display and database and large digital images are available for students to use in individual research and class projects.

The Human Interface Laboratory conducts research in virtual reality, telemanipulation, biofeedback therapy and minimally invasive surgery. The Rehabilitation Engineering Laboratory is equipped to conduct collaborative research on problems related to stroke, head injury and amputee patients. The Biomedical Instrumentation Laboratory has continuous wave and Doppler ultrasonic equipment, temperature sensing devices, and blood pressure and flow monitoring equipment.

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

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

The Department of Chemical Engineering is located in Whitby Hall with research laboratories in the North Tower of the Auburn Science and Engineering Center.

The Applied Colloid and Surface Science Laboratory has a state-of-the-art laser light scattering facility including a Laser argon-ion laser, a vibration isolated optical bench, a Brookhaven correlation analyzer, and a programmable data analysis system. The Biochemical and Environmental Biocengineering Laboratory is a satellite center of the Ohio Bioprocessing Research Consortium, housing a state-of-the-art HPLC-MS with additional luminescence, UV/VIS, and RI detectors. The labs are well equipped with several bioreactor assemblies, Sorvall RC-5C refrigerated super centrifuge, Perkin-Elmer UV/VIS spectrometer and LS-50B luminescence spectrophotometer, and on-line NADP H fluorometers. 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 rotatory evaporator, and a Labconco lyophilizer.

The Catalysis Research Laboratory is equipped with high pressure and high temperature IR reactor system with a Nicolet Magna IR 550 Spectrometer Series II, a Nicolet Magna IR-500 Spectrometer E.S.P. and a Balzers Prisma OMIG 200 Mass Spectrometer for in situ catalyst preparation, in situ characterization, temperature programmed desorption of NO, H2, and CO, and in situ reaction studies. The Multiphase and Solids Processing Laboratory is equipped to do research in filtration and processes from porous media. The labs are equipped with a gamma ray instrument for measuring porosity of packed columns and filter cakes, a Frazer Test to measure air permeability of filter media, a Hac Royco BR8 particle counter, a Ceta Meter and a Brookhaven EKA Streaming Potential Instrument for measuring zeta potentials. An optical system is set up to measure shear stress and morator characteristics, optical characteristics, and seismic and electrical resistivity equipment for geophysical exploration of soil and rock deposits. The laboratory also has a computer-controlled cyclic triaxial testing system, pneumatically loaded consolidation, flexible wall permeameters, a portable static/dynamic cone penetrometer, a pile-driving analyzer, and capability for ground vibration monitoring and analysis.

In the structural materials laboratory, the opportunity to observe experimental verifications of earlier training on the behavior of structural members subjected to tension, compression, bending, and torsion is accomplished with the use of three universal testing machines, an MTS closed-loop system which has a loading capacity of 20,000 pounds, and two high strain dynamic testing machines which can be used in either uniaxial or torsional loading.

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

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

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

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

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

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

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

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

Digital controllers and all digital measuring equipment account for a very modern power electronics laboratory.

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

The Department of Mechanical Engineering is located in the Auburn Science and Engineering Center. There are eight laboratories in the Department of Mechanical Engineering. The Thermal and Fluid Science Laboratory has internal combustion engine, a supersonic wind tunnel, a small wind tunnel, and a high temperature furnace. The Heat Transfer Laboratory has temperature measurements systems, a gas laser, and a spectrum of heat exchangers. The Mechanical Measurements Laboratory has a complete complement of transducers, calibration equipment and standards, signal conditioners, analog recording devices and microprocessor-based digital data acquisition systems. The Materials Testing Laboratory has a computer controlled servo-hydraulic structural testing machine and a uniaxial universal testing machine for performing static, quasi-static, cyclic and dynamic tests on a spectrum of engineering materials and several types of hardness testing equipment. The Parker Hannifin Motion and Control Laboratory has hydraulic and pneumatic servo systems as well as.
as serial pilot systems controlled by PLCs and computer controllers. The Experimental Mechanics Laboratory has photelastic strain measuring equipment and associated facilities, coupled with a complete range of strain gage instrumentation for both static and dynamic measurements. The Mechanical Design Laboratory has several major software packages for computer-aided design connected to the College's Engineering Computer Network (ECN). The System Dynamics and Controls Laboratory is composed of several microprocessors, analog computers, and digital controllers, as well as equipment for process control and robotics. The Smart Materials and Structure Laboratory has piezoelectric and shape memory based actuators, transducers, and the relevant control systems.

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

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

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

College of Fine and Applied Arts

The School of Communication features a television classroom/studio and a wide complement of supporting audio and video equipment, including graphics generators and linear and non-linear editors. Portable audio and video equipment is available for location use. There is an audio recording facility with multitrack capability. The School also houses radio station WZIR, an on-air 7,500 watt FM radio station serving Northeast Ohio. WZIF-FM is an open format radio station operated by students under the supervision of professional broadcasters and gives students an opportunity to develop skills in broadcasting and communication through the completion of on-air assignments.

A multimedia production/editing laboratory/classroom supports class instruction. News, publications, and advertising classes have access to a Macintosh computer laboratory with complete desktop publishing layout, graphics, and print capabilities.

The School of Dance, Theatre, and Arts Administration is located in the Baller Center and Guzetta Hall. The Theatre Program offers graduate programs in Theatre and Arts Administration. It utilizes three different performing spaces to present its annual season of two to four productions. Guzetta Hall houses the “black box” experiment, and is the home of a professional stock theatre as well as rehearsal, teaching, and shop facilities. Kolbe Hall is the site of the 244-seat Daum Theatre, complete with support facilities. This conventional proscenium theatre is the home of theatre productions as is E.J. Thomas Performing Arts Hall. Student productions are performed in Studio 28, Sandefur Theatre, and Daum Theatre.

The School of Family and Consumer Sciences is housed in Shrack Hall South. Nine laboratories, including a computer center, are available for authentic student learning experiences. All programs provide community experiences through internships, clinics, and student teaching. These programs have active Advisory Committees of community professionals who provide advice and networking assistance.

The School’s Center for Family Studies offers a variety of certificate programs, including Divorce Mediation, Home Based Intervention and Child Management. In cooperation with the College of Education, the School maintains the Center for Child Development for the study of child development and teacher education.

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

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

College of Nursing

The College of Nursing (located in Mary Gladwin Hall) provides professional nursing education at the bachelor's and doctoral levels. The college is approved by the State Board of Nursing and the state's master's program has preliminary approval from the Commission on Collegiate Nursing Education (CCNE) and is fully accredited by the National League for Nursing Accrediting Commission (NLNAC). The college has a Student Affairs Office which provides academic advising services to prospective students. The college contains a state-of-the-art Learning Resource Center, including a computer laboratory exclusively for nursing students. The Center Nursing within the College is closely linked to the Akron community and is used by faculty and students for community service, practice, education and research. The College of Nursing also has a Center for Gerontological Health Nursing and Advocacy whose primary goal is to improve the health care and quality of life for elders.

College of Polymer Science and Polymer Engineering

The facilities of the Department of Polymer Science and the Maurice Morton Institute of Polymer Science support fundamental and applied research in polymer chemistry, physics, and many aspects of polymer behavior. There are extensive laboratories for polymer synthetic chemistry and for the characterization of macromolecules and polymer morphology. The macromolecular modeling center provides state-of-the-art computer modeling capabilities. A nuclear magnetic resonance laboratory is maintained with several high-resolution instruments. The applied research section of the Maurice Morton Institute of Polymer Science operates a variety of analytical and compounding processing laboratories to serve the needs of industry and government agencies for a reliable source of problem solving and data.

The departments of Materials Science and Polymer Engineering maintain a broad-based range of processing, structural, and rheological/mechanical characterization facilities. Processing facilities include unique blending, compounding facilities with five twin-screw extruders, a Buss kneader, and seven internal mixers including flow visualization capability; seven single-screw extrusion lines for plastics and rubber; with ultrasonic and sound and heat testing; and with single-melt micro bubble tubular film and cast film extrusion capability as well as a biaxial film stretcher. Molding facilities include screw injection molding equipment with five machines, blow molding, plug assist thermoforming and compression molding with composites capability. The Institute of Polymer Science is the home of the EPIC-M.A. Hanna Compounding and Blending Center and the Molding Technology Center. Characterization centers include scanning and transmission electron microscopy, X-ray diffraction including a rotating anode X-ray generator, Fourier transform infrared, optical microscopy and characterization, radioactivity, differential scanning calorimetry, and data. The Polymer Engineering Laboratory houses the Audiology and Speech Center.

University Libraries

Library facilities are housed in three separate locations: in Bierce Library on Buchtel Common; the Science Library in Autism Science and Engineering Center, Room 104; and Archival Services in the Policy Building, lower level. Library services include reference and research assistance, user education, bibliographic instruction, and computer-based information searching. Material can be borrowed from the University Libraries through the circulation department or obtained from other libraries through the OhioLINK network or other resource-sharing arrangements.

The University Libraries' collections contain more than 2.8 million items: books, periodicals, government documents, curricular materials,microforms, maps, audio-visual materials, and archival documents. The library receives nearly 5,000 journals, newspapers, and other serial publications, such as annual reports and the publications of various societies. Through the library's membership 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. Photocopy services and equipment for use in making paper copies from microforms are available in Bierce Library.
and in the Science Library. Group study rooms and typing facilities are also in Bierce Library. Audiovisual Services, located in Bierce Library, Room 639, maintains an extensive centralized collection of media hardware and audiovisual resources for student and faculty use. It also has a collection of instructional materials in various media formats (films, slides, etc.). The New Media Center supports faculty who want to improve teaching through the use of technology. Audio Visual Services designs, installs, and maintains technology-enhanced general purpose classrooms, offering permanent in-room projection, sound reinforcement and a sophisticated media retrieval system.

Bierce Library houses the Distance Learning Classroom on the second floor. This is a state-of-the-art facility that permits the University to offer credit and non-credit courses to area schools, agencies, and businesses. Part of the Medina Link initiative, this classroom can be connected to "virtually" any geographic location that has the appropriate technology.

VPCIO Division

The Vice President for Information and Instructional Technologies, Libraries and Institutional Planning (VPCIO Division) supports the entire University technology needs including data, communications and library services. In today's environment, professors, students, administrators and staff use the same technology and products. Information is available directly to those who need it. Personal productivity tools, network connectivity and services provide a common infrastructure for the dissemination of information and communications. The VPCIO 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 provides technology and support services for the campus community. Technology and support services are provided through the following areas:

Computer Labs: 150 IBM wireless laptops are available for two-hour loan in Bierce Library. The wireless laptops can be used anywhere within the library to access the internet, to get email, or do class assignments. Two general-purpose computer labs for students are also located in: Poisy, room 267, and the Gardner Student Center, room Chestnut 7. Both the wireless and the general-purpose labs have the same productivity tools such as Microsoft Office, Adobe Illustrator, SPSS and SAS.

Computer Acquisition: Computer Solutions (www.uakron.edu/compstore) is the central point for campus technology acquisitions. It is an education reseller for computer hardware, software, and peripheral devices. State-of-the-art IBM laptop wireless computers can be purchased or leased at Computer Solutions; located in Gardner Student Center. The wireless laptops can be used within any building on campus as well as outside within the campus area green spaces. Details of the laptop program can be found at (www.uakron.edu/laptop).

Student Computer Support Services: SCSS, located in the Lincoln Building, Room 103, (330) 972-7626, provides University of Akron students with knowledgeable assistance in the setup and operation of their personal computer equipment. SCSS will install University approved software and assist in installing hardware under peripherals. SCSS will also provide hardware diagnostics, software diagnostics (within reason) and basic troubleshooting. All Microsoft software must be purchased by the student prior to installation. Microsoft software products are available to University of Akron students at Computer Solutions at significantly reduced prices.

Student Computer Support Services hours of operation are:
Monday - Friday 7:30 a.m.-4:00 p.m.
The Technology Learning Support Center (TLSC) is located in Bierce Library, Room 639, and provides walk-in support for all students, faculty and staff.

The Technology Learning Support Center hours of operation are:
Monday - Thursday 7:30 a.m.-12 midnight
Friday 7:30 a.m.-8:00 p.m.
Saturday 11:00 a.m.-9:00 p.m.
Sunday 2:00 p.m.-12 midnight

Design and Development supports faculty and students who participate in distributed learning courses and programs. Support is provided through the following activities: design, develop and support selected curriculum-based distributed learning programs and courses, and design and develop customized computer-based multimedia programs.

Network and Communication Services provide more than 500 on-line lines for faculty, staff and students to use with their computers and modems from home to access the Web and Internet networks. UA's computer network, named UAnet, has approximately 4,000 computers connected on campus. To use these services, faculty, staff and students should go to the Technology Learning Support Center, at Bierce Library, room 639 to obtain a UAnet ID. The network provides access to ZPLINK, UA's library catalog; OhioLINK, the library catalogs of all State of Ohio universities and colleges; electronic mail (e-mail); the Internet, including the popular World Wide Web multimedia information protocol; usenet news groups; discussion lists; Wayne College, IBM mainframes and Digital servers.

Student information is available using the Web, the following services are provided: registration for classes, personal financial aid information, course grades, and fee payment by credit card.

Other services provided to the campus by the Network and Communication Services section include: cable television (ZIP-TV), telephone and voice mail services, alarm systems, cable plant management, cable television and network connections to residence hall rooms.

Visit our website at http://GoZips.uakron.edu/is for more information.

RESEARCH CENTERS AND INSTITUTES

The University Research Council is responsible for encouraging, supporting, and making recommendations pertaining to sponsored and contractual research carried out at the University's departments, schools, centers, and institutes. The council consists of the Vice President for Research and Dean of the Graduate School, the Director of Research Services and Sponsored Programs, representatives of the Faculty Senate, various college deans and institute directors, and General Counsel. Sponsored research activities on campus are coordinated by the Vice President for Research and Dean of the Graduate School and the Director of Research Services and Sponsored Programs.

Akron Global Polymer Academy

R. Byron Pipes, Ph.D., Director

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

Ray C. Bliss Institute of Applied Politics

John C. Green, Ph.D., Director

The Ray C. Bliss Institute of Applied Politics is a public education and research center of The University of Akron and its Department of Political Science. The broad purposes of the institute, in keeping with the career of its namesake, Ray C. Bliss, are to give all citizens, particularly students, an opportunity to learn how to become active and competent in political life; to help maintain a tradition of ethical public service in politics; to foster useful relationships between applied politics and political science; to promote public comprehension of political organizations and the requirements for their effectiveness; and to improve understanding of continuity and change in American political institutions.

Institute for Biomedical Engineering Research

Daniel B. Sheaffer, Ph.D., Interim Director

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

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

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

Center for Applied Polymer Research

Robert H. Seiple, M.S., Manager

Operating under the Institute of Polymer Science, the Applied Polymer Research Center (APRC) provides technical services to thousands of companies. Industrial clients of all sizes gain access to top researchers, knowledge bases, and advanced equipment. With a full-time professional staff, the APRC is dedicated to providing timely and reliable contractual technical services for industrial and government clients. Key areas of technical service include: polymer characterization, additive identification, defect analysis, thermal analysis, dynamic
The University of Akron has a long and proud history of the interdisciplinary study of conflict, because understanding the nature of conflict is the first step toward reducing conflict and violence at home, in our communities, workplaces, and schools. The Center for Conflict Management, jointly administered by the departments of Political Science and Sociology, seeks to build on that tradition by combining courses in several departments to enhance the capacity of students to effectively work toward reducing the harms associated with conflict and violence—from interpersonal to international.

For more information, contact the office, 202 Olin Hall, 330-972-5855, or whlyons@uakron.edu.

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

Fred M. Carr, Ph.D., Director

The Center for Economic Education provides educational outreach services through local businesses and communities with the goal of improving the economic literacy of individuals. The Center offers a range of workshops, seminars, and economic programs to teachers, students, and interested groups. It also 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 fosters an understanding of the American economic system.

**Center for Environmental Studies**

Ira D. Sadowsky, Ph.D., Director

The Center for Environmental Studies matches the expertise of 65 affiliates in 33 disciplines with the needs of students seeking study and research opportunities in complex environmental issues. Since its founding in 1970, the Center has sponsored, or in other ways supported, activities appropriate to the goal of attaining a quality environment for mankind.

The center coordinates special forums, workshops, and seminars that address major issues. Examples include the National Energy Forum, the World Food Forum, and Evaluation of Environmental Data. Workshops on energy, natural history, and environmental studies in England also emphasize the interdisciplinary approach to the resolution of issues.

**Center for Family Business**

Susan C. Hanlon, D.B.A., Director

The Center for Family Business provides outreach activities to help business owners address problems unique to family enterprises. The Center seeks to increase the survival rate of family-owned businesses through outreach designed to meet the needs of family enterprises.

**Center for Family Studies**

Helen K. Cleminshaw, Ph.D., Director

The Center for Family Studies, established in 1978, was designed to stimulate and encourage the interdisciplinary study of the family. It serves both the University and the community by fostering collaboration between faculty, students, practitioners, and community leaders on curriculum development, educational conferences and seminars, research and training, and public policy relevant to important family issues.

The Center is represented by faculty from 5 colleges and over 15 disciplines. It includes leaders from various community systems, such as the 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.

**Center for Gerontological Health Nursing and Advocacy**

Victoria M. Schirm, Ph.D., R.N., C.S., Director

The mission of the Center for Gerontological Health Nursing and Advocacy is to advocate and promote the knowledge about appropriate and effective health promotion/interventions for elders. The Gerontology Center has a tripartite focus of education, research, and service to improve the health care and quality of life for elders. Activities of the Center include interdisciplinary research within the university and health care communities, student practices development for care of older adults in institutional and community settings, and education initiatives to prepare health care professionals in the delivery of elder care.

**Center for Community Development**

Dennis Doverspike, Ph.D., Director

The Center for Community Development is an interdisciplinary research and service unit housed in the College of Education. Broadly defined, literacy refers to basic communication and calculation skills required for existing in a modern society. Literacy requires integration of a complex set of skills, abilities, and knowledge. The center supports literacy development of children and adults through courses and workshops, teacher professional development, and scholarships, and service projects that assist in this integrative process.

**Center for Family Business**

Elizabeth Kinion, Ed.D., R.N., C.N.P., Director

The Center for Nursing is a part of the University of Akron’s College of Nursing. It is an education and practice center for College of Nursing faculty and students as well as faculty and students from other health care disciplines on campus.

Since 1981, the Center for Nursing has provided wellness services to campus students, faculty, and staff as well as outreach services to community residents of all ages. Services include health assessments and nursing physicals, stress management, and self-care assistance, family and group education, and support sessions. Community outreach to vulnerable populations is a major emphasis of the center.

**Center for Organizational Development**

Dennis Doverspike, Ph.D., Director

The Center for Organizational Development in the College of Business Administration was established to meet the training and development needs of the business community. The Center offers management development seminars, programs, conferences, and consulting services designed to enhance the skills of individuals and improve company productivity in a rapidly changing world. The Center specializes in offering dedicated supervisory training and management development programs that are custom designed to meet the specific needs of companies.

**Center for Family Studies**

Jesse F. Marquette, Ph.D., Director

The Center for Policy Studies is an associated center of the Institute for Health and Social Policy.

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 Literacy**

Evangelina Newton, Ph.D., Director

The Center for Literacy, established in 2001, is an interdisciplinary research and service unit housed in the College of Education. Broadly defined, literacy refers to basic communication and calculation skills required for existing in a modern society. Literacy requires integration of a complex set of skills, abilities, and knowledge. The center supports literacy development of children and adults through courses and workshops, teacher professional development, and scholarships, and service projects that assist in this integrative process.
funded subcontracts for faculty researchers. Center professional staff are available for consultation in the development of grant proposals and budgets. The Center has responsibility for the administration of the Board of Regents Urban University Program (UUP) which links eight state universities to collaborate on the identification of significant urban problems and propose solutions designed to improve the urban regions of Ohio. The University of Akron Urban University Program, in addition to the collaborative mission of the Ohio UUP, encourages community-oriented research and policy analysis through Partnership Grant Program. The Center also houses a State Data Center under the aegis of the Ohio Department of Development to provide Census and other data to appropriate agencies and coordinate geographic information system activities with the Department of Geography and Planning.

Center for Public Service Research and Training

Peter J. Leahy, Ph.D., Director

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

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

Center for Statistical Consulting

Chand Midha, Ph.D., Director

The mission of the Center for Statistical Consulting in the Department of Statistics is to provide the university community and the community at large with professional assistance in the design and analysis of statistical problems. The office, located in the College of Arts and Sciences Building, Room 110A, is open for consultation by appointment. Call (330) 972-4888.

Center for Urban and Higher Education

Sharon D. Kruse, Ph.D., Director

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

Center for Workforce Development and Training

Daniel L. Hickey, Interim Director

The Center for Workforce Development and Training is a member of The Enterprise Ohio Network, an association of two-year campuses that provide educational and training programs for businesses and public sector organizations throughout the state. The Center offers customized and subsidized training in the areas of information technology, skilled builders, business, management/supervision, Six Sigma/Quality, technical and employee safety/health.

English Language Institute

Debra L. Deane, M.A., Director

Established in 1979, the English Language Institute (ELI), part of Buchtel College of Arts and Sciences, provides non-credit academic English as a Second Language (ESL) instruction to international students and non-native residents who plan to pursue an undergraduate or graduate degree at The University of Akron or another U.S. university. The intensive, 20-hour per week English program also serves students who wish to improve their English to meet their own professional and/or personal goals. ELI courses at four levels of English proficiency target language and academic skills needed for successful study at a U.S. university: reading efficiently, writing clearly, taking lecture notes, and communicating effectively in English. Students also study grammar and vocabulary and prepare for the TOEFL test of English language proficiency, which is required for admission to the University. In addition, students receive a wide variety of support services designed to facilitate their transition to life and study in the United States.

The ELI serves as a resource on issues relating to language proficiency not only for University faculty, staff and students but also for members of the local community. ELI faculty can provide workshops and specialized courses to help UA departments and external institutions meet the needs of their international students. The ELI can also provide information on the Test of Spoken English (TSE) required for graduate teaching assistants. For more information, visit the ELI website at www.uakron.edu/eli or call 330-972-7644.

Fisher Institute for Professional Selling

Jon M. Hawes, Ph.D., Director

The Fisher Institute for Professional Selling was founded in 1994. Its mission is to enhance the image of the sales profession, to promote professional selling and sales management as a rewarding lifetime career, to provide quality sales training and learning experiences, and to advance the knowledge of professional selling through the support of applied research.

William and Rita Fitzgerald Institute for Entrepreneurial Studies

Stephen F. Hallam, Ph.D., Interim Director

In 1995, a generous gift from William and Rita Fitzgerald created the Fitzgerald Institute for Entrepreneurial Studies in the College of Business Administration. The Institute was established to promote the principles of free enterprise and encourage entrepreneurial spirit and practices both within the University's curriculum and throughout the business community. The Fitzgerald Institute focuses on the development of curriculum appropriate for both new ventures and the entrepreneurial development and growth of existing businesses. The Institute provides the needed link between the University and the community of entrepreneurs critical to business development in the future.

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

Institute for Global Business

James W. Barnett, B.B.A., Director

The University of Akron received special funding from the State of Ohio to expand its offerings of undergraduate and graduate degree programs in international business. Thus, the College of Business Administration created the Institute for Global Business, which coordinates both credit and noncredit programming in international business. The Institute offers an international executive MBA and also develops short courses and seminars to assist in improving international competitiveness of area business.

Institute for Health and Social Policy

Richard C. Stephens, Ph.D., Director

The Institute for Health and Social Policy, located on the fifth floor of the Polsky Building, was established in February 1999 for the study of the delivery of effective health and social services. The mission, objectives and research continuum are defined as follows:

**Mission**
To improve the quality of services to specific target groups most at risk of health and social consequences in order to decrease morbidity and mortality and the burden of health and social problems on the community and individuals.

**Objectives**
- Conduct research appropriate to the mission
- Collaborate with units on campus
- Assist faculty in the development of proposals

**Research Continuum**
- Epidemiology
- Intervention Development
- Service delivery
- Technology transfer
- Policy

Most of the work conducted by the Institute is on behalf of government and nonprofit agencies. Faculty and students have the opportunity to collaborate on research and evaluation projects of national significance.

The Institute also serves as an educational resource for students and the community for the most up-to-date social and health services research available and the latest advances in behavioral and social science research technologies.
Institute for Teaching and Learning
Thomas A. Angelo, Ed.D., Director
The Institute for Teaching and Learning promotes, coordinates, and supports faculty efforts to improve, assess, and document teaching effectiveness and student learning quality by consulting with colleges, departments, and individual faculty on teaching, learning, evaluation, and assessment issues.

The Institute began as the Carnegie Teaching Academy in 1999. Budgeted activities for a center began in 2000-2001. With the hiring of Associate Provost Thomas Angelo in August 2001, the Institute for Teaching and Learning was launched in September 2001 with Dr. Angelo as its first director.

The Institute focuses on developing and providing targeted professional development activities through information gathering and sharing. The Institute also documents, publishes, and celebrates teaching and learning innovation and excellence. For more information visit the ITL website at www.uakron.edu/itl or contact the Institute at (330) 972-2574.

Intellectual Property and Technology Center
Jeffrey M. Samuels, J.D., Director

The Intellectual Property and Technology Center in the School of Law is one of approximately 14 such centers in the nation. The center exposes the community to critical thinking in the field of intellectual property law. The center is exploring the possibility of implementing intellectual property curricula into the operations of a number of local businesses. The center is also developing a Master's of Law in Intellectual Property Law program.

Institute for Life-Span Development and Gerontology
Harvey L. Sterns, Ph.D., Director

The Institute for Life-Span Development and Gerontology, founded in 1978, coordinates multidisciplinary credit certificate programs in gerontology at the undergraduate and graduate levels. In addition to the Certificate in Gerontology, a Faculty Board of Examiners of Nursing Home Administrators approved course of study in Nursing Home Administration which combines a Bachelor of Science degree in Business Administration and a Master's of Science in Gerontology, Northeastern Ohio Universities College of Medicine; Gerontology Center, Kent State University; and Gerontology Committee, Youngstown State University.

Institute of Polymer Engineering
Lloyd A. Goettler, Ph.D., Director

The Institute of Polymer Engineering carries out fundamental and applied research in polymer processing, engineering performance, and associated characterization. The institute, founded in 1983, seeks to be a major intellectual and research resource in the northeast Ohio area. The institute maintains up-to-date and futuristic processing and characterization laboratories, with continued interest in development of new process technology and materials. Its activities also include organization of scientific symposia and various seminars related to polymer processing and engineering.

The Maurice Morton Institute of Polymer Science
Frank W. Harris, Ph.D., Director

The institute is concerned with basic and applied research in polymers. It was established in 1956 as the Institute of Rubber Research and in 1964 became the interdisciplinary Institute of Polymer Science. The University's first Ph.D. program in polymer chemistry was started in 1956 and was administered by the institute until a separate Department of Polymer Science was established in 1987. The Institute maintains extensive laboratory facilities and the Applied Polymer Research Laboratory. It is the principal organization responsible for external funding of research projects and graduate fellowships in polymer science.

Microscale Physicochemical Engineering Center (MPEC)
Edward A. Evans, Ph.D., Director

The Microscale Physicochemical 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-based 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 hosts an annual conference, promotes networking, provides a forum for industry-university cooperation, and is a consortium of industrial sponsors for fundamental and applied research in microscale physicochemical engineering.

Training Center for Law Enforcement and Criminal Justice
John M. Boal, Director

The Training Center for Law Enforcement and Criminal Justice, employing the expertise of the Criminal Justice Technology faculty and the experienced professionals in the field of Criminal Justice, provides state certified training in the following areas: Basic Peace Officer Training Academies, Corrections, Private Security, Private Investigation, Jail Training, Police Refresher Training, Bailiff Training, Firearms Qualification, and In-service Seminars.

Training Center for Fire and Hazardous Materials
David H. Hoover, Ph.D., Director

The Training Center for Fire and Hazardous Materials brings the University, government, and industry together into one comprehensive regional center to integrate educational programs, fire and hazardous materials training and other applications of fire and safety technology. The center coordinates seminars and workshops presented by the Federal Emergency Management Agency (FEMA), the National Fire Academy, the Division of State Fire Marshall, and other related organizations. Training in all phases of hazardous materials containment and fire prevention and control is provided under contract to various municipalities, industries and agencies. The programs are supported by the faculty of the Fire Protection Technology degree program in association with other state and nationally recognized professionals.

Student Affairs

Counseling, Testing, and Career Center
The Counseling, Testing, and Career Center provides a wide range of psychological counseling, testing, career planning, and outreach and consulting services to the University community. The Center is staffed by psychologists and psychology trainees. All of our psychological services are confidential and free to enrolled students. The Center is located in Schrank Hall North, with the Counseling Services in Room 152 and the Testing Services in Room 58. Phone numbers are: Counseling Services 330-972-7082, and Testing Service 330-972-7084.

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

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

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

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

Center for Career Management
• The primary mission of the Center for Career Management is to assist graduating students in their initiatives in seeking full-time employment and to provide guaranteed major-related experiential learning opportunities prior to graduation for every student regardless of academic major or level degree under the newly created Career Advantage Program. The Center for Career Management is located in Scharnh Hall North Room 153, 330-972-7747, www.uakron.edu/placement.

• Placement Services for graduating students include on-campus interviews with representatives of businesses, industries, education, branches of the government and military. In addition, workshops are offered on Resume Writing, Cover Letters, Interviewing Skills, and the Self-Directed Job Search throughout the academic year. Personal career consultation may be scheduled with placement advisors. A reference library of employer literature, videotape presentations and numerous career and job reference materials is also available. Other services to registrants include computerized job referrals and the maintenance and distribution of students' credential files. The Center for Career Management also sponsors a Career Fairs, that give students the opportunity to meet and speak with a large number of potential employers.

Health Services
The goal of Health Services is to assist students to achieve their educational and personal goals by addressing their health care concerns while they are enrolled at The University of Akron. Health Services provides primary care, minor urgent care and health promotion education. Health Services is located in Robertson Dining Hall, immediately adjacent to the North Quad residence halls and is open from 8:00 a.m. to 5:00 p.m., Monday through Friday. The student who becomes seriously ill or suffers a serious injury on campus should immediately call the University's Health Services. There are several centers available for care, the primary focus is to assure that the campus community frequently receives information education and awareness programs throughout the year. The purpose of these programs is to assure that the campus community frequently receives information about University crime and safety policies and procedures, and on drug and alcohol control and prevention.

A summer program is also offered for school-aged children. This program is offered for 10 weeks from 7:30 a.m. until 6:00 p.m. For more information call the Center for Child Development, 330-374-6701.

Gardner Student Center
The Gardner Student Center, located in the center of campus, serves the students, faculty, and staff, and is one of the University’s major assets in meeting the University-wide goal of public service. This busy facility houses various food service facilities, meeting rooms, lounges, Gardner Theatre, student organization offices, recreation facilities, Computer Solutions--The University of Akron’s computer technology store, the DocuZap Copy Center, a bank, Ticketmaster/Film/Fax Center, the Information Center and a bookstore. Visit our website at www.uakron.edu/gardner.

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

• Gardner Theatre, located on the upper level, screens first- and second-run movies and is open to the public.

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

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

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

• The Ticketmaster/Film/Fax Center, located in the lobby of Gardner Student Center 330-972-6884, sells tickets to most events in northern Ohio, including Blossom Music Center, Public Hall, and the Gund Arena. Over-the-counter sales include tickets to campus functions, including sporting events, and to local shows. Film and film processing services are also available.

• The Information Center, located in the Gardner Student Center lobby, is operated Monday-Saturday. The Information Center staff can answer questions regarding departments and student organizations, on-campus and off-campus events, and the Metro buses and University Bus Loop. The Information Center staff can also print student class schedules. Please call 972-INFO if you need a question answered.

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

Campus Safety and Security Information

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

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

It is the intent of the University to continue and enhance current safety and security education 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.

Office of Accessibility
The University welcomes students with disabilities. The mission of the Office of Accessibility is to provide equal access opportunities to students with disabilities and coordinate academic accommodations, auxiliary aids, and programs to enable students with disabilities to maximize their educational potential. The office encourages students to contact them to find out more about the programs and services. For more information, call 330-972-7928 (voice) or 330-972-5784 (TTY) or visit the Student Administrative Services Building, Room 125.

Center for Child Development
The University of Akron Center for Child Development provides a variety of early childhood programs which are open to students, faculty, staff, and the community. The trained teaching staff provides a stimulating learning environment and opportunities for growth in all areas of development—social, emotional, physical and intellectual. The Center for Child Development is open year-round between 7:30 a.m. and 6:00 p.m. Monday through Friday. The program offers hourly half-day and half-day programs for children three to five years old and toilet trained. Full-day sessions are available year round for children 18 months to five years old.
A safe campus can be achieved only with the cooperation of the entire campus community. The University hopes students will read and become familiar with this material and be responsible for their own safety and the security of others.

**University Police**

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

The University's 32 police officers are commissioned by the State of Ohio with full law enforcement authority and responsibilities identical to the local police or sheriff. The UA Police Department works closely with the Akron Police Department and other law enforcement agencies. Reports are exchanged every business day so that both agencies receive pertinent information. Information is shared through personal contacts and by phone and radio. University and City of Akron police regularly work together at large campus events such as athletic competitions and dances.

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

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

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

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

**Drug and Alcohol Prevention**

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

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

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

**Crime Prevention**

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

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

Security considerations in maintenance are a high priority.

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

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

For emergencies, dial 911 from any campus telephone.

**Student Campus Patrol**

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

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

**Emergency Phones**

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

Outdoor security phones are at the main entrances of all campus residence halls. UA Police and other campus numbers can be dialed on these phones. If using an off-campus phone, dial 330-972 before the campus extension.

**Campus Buildings**

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

**Health and Safety**

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

**Personal Responsibility**

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

**Crime Statistics**

The University of Akron Police Department complies with reporting standards set by the United States Department of Education guidelines. Our crime statistics can be found at our police department website, http://www3.uakron.edu/police/crime_prev.htm. A hard copy of crime statistics can be obtained at The University of Akron's Police Department located at 146 Hill St., Akron, OH 44325-0402.

**EMERGENCY PHONE NUMBERS**

- Call extension 911 on campus to reach UA police immediately.
- Police.................................................................7123
- Campus Patrol......................................................7263
- (Police Nonemergency).............................................8123
- Environmental and Occupational Health and Safety.................................6866
- Fire.................................................................911
- EMS/Medical.......................................................911
- Electrical/Plumbing.............................................7415
- Hazardous Materials.............................................8123
- Closing Information............................................7669

Emergency numbers are monitored 24 hours a day. If calling from an off-campus phone, dial 330-972 and then the four-digit number you wish to reach. Use 911 for emergencies when dialing from all campus extensions.
Graduate School

George R. Newkome, Ph.D., Vice President for Research and Dean
Lathardus Goggins, Ph.D., Associate 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, and the exercise of genuine 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 1926, 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 Fine and Applied Arts, was formerly a part of the Buchtel College of Arts and Sciences and conferred a master's degree in 1963. The first earned doctorate degrees were conferred in 1959. Professor Charles Bugler was appointed first dean of graduate work in 1933, and he continued in that capacity until 1950. Professor Ernest H. Cherrington, Jr. served as director of graduate studies from 1955 to 1960 and as dean of the Graduate Division from 1960 to 1967. Dr. Arthur K. Brintnall was appointed dean of Graduate Studies and Research in 1967, being succeeded in 1968 by Dr. Edwin L. Lively. Dr. Clabourne E. Griffin succeeded Dr. Lively in 1974 and served in that capacity until 1977. Dr. Joseph M. Walton, associate dean of Graduate Studies and Research, became 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. Dyk was named interim dean in 1993 and became the dean of the Graduate School in 1996 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.

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

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

The Graduate School offers programs of advanced study leading to the degree of Doctor of Philosophy in chemistry, counseling psychology, elementary education, engineering (biomedical, chemical, civil, electrical, engineering applied mathematics, mechanical, and polymer), guidance and counseling, history, nursing, polymer science, psychology, secondary education, sociology, and urban studies and public affairs. The Doctor of Education degree is offered in educational administration and in the development of professional competencies subject to the doctoral degree. An undergraduate student may be admitted to the Graduate School and apply credits earned to the total required for the baccalaureate degree.

The Doctor of Philosophy programs in nursing and sociology are joint programs with Kent State University. The Doctor of Philosophy program in urban studies and public affairs is a joint program with Cleveland State University. 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 professional or discipline.

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

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

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

The dean of the Graduate School serves as chair of both the graduate faculty and the Graduate Council.

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

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

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

The objectives of GSG are to govern graduate student affairs, represent graduate student sentiment, and promote interdepartmental social exchange and interaction between students. These objectives are met by appointing members to participate in various administrative committee meetings, such as the Faculty Senate, Graduate Council and Board of Trustees meetings.

Any student wishing more information or anyone who wants to air a complaint, problem or suggestion concerning graduate students may contact the Graduate School or attend the bimonthly GSG meetings, where all graduate students are welcome.

Other Graduate Student Organizations
Chi Sigma Iota-Alpha Upsilon Chapter
Counseling Psychology Graduate Student Organization
Graduate Nursing Student Association
Industrial/Organizational Psychology Graduate Students
Master of Social Work Student Association
Minority Graduate Student Council
Polymer Engineering Student Organization
Polymer Science Graduate Student Organization
Public Administration and Urban Studies Student Association
Student Association for Graduates in Education (SAGE)
SECTION 2. General Information

REGULATIONS

Student Responsibility

A student assumes full responsibility for knowing the regulations and pertinent procedures of the Graduate School as set forth in this Bulletin. Normally, the degree requirements and other requirements for admission 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.

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

First-time applications to the Graduate School must be accompanied by an application fee. The fee for domestic students is $40. The fee for international students is $60.

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

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

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

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

Nonaccredited American School Graduates

A student holding a baccalaureate degree from a non-accredited American college or university, is required to complete at least 10 semester credits of postbaccalaureate work at a 3.00 level before being considered for admission to the Graduate School. The accreditation status of the school at the time of the student’s graduation shall apply. A student should consult with the department chair in the major field to develop a postbaccalaureate program.

Transfer Students

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

Entrance Qualifying Examinations

The use of examinations to determine admisibility to enter a graduate program or eligibility to continue in one is the prerogative of the departments offering graduate programs. The department has the right to select the examination and 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 given to any applicant who desires to pursue a graduate degree and has a baccalaureate degree from an accredited college or university with an overall grade-point average of 2.75 or better or 3.00 for the last two years (64 semester credits or equivalent); or holds an advanced degree from an accredited college or university in or appropriate to the intended field; or holds a baccalaureate or master’s degree from a foreign college or university with first-class standing or its equivalent, plus satisfactory evidence of competence in English.

- **Provisional Admission** may be granted to applicants to the College of Business Administration who meet the college’s admission requirements.

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

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

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

- **Temporary status** may be granted to students with approval of the academic department and the Graduate School. This admission allows prospective graduate students to enroll for one semester of graduate coursework while the degree-seeking application is being processed. In addition to the application fee, an additional charge of $30 is required to persist temporary admits. Temporary admission does not guarantee admission to a program nor do all academic departments recognize temporary admits. Courses completed with approval of the academic department must apply through regular channels for any other category. A maximum of six semester credits are allowed, 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:
  - student standing (at least 96 credits completed);
  - 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 toward a graduate degree is 12.

- **Postdoctoral status** is divided into three categories:
  - **A Fellow** is a person holding a learned 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 the fellow is taking a course;

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

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

- **Temporary status** may be granted to students with approval of the academic department and the Graduate School. This admission allows prospective graduate students to enroll for one semester of graduate coursework while the degree-seeking application is being processed. In addition to the application fee, an additional charge of $30 is required to persist temporary admits. Temporary admission does not guarantee admission to a program nor do all academic departments recognize temporary admits. Courses completed with approval of the academic department must apply through regular channels for any other category. A maximum of six semester credits are allowed, 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:
  - student standing (at least 96 credits completed);
  - 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 toward a graduate degree is 12.

- **Postdoctoral status** is divided into three categories:
  - **A Fellow** is a person holding a learned 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 the fellow is taking a course;
- **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 (a 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.

### Course Load
A full load of coursework at the graduate level is normally 9-15 semester credits including audit. Full-time status is defined as a minimum of 9 semester credits; or as defined by the Internal Revenue Service for those students with graduate assistantships.

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

### Cross Registration
Under specific circumstances a graduate student may take one or more graduate courses at Cleveland State University, Kent State University, The University of Akron, or Youngstown State University without registering as a transient student. The course for which a student wishes to register should contribute to the student’s program of study and be unavailable when needed to complete the student’s program at the home institution. The student must be in good standing (GPA>3.0) and within the time limits for degree completion. The graduate program unit at the student’s home institution will establish a graduate special topics or independent study course identification capable of being “tagged” by the home university with a title that will correspond to the course title at the host university and with the initials of that university; i.e. CSU, KSU, or YSU. Registration for such a course is controlled by the home department and will be permitted only upon receipt of an approved Cross Registration form. Cross Registration forms are available by contacting the Graduate School.

### Financial Assistance
The University awards a number of graduate assistantships to qualified students. Assistantships are available at the University of Akron, Polsky Building, Room 469, Akron, OH 44325-2101, phone 330-972-7663, fax 330-972-6475 (internet address: http://www.uakron.edu/gradsch; electronic mail address: gradschool@uakron.edu). Return the completed application and the one-time nonrefundable application fee of $60 with the following documentation:

- 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 English language proficiency. The University requires each student for whom English is not the native language to take the Test of English as a Foreign Language (TOEFL). This test is administered in major cities throughout the world. Applications may be obtained from binational agencies, United States Information Service (USIS) offices, or from the Educational Testing Service, Princeton, NJ 08540. Graduate applicants must achieve 550 or greater on the paper-based TOEFL or 213 on the computer-based TOEFL. Exceptions include the departments of English and History (580) on the paper-based TOEFL, or 237 on the computer-based TOEFL, Urban Studies Ph.D. (570) on the paper-based TOEFL or 230 on the computer-based TOEFL and Biomedical Engineering (590 on the paper-based TOEFL or 243 on the computer-based TOEFL).

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

- Proof of adequate financial support. An international student should submit to the Office of International Programs, The University of Akron, Polsky Building, Room 483, Akron, OH 44325-3101, the Declaration and Certification of Finances (DCF) and an original statement from the bank showing availability of sufficient funds to cover the cost of the first year of study. The Office of International Programs will prepare the Certificate of Eligibility (I-20A/B or IAP-68) upon receipt of adequate financial support and admission to the University.

### Costs, Financial Aid, and Medical Insurance
To cover tuition and living expenses for the 2002-2003 academic year, international graduate students holding F-1 visas will need approximately $18,000 for nine months or $22,400 for 12 months. Additional costs for J-1 visa holders and student’s dependents are indicated on the DCF.

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

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

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

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

### Teaching Assistants
Applicants whose native language is not English and who expect to become teaching assistants, are also required to achieve a minimum score of 50 on the Test of Spoken English (TSE, Revised 1996). This exam must be taken prior to functioning as a teaching assistant. Those for whom English is the native language and who expect to become a teaching assistant must demonstrate proficiency in English through departmental certification. Neither the TSE nor departmental certification is required for research or administrative assistants.

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

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

Official academic records for graduate students are maintained with a grade-point system as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality</th>
<th>Points</th>
<th>Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.0</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
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<td>B-</td>
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<td>C+</td>
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<td>C</td>
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<td>C-</td>
<td>1.7</td>
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<td>D+</td>
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<tr>
<td>AUD</td>
<td>0.0</td>
<td>0.0</td>
<td>Audit</td>
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</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 whatever grade the student has earned.

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

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

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

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

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

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

Academic Reassessment

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

• Degree seeking graduate student
• Previous graduate enrollment at The University of Akron
• Not enrolled at The University of Akron for at least five years prior to current enrollment
• Maintain a current cumulative 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 re-assessment policy:

• This policy only applies to the student's graduate grade point average.
• All University of Akron grades will remain on the student's official, permanent academic record (transcript); this process will affect the cumulative 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 may be counted toward the subsequent degree program requirements. Degree requirements may only be met by courses included in the calculation of the student's cumulative graduate grade point average at The University of Akron. Thus, the student who successfully petitions for cumulative graduate grade point average recalculation under this policy automatically forfeits the right to use any of the excluded course work toward the current degree requirements.

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

Repeating Courses

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

Audit Policy

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

Thesis and Dissertation Credits

Course number 699 will only be used for courses which indicate credit is being given for a master's thesis. 899 will only be used for courses which indicate credit is being given for a doctoral dissertation. No credit for 699 or 899 will be given unless the thesis or dissertation is completed.

Colloquia, Seminars and Workshops

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

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

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

Probation and Dismissal

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

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

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

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

*Grades of "D+", "D," and "D-" are treated as "F" grades. (See previous section on Grades.)
Commencement
Students earning graduate degrees are expected to participate in the commencement exercises. A degree candidate who has legitimate reasons for graduating "In Absentia" should make a written request to the registrar within the established dates and pay the designated fee.
Students must apply to graduate in advance of completing degree requirements. Applications are filed with the Graduation Office which observes the following deadlines:
   Fail graduation: May 15.
   Spring graduation: September 15.
   Summer graduation: February 15.

Academic Dishonesty
Students at The University of Akron are an essential part of the academic community, and enjoy substantial freedom within the framework of the educational objectives of the institution. The freedom necessary for learning in a community so rich in diversity and achieving success toward our educational objectives requires high standards of academic integrity. Academic dishonesty has no place in an institution of advanced learning. The University community is governed by the policies and regulations contained within the Student Code of Conduct available in the Office of Student Conduct, Gardner Student Center 104, 330-972-7021.
The University of Akron considers academic integrity an essential part of each student's personal and intellectual growth. Instances of academic dishonesty are addressed consistently. All members of the community contribute actively to building a strong reputation of academic excellence and integrity at The University of Akron.
It is each student's responsibility to know what constitutes academic dishonesty and to seek clarification directly from the instructor if necessary. Examples of academic dishonesty include, but are not limited to:
- Submission of an assignment as the student's original work that is entirely or partly the work of another person.
- Failure to appropriately cite references from published or unpublished works or print/non-print materials.
- Unauthorized copying of an assignment in computer programming, or the unauthorized examination or view of the computer, specifically during examinations.
- Possession and/or unauthorized use of tests, notes, books, calculators or formulas stored in calculators not authorized by the instructor during an examination.
- Providing and/or receiving information from another student other than the instructor, by any verbal or written means.
- Observing or assisting another student's work.
- Violation of the procedures prescribed by the professor to protect the integrity of the examination.
- Cooperation with a person involved in academic misconduct.

A student who has been accused of academic dishonesty will be asked to meet with the course instructor. The matter can be resolved informally at the College level and/or an academic sanction can be imposed. If the student opposes the decision, he/she may appeal to the College Dean.
A further discussion of these procedures and other avenues for recourse can be found in the Grievance Procedures for Graduate Students available at the Graduate School, The Polsky Building 469, and included in the Appendix of this Bulletin.

Ohio Residency Requirements
Payment of a non-resident surcharge is required of any student who does not qualify as a permanent resident of Ohio as defined by Section 3333.1-10 of the Ohio Revised Code.
A. Intent and Authority
   1. It is the intent of the Ohio Board of Regents in promulgating this rule to exclude from treatment as residents, as that term is applied here, those persons who are present in the state of Ohio primarily for the purpose of receiving the benefit of a state-supported education.
   2. This rule is adopted pursuant to Chapter 119 of the Revised Code, and under the authority conferred upon the Ohio Board of Regents by Section 3333.31 of the Revised Code.
B. Definitions
   For purposes of this rule:
   1. A "resident of Ohio for all other legal purposes" shall mean any person who maintains a 12-month place or places of residence in Ohio who is qualified as a resident to vote in Ohio and receive state welfare benefits, and who may be subjected to tax liability under Section 5747.02 of the Revised Code, provided such person has not, within the time prescribed by this rule, declared himself or herself to be or allowed himself or herself to remain a resident of any other state or nation for any of these or other purposes.
   2. "Financial support" as used in this rule, shall not include grants, scholarships, and awards from persons or entities which are not related to the recipient.
   3. An "institution of higher education" as used in this rule shall mean any university, community college, technical institute or college, general and technical college, medical college or private medical or dental college which receives a direct subsidy from the state of Ohio.
   4. For the purpose of determining residency for tuition surcharge purposes at Ohio's state-assisted colleges and universities, "domicile" is a person's permanent place of abode, there must exist a demonstrated intent to live permanently in Ohio, and a legal ability under federal and state law to reside permanently in the state. For the purpose of this policy, only one (1) domicile may be maintained at a given time.
   5. For the purpose of determining residency for tuition surcharge purposes at Ohio's state-assisted colleges and universities, an individual's immigration status will not preclude an individual from obtaining resident status if that individual has the current legal status to remain permanently in the United States.
C. Residency for subsidy and tuition surcharge purposes
   The following persons shall be classified as residents of the state of Ohio for subsidy and tuition surcharge purposes:
   1. A dependent student, at least one of whose parents or legal guardian has been a resident of the state of Ohio for all other legal purposes for 12 consecutive months or more immediately preceding the enrollment of such student in an institution of higher education.
   2. A person who has been a resident of Ohio for the purpose of this rule for at least 12 consecutive months immediately preceding his or her enrollment in an institution of higher education and who is not receiving, and has not directly or indirectly received in the preceding 12 consecutive months, financial support from persons or entities who are not residents of Ohio for all other legal purposes.
   3. A dependent child of a parent or legal guardian or the spouse of a person who, as of the first day of a term enrollment, has accepted full-time self-supporting employment and established domicile in the state of Ohio for reasons other than gaining the benefit of favorable tuition rates. Documentation of full-time employment and domicile shall include both of the following documents:
      a. A sworn statement from the employer or the employer's representative on the letterhead of the employer or the employer's representative certifying that parent or spouse of the student is employed full-time in Ohio.
      b. A copy of the lease under which the parent or the spouse is the lessee and occupant of rented residential property located in Ohio of which parent or spouse is the owner and occupant; or if parent or spouse is not the lessee or owner of the residence in which he or she has established domicile, a letter from the owner of the residence certifying that parent or spouse resides at that residence.
   D. Additional criteria which may be considered in determining residency for the purpose may include but are not limited to the following:
      1. Criteria evidencing residency:
         a. If a person is subject to tax liability under Section 5747.02 of the Revised Code;
         b. If a person qualifies to vote in Ohio;
         c. If a person is eligible to receive state welfare benefits;
      d. If a person has an Ohio driver's license and/or motor vehicle registration.
   2. Criteria evidencing lack of residency:
      a. If a person is a resident or intends to be a resident of another state or nation for the purpose of tax liability, voting, receipt of welfare benefits, or student loan benefits (if the loan program is only available to residents of that state or nation);
      b. If a person is a resident or intends to be a resident of another state or nation for any purpose other than tax liability, voting or receipt of welfare benefits.
E. Exceptions to the general rule of residency for subsidy and tuition surcharge purposes:
   1. A person who is living and is gainfully employed on a full-time or part-time and self-sustaining basis in Ohio and is pursuing a part-time program of instruction at an institution of higher education.
   2. A person who enters and currently remains upon active duty status in the United States military service while a resident of Ohio for all other legal purposes and his or her dependents shall be considered residents of Ohio for these purposes as long as Ohio remains the state of such person's domicile.
   3. A person on active duty status in the United States military service who is stationed and resides in Ohio and his or her dependents shall be considered residents of Ohio for these purposes.
4. A person who is transferred by his or her employer beyond the territorial limits of the 50 states of the United States and the District of Columbia while a resident of Ohio for all other legal purposes and his or her dependents shall be considered residents of Ohio for these purposes as long as Ohio remains the state of such person's domicile as long as such person has fulfilled his or her tax liability to the state of Ohio for at least the tax year preceding enrollment.

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

F. Procedures

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

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

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

4. Any person once classified as a nonresident, upon the completion of 12 consecutive months of residency, must apply to the institution he or she attends for 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 will be in the preceding 12 consecutive months has been provided directly or indirectly by persons or entities who are not residents of Ohio for all other legal purposes, such person shall be reclassified as a resident. Evidentiary determinations under this rule shall be made by the institution which may require, among other things, the submission of documentation regarding the sources of a student's actual financial support.

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

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

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**Fees**

All fees reflect charges in 2002-2003 and are subject to change without notice. Applicants are encouraged to verify current fees with the Board of Regents or the appropriate college or department before making any financial commitments.

<table>
<thead>
<tr>
<th>Description</th>
<th>Fee</th>
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<tbody>
<tr>
<td>Tuition and fees</td>
<td></td>
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<tr>
<td>Resident student per credit</td>
<td>$252.37</td>
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<tr>
<td>CBA student per credit</td>
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</tr>
<tr>
<td>Nonresident student per credit</td>
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<tr>
<td>Nonresident CBA student per credit</td>
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</tr>
<tr>
<td>Maximum of tuition and fees</td>
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</tr>
</tbody>
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**Administrative Fee**

- Graduate, transient students: $11.00 per term
- Per credit hour: $6.20
- Per credit hour (all Engineering courses): $14.75

**Parking Permit Fee**

- Per semester, Fall and Spring (enrolled for any number of credits): $90.00
- Summer Session (one permit good for all sessions): $45.00
- Workshop participants: $3.00 per day

**Other Fees**

- Copyright fee: Up to $45.00
- Copyright (payable at time of application for degree if copyright is sought): Up to $70.00
- Miller Analogies Test (Counseling, Testing, and Career Center): $45.00
- Late registration fee: $100.00
- Late graduation application fee: $15.00
- Late graduation fee (charged to students who have not registered for classes by the first day of the semester): $50.00
- Workshop participants: $3.00 per day

Administrative fee replaces those fees previously charged for schedule changes, transcripts, and for application for graduation.
Financial Aid

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

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

A graduate student who has already received a bachelor's degree can apply for the Federal Subsidized and Unsubsidized Stafford Loans. The Federal Pell Grant, Ohio Instructional Grant and Federal Supplemental Educational Opportunity Grant cannot be received. Postbaccalaureate students may only apply for Subsidized and Unsubsidized Stafford Loans.

To apply for the Federal Subsidized and Unsubsidized Stafford Loans, the student must complete and submit the Free Application for Federal Student Aid (FAFSA) or a Renewal Application to the Federal Processor. Applications are available in January for the following school year. Applications can be completed online at the World Wide Web site of the United States Department of Education at http://www.fafsa.ed.gov. For technical assistance, call 1-800-801-0567. Inquiries may be directed to the Office of Student Financial Aid, Spicer 119, 330-972-7032 or 1-800-621-3947.

Installment Payment Plan

This plan is designed to spread registration and University housing fees into as many as four installments (two during a summer term) depending on when the application is received. The payment plan will be available as an option for payment through the 10th day of the semester. An application fee of $20 is assessed for the Installment Payment Plan (IPP). Charges subject to change without notice.

Semester applications are to be received in the office by the close of business on the billing due date. Application forms are included with the student fee invoice or may be obtained in the Installment Payment Office. The application fee only is required, along with your signed application to begin the plan. Additional funds may be added to the application fee to lessen future payments. Your processed financial aid will be used against your charges. Upon receipt of your application and application fee, a billing request for your first payment will be processed. The balance will be billed either in one, two, or three equal installments, depending on the semester and registration period. All outstanding balances must be paid in full before participation in the payment plan. Monthly invoices will be sent to your local mailing address indicating the amount due and the required payment date. However, it is the student responsibility to know when payments are due and to pay on time even though an invoice may not have been received.

Any course(s) added or dropped will adjust automatically to the payment plan. Your payment due will reflect the increased amount of any course added. Any credit received from a dropped course will be deducted from the amount you owe depending on the period in which you withdraw, and subject to the withdrawal and refund policies of the University.

If additional installments are not received on or before their due date, a late charge is assessed at $20 per payment. Charges subject to change without notice.

Graduate Assistantships

Graduate assistantships may be available through various graduate degree-granting academic units. Graduate assistantships and other graduate awards are distributed to the colleges through the Graduate School; therefore, a separate application is required. For further information, contact the Graduate School, Polsky Building, room 469, 330-972-7663.

International Students

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

Regulations Regarding Refunds

All fees, e.g., instructional, general, parking, etc., are subject to change without notice. Students shall be charged fees and/or tuition and other fees in accordance with schedules adopted by the Board of Trustees. Registration does not automatically carry with it the right of a refund or reduction of indebtedness in cases of failure or inability to attend class or in cases of withdrawal. The student assumes the risk of all changes in business or personal affairs.

Fees Subject to Refund

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

Amount of Refund

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

- In full
  - if the University cancels the course;
  - if the University does not permit the student to enroll or continue except for disciplinary reasons. No refund will be granted to a student dismissed or suspended for disciplinary reasons;
  - if the student dies before or during the term; is drafted into military service by the United States; is called to active duty; or if the student enlists in the National Guard or Reserve prior to the beginning of the term. Notice of induction or orders to active duty is required if the student is called to active duty. A student who enlists voluntarily for active duty should see "in part" below.

- In part
  - if the student requests official withdrawal, the following refund percentages apply:
    - During the second week of the semester: 70%
    - During the third week of the semester: 50%
    - During the fourth week of the semester: 30%
    - During the fifth week of the semester: 20%
    - Thereafter: 0%

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

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

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

MASTER’S DEGREE REQUIREMENTS

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

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

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

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

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

It should be noted that the requirements listed by department elsewhere in this section refer to the minimum necessary for a degree. It is entirely within the prerogative of the department to assign additional credits of coursework or other requirements in the interest of graduating a fully qualified student.

No graduate credit may be received for courses taken by examination or for non-credit courses. Credits earned at another institution, however, may meet the degree requirements of the Graduate School, but must be transferred 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. Departments and colleges may set more restrictive limits. All transfer credits must be at the “A” or “S” 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 must fall within the six-year time limit to complete degree requirements.

Credits transferred may come from a prior degree. Up to one-third of the total credits required for a master’s degree may come from a prior or concurrent degree at The University of Akron. A University of Akron student who seeks to enroll in courses elsewhere for transfer credit must receive prior approval.

When a student transfers credits from another institution, the student must complete 12 semester credits at The University of Akron with a grade-point average of 3.00 or better. Transfer credits from other institutions shall not be computed as part of a student’s University of Akron grade point average.

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

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

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

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

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

DOCTORAL DEGREE REQUIREMENTS*

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

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

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

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

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

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

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

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

Time Limit

All doctoral requirements must be completed within 10 years of starting coursework at The University of Akron or elsewhere. This refers to graduate work after receipt of a master’s degree or the completion of 30 semester credits. Extensions of up to one year may be granted by Graduate School under unusual circumstances upon written request by the student and recommendation by the advisor and department chair.

Credits

A candidate for a degree must be in good academic standing and maintain a cumulative grade point average of at least 3.00. A minimum of 90 percent of the credits toward the degree must be earned at The University of Akron or its graduate schools. Credits are calculated on the basis of semester hours. A student must be in good standing to enroll in courses for the degree at The University of Akron.

Transfer Credits

Up to 50 percent of the total credits above the baccalaureate required in a doctoral program may be transferred from accredited colleges or universities. Departments and colleges may set more restrictive limits. The credits must be relevant to the student’s academic program as determined by the student’s academic department and must fall within the 10-year limit to complete degree requirements if beyond the master’s degree. All credits transferred must be at the “A” or “B” level (4.00 or above) in graduate courses.

Language Requirements

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

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

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

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

Optional Department Requirements

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

Advancement to Candidacy

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

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

Dissertation and Oral Defense

The ability to do independent research and demonstrate competence in scholarly exposition must be demonstrated by the preparation of a dissertation or a seminar paper. This requirement may be advanced to candidacy. It should represent a significant contribution to knowledge, be presented in a scholarly manner, reveal the candidate’s ability to do independent research and indicate experience in research techniques.

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

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

A draft copy of the dissertation is due in the Graduate School prior to the preliminary deadline. Two copies of the dissertation are due in the Graduate School prior to the final deadline. These copies must be signed by the advisor, department chair and college dean prior to submission to the dean of the Graduate School. A manual entitled Guidelines for Preparing a Thesis or Dissertation is available in the Graduate School and all copies of the dissertation must conform to these instructions.

Graduation

To be cleared for graduation, a candidate must have completed the academic program with a minimum cumulative graduate grade-point average of 3.00; been advanced to candidacy; met the preliminary dissertation deadlines; submitted an approved dissertation and passed an oral examination; filed an application for graduation with the registrar; paid all applicable fees; and met any other department and University requirements.
SECTION 4. Graduate Studies

Buchtel College of Arts and Sciences

Roger B. Creel, Ph.D., Dean
William A. Francis, Ph.D., Associate Dean
Devinder M. Malhotra, Ph.D., Associate Dean
Charles B. Monroe, Ph.D., Associate Dean

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

- The commitment to humanity—that loyal devotion to the heritage contained in those disciplines growing out of the ancient liberal arts which teach limitations and possibilities. The college seeks to provide an appropriate environment for students to acquire an ability to evaluate, integrate and understand the conditions of human existence, to understand themselves in the natural world and in a particular civilization or society. No course or combination of courses can ensure such understanding, there is no schooling that can guarantee wisdom. Therefore, the college requires the student to study ideas and experiences that are the subject matter of a variety of disciplines:
  - The nurture of civility—those actions worthy of the advancement of society, and wise and humane government are encouraged;
  - The advancement of learning—that substantive knowledge discovered and cultivated by critical inquiry, tested by experiment, propagated by instruction and capable of affecting lives so that all may live in a free society exercise responsible liberty. The most enduring contribution which the college can make is to help individuals acquire the skill, motivation and breadth of knowledge to continue their intellectual development throughout their lives.

The college recommends each student for the appropriate bachelor's, master's or doctoral degree in accordance with the level of accomplishment.

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

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

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

DOCTOR OF PHILOSOPHY DEGREE

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

Doctor of Philosophy in Chemistry

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

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

Interdisciplinary Option in Chemical Physics

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

Admission Requirements

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

Graduate students in good standing in the Physics Department may apply for admission as above. Successful applicants should have some advanced chemistry coursework (200-level and above) and endorsement by the chair of the Physics Department.

Degree Requirements

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

- Complete 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.

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 through the Counseling Department of the College of Education. Students in both departments are expected to attain a level of broad scientific competence in the core areas of psychology: the biological, social, cognitive-affective, and individual bases of human behavior. Practicum and internship experiences are also required of all students and range from small clinical settings to actual work with clients, to year-long, full-time internships in an applied service setting. Pertinent information regarding the emphasis, 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 dissertations. The Collaborative Program in Counseling Psychology is accredited by the American Psychological Association.

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

Admission to the Collaborative Program in Counseling Psychology is handled through the Department associated with the student's chosen entry point. Students must fulfill both Departmental and Graduate School admission requirements. Departures from the described program for Psychology Department entry may be made only with the approval of the counseling psychology program faculty.
Requirements

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

- Psychology core courses (60, 620, 630, 940, 650): 16
- Counseling psychology core courses (707, 710, 711, 712, 713, 714, 715, 717, 718, 720): 35
- Practicum sequence (672 [2-2-2-2], 673 [2-2], 795 [4+4], 796 [4+4]): 28
- Advanced Psychological Tests and Measures (750): 4
- Electives (minimum): 6
- Seminars (601, 602): 8
- A statistical sequence that may be substituted for the doctoral language requirement: 8
- Thesis credits (minimum): 3
- Dissertation credits (minimum): 12

- The comprehensive written examination is prepared, administered and graded by faculty. At least one faculty member from each department participates in the oral portion of the comprehensive examination.
- Dissertation – at least one faculty member from each department is required on the student’s dissertation committee.
- Internship – 2,000 hours postmaster’s with 1,600 hours over no more than two years. The internship site must be approved in advance by the Collaborative Program Internship Committee.
- Students must maintain a 3.5 GPA in their content courses each year in the Department of Psychology.

Doctor of Philosophy in History

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

- Fulfill admission requirements of the Graduate School.

The Graduate Committee of the History Department will consider an applicant for admission if a person has a Master’s degree or the equivalent and a grade-point average of 3.5 or better at the M.A. level from an accredited institution. Those holding a Master’s degree from The University of Akron or other accredited institution should not assume that they will automatically be admitted to doctoral studies. In addition to the application made to the Graduate School of The University of Akron, the student must submit to the History Department the following materials:
- a personal statement of reasons for wishing to undertake doctoral study and the fields of study the student wishes to pursue;
- three letters of recommendation from former professors;
- a writing sample, preferably a seminar paper or other comparable scholarly work;
- scores on the Graduate Record Examination, General Aptitude Test;
- evidence of a reading knowledge of one foreign language or knowledge of an acceptable cognate field. Those whose native language is not English must demonstrate proficiency in English.

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

- Complete studies selected by the student in consultation with an advisory committee, including:
  - completion of 60 credits beyond master’s degree requirements, including dissertation credit. Courses at the 500-level in the student’s major and dissertation fields will not be counted toward the degree, and only 9 hours of 500-level courses in the student’s secondary fields will be counted;
  - demonstration of competency in four fields of study selected from the following areas in which the student will be expected to pass written and oral comprehensive exams: ancient, medieval, early modern Europe to 1763, modern Europe since 1750, America to 1877, United States since 1877, Latin America, Far East, Africa, Middle East, South Asia, and History of Science. These four fields must include at least one each in American, European, and non-western history. The student’s dissertation will fall within one of the four chosen fields;
  - satisfactory performance in written and oral comprehensive examinations;
  - defense of the dissertation in an oral examination.

- A reading knowledge of two languages will be required. With the approval of the student’s doctoral committee and the Graduate Committee, the student may substitute a cognate field for one of the two required languages when it seems appropriate for the student’s general program.

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

Doctor of Philosophy in Psychology

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

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

- Fulfill admission requirements of the Graduate School and department requirements as follows:
  - completion of master’s degree including 30 graduate credits;
  - completion of master’s core courses or equivalent;
  - attainment of a graduate grade-point average (GPA) of 3.25;
  - completion of Graduate Record Examination Aptitude and Advanced Psychology Test;
  - securing of three letters of recommendation;
  - Major field:
    - a minimum of 90 graduate credits including a 30-credit master’s program. A student may be required to complete additional credits beyond the 90 minimum credit requirement;
    - completion of Ph.D. core courses in the student’s specialty area: industrial/organizational psychology or applied cognitive aging (refer to the department’s graduate student manual).
  - Fulfill dissertation research:
    - completion of 3750.898 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 dissertation committee, depending on the career plans of the student and upon the academic and/or scientific requirements of the dissertation.

Doctor of Philosophy in Sociology

Akron-Kent Joint Ph.D. Program

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

Admission to the Program

A student may apply with a completed master’s degree or equivalent or after at least one year of full-time coursework or equivalent (15 credits) in the sociology master’s program at The University of Akron. The coursework must include the master of arts core sequence. Scores from the Graduate Record Examination (GRE) are required as part of the doctoral application. Admission is limited to students whose records clearly indicate both scholarly and research potential.

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

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

- Take the following course: 3850.270 College Teaching of Sociology
- Take one doctoral-level course in theory. This course to be selected from the predetermined group of courses (see Department of Sociology graduate student handbook).
Doctor of Philosophy in Urban Studies and Public Affairs

The Department of Public Administration and Urban Studies of The University of Akron offers a program leading to the Ph.D. in Urban Studies and Public Affairs (joint with Cleveland State University's Levin School of Urban Studies). Students admitted to the program may take courses at either campus and all doctoral committees retain the right to approve courses taken at both campuses. The program is designed to educate scholars interested in urban or professional careers in the fields of public administration and urban affairs. The program requires particular emphases on public administration, urban policy, policy analysis and evaluation and planning.

Admission

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

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

Applicants will have successfully completed the following master's-level prerequisites (or equivalents) before formal admission:

- 3980:600 Basic Quantitative Research
- 3980:611 Advanced Research and Statistical Methods
- 3980:612 Introduction to the Profession of Public Administration
- 3980:630 Planning Theory
- 3980:640 Fiscal Analysis
- 3980:643 Introduction to Public Policy

An applicant may be required to appear before the Doctoral Committee before a decision is made on admission to the program.

The Doctoral Committee also may require an applicant to take an admission examination, either written or oral, or both. An applicant may be admitted to the doctoral program subject to completion of additional "bridge-up" coursework designed to address deficiencies in previous coursework. Bridge-up coursework will not count toward doctoral degree course requirements.

Degree Requirements

A minimum of 63 credits beyond the master's degree is required, 51 hours of coursework, and 12 hours of dissertation.

Course work consists of a minimum of 30 credit hours of required core, 18 credit hours in a specialization and a 3 credit hour Pro-Seminar. The Pro-Seminar cannot be taken until all coursework and examination requirements have been met and the student has achieved "Advancement to Candidacy" status.

• Core Courses:
  - 3980:700 Advanced Research Methods I
  - 3980:701 Advanced Research Methods II
  - 3980:702 Urban Theory I
  - 3980:703 Urban Theory II
  - 3980:705 Economics of Urban Policy
  - 3980:708 Urban Policy: The Historical Perspective
  - 3980:710 Qualitative Research Methods
  - 3980:714 Seminar in Public Administration
  - 3980:715 Seminar in Urban and Regional Planning

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

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

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

• Examinations:
  To be eligible for Advancement to Candidacy and the preparation of a dissertation, a student must pass qualifying and specialization written, comprehensive examinations. Students must register for 3980:795, Pro-Seminar, in the first semester after having achieved Advancement to Candidacy status. Students must also successfully defend their dissertations.

• Other requirements:
  Refer to the Departmental Graduate Student Handbook and the Ph.D. Coordinator for other requirements and guidelines. Complete 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, computer science, economics, English, geography and planning, geology (earth sciences), history, mathematics, modern languages (Spanish), 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 that the student has performed work which the department approves as equivalent to an undergraduate major.

Biology

Admission Requirements

• Possess the equivalent of a biology undergraduate major with a GPA of 3.00 or higher in biology courses.
• Must have at least one semester of organic chemistry.
• Submit three letters of recommendation.
• Submit scores for Graduate Record Examination (Aptitude and Advanced Biology Test).
• Submit a letter of proposed area of specialization within biology.
• Non-active speakers of English must submit a TSE score of 220 or above (minimum score of 50 on TSE, revised 1989) to be considered for a graduate assistantship.
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 – maximum of four credits.
- The student's advisory committee may require the demonstration of reading proficiency in a foreign language appropriate to the field of study.

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

Thesis Option II
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 officer) – 15 credits (no transfer credits are allowed for this option).
- Research and thesis – minimum of 12 credits.
- Participation in seminars – a maximum of two credits.

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

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

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

Chemistry

Master of Science

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

Computer Science

Master of Science – Computer Science

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

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

The aptitude test of the Graduate Record Examination is required, and the GRE Advanced Computer Science Test is recommended.

Degree Requirements
The program has been designed to follow the guidelines and recommendations of the Association for Computing Machinery for Master's Programs in Computer Science. Most full-time degree candidates admitted into the program will complete the degree requirements in two years. The thesis option requires 30 semester hours of graduate work while the nonthesis option requires 33. With prior consent, up to 6 credits of approved graduate-level coursework outside the department may be substituted for elective courses in both the thesis and nonthesis options.

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

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

C. Applications: 3460:557, 558, 660, 675.

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 and 3 credits in 3460:599 Master's Thesis. The thesis must be of publishable quality and must be successfully presented at a public defense moderated by three full time graduate faculty (two of which must be from Computer Science).

Non-thesis Option (33 credits of graduate work)
30 credits in approved coursework, at least 18 credits of which must be taken at the 600 level. In addition, 3 credits in 3460:698 and 3 credits in 3460:599 Master's Thesis. The thesis must be of publishable quality and must be successfully presented at a public defense moderated by full time graduate faculty (two of which must be from Computer Science).

Economics

Master of Arts

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

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

Required Courses for both options:

- 3250:602, 611 Microeconomic Analysis
- 3250:615 Macroeconomic Theory
- 3250:620, 626 Applications of Mathematical Models to Economics*
- 3250:626 Statistics for Econometrics*

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

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

English

Master of Arts – Literature Track

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

Nonthesis Option
A minimum of 36 credits is required, of which 24 must be at the 600 level and 24 must be in literature or literary theory.

Required Courses for Both Options

- 3300:506 Chaucer
- 3300:570 History of the English Language or
- 3300:670 Modern Linguistics
- 3300:615 Shakespearean Drama
- 3300:691 Bibliography and Literary Research
At least one course in four of the following five categories is required:

<table>
<thead>
<tr>
<th>British</th>
<th>American</th>
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<tr>
<td>Up to 1663</td>
<td>Up to 1865</td>
</tr>
<tr>
<td>1661-1800</td>
<td>1865-present</td>
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<tr>
<td>1900-present</td>
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**Master of Arts – Composition Track**

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

**Thesis Option**

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

**Nonthesis Option**

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

**Required courses for both options:**

- 3300:673 Theories of Composition
- 3300:674 Research Methodologies in Composition
- 3300:676 Theory and Teaching of Basic Composition
- 3300:689 New Rhetorics

**Students must also choose one of the following two courses:**

- 3300:569 Grammatical Structures of Modern English
- 3300:670 Modern Linguistics

**And one of the following three courses:**

- 3330:525 Autobiographical Writing
- 3330:589 Management Reports
- 3330:679 Scholarly Writing

**Optional courses:**

- 3300:684 Contemporary Reading Theory
- 3300:689 Composition and Rhetoric
- 3300:689 Cultural Studies in Composition Theory
- 3300:689 Literature and Composition

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

**Geography and Planning**

**Master of Arts in Geography**

**Thesis Option**

- A minimum of 45 graduate credits, to include no more than 3 credits of independent study (3350:699).
- Core Requirements (15 credits)
  - 3350:507 Advanced Geographic Information Systems
  - 3350:540 Principles of Cartography
  - 3350:542 Thematic Cartography
  - 3350:544 Applications in Cartography and GIS
  - 3350:547 Remote Sensing
  - 3350:548 Advanced Cartography
  - 3350:549 Advanced Remote Sensing
  - 3350:587 History of Geographic Thought
  - 3350:600, 601, 602 Seminar (6 credits)
- Electives – (21 credit hours)
- Additional Electives – (3 credit hours)

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

**GIS/Remote Sensing**

- 3350:507 Advanced Geographic Information Systems
- 3350:540 Principles of Cartography
- 3350:542 Thematic Cartography
- 3350:544 Applications in Cartography and GIS
- 3350:547 Remote Sensing
- 3350:548 Advanced Cartography
- 3350:549 Advanced Remote Sensing
- 3350:680 Advanced Spatial Analysis
- 3350:687 History of Geographic Thought
- 3350:600, 601, 602 Seminar (6 credits)

**Environmental**

- 3350:515 Environmental Planning
- 3350:532 Urban Land Use Planning Law
- 3350:533 Practical Approaches to Planning
- 3350:571 Medical Geography and Health Planning
- 3350:595 Soil and Water Field Studies

**Urban/Economic**

- 3350:520 Urban Geography
- 3350:522 Transportation Systems Planning
- 3350:528 Industrial and Commercial Site Location
- 3350:536 Urban Land Use Analysis
- 3350:539 History of Urban Design and Planning
- 3350:553 Development Planning
- 3350:633 Comparative Planning

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

**Master of Science in Geography**

**Thesis Option**

- A minimum of 45 graduate credits, to include no more than 3 credits of independent study (3350:699).
- Core Requirements (15 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, 602 Seminar (6 credits)
- Techniques Requirements (9 credits)
  - 3350:506 Geographic Information Systems
  - 3350:540 Principles of Cartography
  - 3350:547 Remote Sensing
- Techniques Electives (at least 6 credits)
  - 3350:507 Advanced Geographic Information Systems
  - 3350:542 Thematic Cartography
  - 3350:544 Applications in Cartography and GIS
  - 3350:548 Advanced Cartography
  - 3350:549 Advanced Remote Sensing
  - 3350:680 Advanced Spatial Analysis
- Thesis
  - At least 9 credits and no more than 15 credits of 3350:699.

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

**Nonthesis Option**

- A minimum of 45 graduate credits.
- Core Requirements (18 credits)
  - 3350:581 Research Methods in Geography and Planning
  - 3350:583 Spatial Analysis
  - 3350:596 Field Research Methods
  - 3350:687 History of Geographic Thought
  - 3350:600, 601, 602 Seminar (6 credits)
- Techniques Requirements (6 credits)
  - 3350:505 Geographic Information Systems
  - 3350:540 Principles of Cartography
  - 3350:547 Remote Sensing
- Techniques Electives (at least 9 credits)
  - 3350:507 Advanced Geographic Information Systems
  - 3350:542 Thematic Cartography
  - 3350:544 Applications in Cartography and GIS
  - 3350:548 Advanced Cartography
  - 3350:549 Advanced Remote Sensing
  - 3350:680 Advanced Spatial Analysis
  - 3350:687 History of Geographic Thought
  - 3350:600, 601, 602 Seminar (6 credits)
• Environmental/Economic Electives (at least 9 credits)
  3350:515 Environmental Planning
  3350:520 Urban Geography
  3350:522 Transportation Systems Planning
  3350:528 Industrial and Commercial Site Location
  3350:532 Land Use Planning Law
  3350:533 Practical Approaches to Planning
  3350:536 Urban Land Use Analysis
  3350:539 History of Urban Design and Planning
  3350:550 Development Planning
  3350:595 Soil and Water Field Studies
  3350:633 Comparative Planning

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

Master of Arts (Geography/Urban Planning)

Thesis Option
• A minimum of 45 graduate credits plus internship (3350:685), to include no more than 3 credits of independent study (3350:698).
• Core Requirements (30 credits)
  3350:505 Geographic Information Systems
  3350:532 Land Use Planning Law
  3350:537 Planning Analysis and Projection Methods
  3350:538 Land Use Planning Methods
  3350:539 History of Urban Design and Planning
  3350:541 Research Methods in Geography and Planning
  3350:563 Spatial Analysis
  3350:630 Planning Theory
  3350:632 Facilities Planning
  3350:660, 601, 602 Seminar (3 credits)
• Thesis
  At least 9 credits and no more than 15 credits of 3350:699.
• Electives
  Courses to total at least 45 credits.

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

Nonthesis Option
• A minimum of 45 graduate credits plus internship (3350:685).
• Core Requirements (30 credits)
  3350:505 Geographic Information Systems
  3350:532 Land Use Planning Law
  3350:537 Planning Analysis and Projection Methods
  3350:538 Land Use Planning Methods
  3350:539 History of Urban Design and Planning
  3350:541 Research Methods in Geography and Planning
  3350:563 Spatial Analysis
  3350:630 Planning Theory
  3350:632 Facilities Planning
  3350:660, 601, 602 Seminar (3 credits)
• Electives – (15 credits)
  Five courses, with at least three in one area.

GIS/Remote Sensing
  3350:507 Advanced Geographic Information Systems
  3350:544 Applications in Cartography and GIS
  3350:547 Remote Sensing
  3350:548 Advanced Cartography
  3350:549 Advanced Remote Sensing
  3350:690 Advanced Spatial Analysis

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

Urban/Economic
  3350:520 Urban Geography
  3350:522 Transportation Systems Planning
  3350:528 Industrial and Commercial Site Location
  3350:536 Urban Land Use Analysis
  3350:550 Development Planning
  3350:633 Comparative Planning

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

Geology

Master of Science
• Complete a minimum of 30 credits of which at least 10 credits shall be at the 600 level and no more than two in research programs and six in thesis research.
• In all 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 credit). 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:
  3370:688 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 adopted to his/her career objectives.

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

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

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

Earth Science
Equivalents of the current geology courses for the University’s B.A. in geology are required. Course program will be selected to provide the student with a well-rounded background in lithosphere, hydrosphere and atmosphere. Those who will be teachers must take 5500:780 Seminar in Curricular and Instructional Studies: Earth Science, or equivalent.

Geophysics
Equivalents of the geology, geophysics and mathematics requirements for the University’s B.S. in geophysics are required.

Engineering Geology
This program is for the graduate engineer and geologist who wishes to broaden expertise in the other field. The entering student who has some deficiencies in either geology 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
Equivalents of the University’s B.S. degree in natural science (biology, chemistry, geology, mathematics, or physical or engineering, plus the equivalent of the University’s minor in geology and Geology Field Camps i an II are required. As many as eight credits may be selected from engineering, biology and/or geography with the approval of a geology advisor.
**History**

**Master of Arts**

- Students applying for admission to the M.A. program must have a minimum undergraduate grade-point average of 3.0. The applicant's average in history courses should be substantially higher. Applicants must also have completed at least 24 semester or 36 quarter hours in history courses at the undergraduate level. An application to the M.A. program consists of the following:
  - an application form;
  - a letter of intent, stating the applicant's reasons for wishing to pursue graduate work and the fields of history which the applicant intends to study;
  - scores on the Graduate Record Examination, General Aptitude Test;
  - a writing sample, preferably a research paper from a history class;
  - three letters of recommendation, preferably from faculty who know the applicant well.

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

- Degree requirements include:
  - Satisfactory completion of a minimum of 30 credits of graduate study in history, of which only six may be in individual reading.
  - Concentrated study of three fields, two of which must be chosen from the following:
    - Ancient
    - Medieval
    - Europe, Renaissance to 1750
    - South Asia
    - Middle East
  - Three additional departmental seminars, two of which must be chosen from the following:
    - Medieval: Medieval Europe Since 1877
    - United States Since 1877
    - Latin America
    - East Asia
    - History of Science
    - Africa
  - The third field must be chosen from the above history fields or from an approved cognate discipline.
  - The student must pass written examinations in two of the three fields. The third field requirement will be met by at least seven credits of coursework at the graduate level, completed with a GPA of 3.0.

- Option I

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

- Option II

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

- Option III

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

**Physics**

**Master of Science**

- Complete a minimum of 30 graduate credits of approved courses in physics. Up to six credits of graduate-level electives outside the department may be included in the program. There is no foreign language requirement for this degree.

- A cumulative grade-point average of 3.00 or better for all graduate-level credits approved toward the degree.

- Complete an approved program of courses which includes the following required courses:
  - 3650:561 Advanced Laboratory I
  - 3650:615 Electromagnetic Theory I
  - 3650:625 Quantum Mechanics II
  - 3650:641 Lagrangian Mechanics
  - 3650:661 Statistical Mechanics
  - 3650:665 Solid State Physics I

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:

- 3650:661 Electromagnetic Theory II
- 3650:665 Quantum Mechanics II
- 3650:725 Advanced Laboratory II

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

- 3650:500 Methods of Mathematical Physics I
- 3650:616 Electromagnetic Theory II
- 3650:625 Quantum Mechanics II
- 3650:725 Advanced Laboratory II

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

- Option A: A written exam covering the field of physics at the advanced graduate level.
- Option B: A formal report, based on an original research project, submitted in a form suitable for publication and approved by a physics faculty committee.
- Option C: A master's thesis.

- Graduate research participation is strongly encouraged. Up to five credits may be earned in 3650:687 Graduate Research. Upon the completion of a graduate research project, one additional credit may, upon approval by the department, be permitted in 3650:688 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 26 of this Graduate Bulletin. The Chemical Physics option is described in detail on page 26.

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

**Political Science**

**Master of Arts**

**Admission**

Admission is open to students who have completed a four-year undergraduate degree and who fulfill the admission requirements of the Graduate School. Two letters of recommendation (at least one from a faculty member who has worked with the student in the past two years, if applicable) and a personal statement outlining the expected fit between the student's skills and objectives and the department's programs and resources are required. The Graduate Record Examination (GRE) is recommended, but not required.

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

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

**Degree Requirements**

- Complete 30 credits of graduate work, including 18 credits at the 600 level, as follows:
  - Two required core courses:
    - 3700:600 Scope and Theory of Political Science
    - 3700:601 Research Methods in Political Science
  - Three additional departmental seminars, 9 credits (neither independent research, thesis, nor internship is considered a graduate seminar).
  - Six credits of Topics in Master's Research (3700:695).
  - Nine additional credits at the graduate level.
- Pass a comprehensive written examination covering one concentration: American Government Institutions, American Linkage Institutions, The Politics of Criminal Justice, International Politics, Comparative Politics, or Political Theory.
Admission

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

Requirements

• Complete 39 credits of graduate work, including the following:

  - Core courses - 27 credits:
    - 3700:570 Campaign Management I 3
    - 3700:571 Campaign Management II 3
    - 3700:572 Campaign Finance 3
    - 3700:540 Survey Research Methods 3
    - 3700:600 Scope and Theory of Political Science 3
    - 3700:601 Research Methods in Political Science 3
    - 3700:649 Internship in Government and Politics 3
    - 3700:672 Seminar: Political Influence and Organizations 3
    - 7000:691 Advanced Communication Studies: Communication in Political Campaigns 3

• Three credits required; additional credits will be counted toward elective credit.

• Elective courses - 12 credits (6 credits must be at the 600-level) selected from the following courses:
    - 3700:502 Politics and the Media 3
    - 3700:527 Political Behavior and Electoral Politics 3
    - 3700:573 Voter Contact and Elections 3
    - 3700:576 American Interest Groups 3
    - 3700:577 American Political Parties 3
    - 3700:620 Seminar in Comparative Politics 3
    - 3700:630 Seminar in National Politics 3
    - 3700:668 Seminar: Policy Agendas and Decisions 3
    - 3700:690 Special Topics in Political Science (applied focus) 3
    - 3700:697 Independent Research and Readings (applied focus) 3
    - 3980:814 Ethics and Public Service 3
    - 7000:825 Theories of Argument and Persuasion 3

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

• Pass an oral defense of the applied politics portfolio.

Public Administration and Urban Studies

Master of Arts in Urban Studies

Admission

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

• For students who have an overall, four-year, GPA below 3.0 a standardized test score from the GRE, GMAT, LSAT, or NAI, is appropriate for the area of undergraduate degree.

• A copy of their current resume (especially important for in-service students to ascertain their professional experience).

• A personal essay stating why they are seeking admission in the MA program.

• A personal essay stating what they are seeking admission in the MA program.

• A personal essay stating why they are seeking admission in the MA program.

• A personal essay stating why they are seeking admission in the MA program.

Basic Program

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

- 3980:600 Basic Quantitative Research 3
- 3980:601 Advanced Research and Statistical Methods 3
- 3980:602 History of Urban Development 3
- 3980:612 National Urban Policy 3

Choose two from the following:

- 3980:619 Citizen Persuasion 3
- 3980:621 Urban Society and Service Systems 3
- 3980:641 Urban Economic Growth and Development 3
- 3980:650 Comparative Urban Systems 3

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

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

- For students who have an overall, four-year, GPA below 3.0, a standardized test score from the GRE, GMAT, LSAT, or MAT, as appropriate for the area under graduate degree.
- A personal essay stating why they are seeking admission in the MA program. The essay must be based on the GPA and competitive evaluation of the standardized test results, essay, and resume. If the applicant is deficient in one or two of the areas, they may be admitted on a provisional basis depending on GPA. Those admitted provisionally must take 15 credit hours of course work as specified in the department's Master's Handbook and based upon the recommendation of the student's advisor. Full admission to the program will be based upon performance in these courses.

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

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

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

- Core requirements (30 credit hours):
  - 3880:600 Basic Quantitative Research 3
  - 3880:601 Advanced Research and Statistical Methods 3
  - 3880:610 Legal Foundations of Public Administration 3
  - 3880:611 Introduction to the Profession of Public Administration 3
  - 3880:615 Public Organization Theory 3
  - 3880:616 Personnel Management in the Public Sector 3
  - 3880:640 Fiscal Analysis 3
  - 3880:642 Public Budgeting 3
  - 3890:643 Introduction to Public Policy 3
  - 3900:614 Ethics and Public Service (capstone class) 3

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

Policy Analysis and Evaluation
- Public Services Administration
- Urban Affairs
- Non-Profit Administration
- Applied Politics

Public Sector Management
- Community Development
- Public Health Administration
- Lifespan and Gerontology Urban Planning

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

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

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

J.D./Master of Public Administration
The University offers a joint J.D. and Public Administration program. The title is J.D./M.P.A. To be accepted into the program, a student must meet the admission requirement of the School of Law, the Graduate School, and the Department of Public Administration and Urban Studies.

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

Under this program a student must take 48 credits of required law courses, 32 credits of law electives, and 30 credits of required public administration courses plus an internship of three credits. (Internship is required of any student without professional administrative experience.)

This program reduces the total existing credit hours of the School of Law and Public Administration by nine credit hours (from 95 to 76), while public administration requirements are reduced by 12 credit hours (from 42 to 30).

Sociology

Master of Arts

Thesis Option
Satisfactory completion of 32 semester credits of which at least 21 must be at the 600 level or higher in sociology (excluding 3380:699; 3850:697 and 3850:698). In meeting these requirements the student must:

- Complete four required core courses with at least a 3.0 grade-point average:
  - 3850:601 Proseminar in Sociology 3
  - 3850:604 Research Design and Methods 3
  - 3850:706 Multivariate Techniques in Sociology 3
  - 3850:722 Early Sociological Thought 3

- Complete at least six hours of thesis work (3850:699). No more than six credits will count toward the degree.
- Completion of master's thesis and successful oral defense of thesis.

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

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

- Complete three required core courses with at least a 3.0 grade-point average:
  - 3850:601 Proseminar in Sociology 3
  - 3850:604 Research Design and Methods 3
  - 3850:722 Early Sociological Thought 3

- Completion of at least 15 credits in a contracted specialty area. This area must be defined in consultation with the student's advisor and approved by the Graduate Studies Committee. Courses from other departments may be taken to meet the specialty requirement.
- Pass an oral examination on the specialty area.

Research Paper Option
Satisfactory completion of 32 semester credits of which at least 21 must be at the 600 level or higher in sociology (excluding 3380:699, 3850:697, 3850:698 and 3850:699). In meeting these requirements the student must:

- Complete four required core courses with at least a 3.0 grade-point average:
  - 3850:601 Proseminar in Sociology 3
  - 3850:604 Research Design and Methods 3
  - 3850:706 Multivariate Techniques in Sociology 3
  - 3850:722 Early Sociological Thought 3

- Complete at least six hours of Master's Research Paper work (3850:699). No more than six credits will count toward the degree, but a student may register for more than six (6) hours.
- Completion of Master's Research Paper and successful oral defense of paper.
Statistics

Master of Science - Statistics

• Entrance into the program will require the initial completion of the following pre-requisites:
  - 3450:510 Analytic Geometry-Calculus III, four credits; or equivalent.
  - 3450:512 Linear Algebra, three credits; or equivalent.
  - 3470:465-561 Applied Statistics I, four credits; or equivalent.
• Core curriculum:
  - 3470:651 Probability and Statistics
  - 3470:652 Advanced Mathematical Statistics
  - 3470:655 Linear Models
  - 3470:653 Experimental Design
  - 3470:665 Regression
  - Total 16

Statistical Computer Science option (addition to existing master's program)

• Other required courses:
  - 3460:501 Fundamentals of Data Structures
  - 3460:506 Introduction to C and UNIX
  - 3460:575 Data Base Management
  - 3470:560 Statistical Data Management
  - Total 12

Thesis requirements (30 credits of graduate work)

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

Nonthesis requirements (33 credits of graduate work)

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

Theoretical and Applied Mathematics

Master of Science - Mathematics

Goals: The program is designed to give students a solid foundation in graduate-level mathematics, provide hands-on experience in problem-solving and the uses of technology, and to allow returning mathematics teachers to upgrade their qualifications.

Administration: Upon admission to the program, each student will undergo a review. Deficiencies in any mathematical area will add to the number of credits required for graduation. Core requirements already satisfied will be replaced by approved electives.

• Core requirements:
  - 3460:610 Advanced Linear Algebra
  - 3460:512 Advanced Algebra II
  - 3450:522 Advanced Calculus I
  - 3450:611 Topics in Algebra
  - 3450:621 Real Analysis
  - 3450:626 Analytic Function Theory
  - 3460:638 Advanced Combinatorics and Graph Theory
  - 3460:692 Seminar in Mathematics

A statistics course selected from:
  - 3470:550 Probability
  - 3470:551 Theoretical Statistics I
  - 3470:651 Applied Statistics I
  - 3470:651 Probability and Statistics

• Electives: 9-13 credits

Thesis Option

A minimum of 30 credits is required. All elective courses must be approved by the graduate advisor. An acceptable master's thesis must be completed for 2-4 credits in 3450:699 Master's Thesis. Before registering for Master's Thesis, the student will meet with an advisory committee for evaluation of the thesis topic and will present a formal plan of development.

Nonthesis Option

A minimum of 33 credits is required. All elective courses must be approved by the graduate advisor. In addition, the student will generate a project or paper to complete the degree.

* 3460:692 Seminar in Mathematics may be repeated once for a total of 4 credits.

Master of Science - Applied Mathematics

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

• Core:
  - 3450:510 Advanced Linear Algebra
  - 3450:525 Analytic Function Theory
  - 3450:621 Advanced Numerical Analysis I, II
  - 3450:630 Advanced Numerical Analysis I, II
  - 3450:692 Seminar in Mathematics

Thesis Option (30-39 credits)

In addition to the placement review and core requirements, 3-5 credits of approved 500/600 level courses in mathematics (3450), statistics (3470), or computer science (3460), and 2-4 credits in 3450:699 Master's Thesis must be completed. Any graduate-level course may be substituted as an elective provided that this is approved beforehand by the student's advisory committee.

Nonthesis Option (33-42 credits)

In addition to the placement review and core requirements, 10 credits of approved 500/600 level courses in mathematics (3450), statistics (3470), or computer science (3460), must be completed. Any graduate-level course may be substituted as an elective provided that this is approved beforehand by the student's advisory committee. Additionally, the student must successfully complete a Comprehensive Examination in the courses 3450:621, 625, 627, 633, and 634.

Coordinated Program

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

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

Admission Requirements

Applicants for the Engineering Applied Mathematics Program must have their graduate application and credentials evaluated by one of the departments in the College of Engineering and the Department of Theoretical and Applied Mathematics. The Admission Requirements for the Doctor of Philosophy in Engineering, as given in the Graduate Bulletin (see page 97, College of Engineering), shall apply to all applicants for the Engineering Applied Mathematics Program.
The University of Akron 2002-2003

College of Engineering

S. Graham Kelly, Ph.D., Interim Dean
Subramaniya I. Haniraran, Ph.D., Interim Associate Dean,
Research and Graduate Studies
Paul C. Larr, Ph.D., Associate Dean,
Undergraduate Studies and Diversity Program

Mission of the College

The College of Engineering at The University is committed to excellence in undergraduate and graduate education. The College of Engineering was founded in 1914 and is the second oldest college at the University. The College embraces the departments of Biomedical Engineering, Chemical Engineering, Civil Engineering, Electrical and Computer Engineering, and Mechanical Engineering. The current research focus of the College includes: gas turbine technology, filtration technology, nanotechnology, lightweight automotive research, aero-propulsion technology, catalysis, industrial controls, computational mechanics, smart materials, composites, and civil structures, and a variety of modeling and simulation issues of engineering problems. During the academic year 1989-90, the College adopted interdisciplinary procedures for the doctoral program offered by the College. The program is truly interdisciplinary in nature.

The mission of graduate education in the College of Engineering is to:

• Train engineers and scientists to solve some of the most important technical issues.
• Train students to develop theory, methodology, and necessary experimental skills to investigate emerging issues in engineering and science that affect state and national interests.
• Provide excellence in presenting student findings via theses, doctoral dissertations, and research papers.
• Train students to be future educators where appropriate.
• Train students in industrial research where appropriate.
• Train students to work on interdisciplinary teams where appropriate.

As the state positions itself in the forefront of the technology, appropriately trained scientists and engineers are needed in all fields. Our graduate programs provide training that equips students with the knowledge and ability to assume leadership roles in technological fields related to the field of engineering. In addition, our programs attract a variety of students from several industries andNASA Glenn Research Center in Northeast Ohio. The College is a partner of the Ohio Aerospace Institute (OAI).

DOCTOR OF PHILOSOPHY IN ENGINEERING DEGREE

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

Admission Requirements

Applicants for the Doctor of Philosophy in Engineering must hold a bachelor’s degree from a program that is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology at the time of graduation, or provide satisfactory evidence of an equivalent academic background to the Dean of the College of Engineering.

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

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

The GRE requirements may be waived by the department for students holding degrees from ABET accredited programs. A minimum score of 1200 is expected on the combined analytical and quantitative portions of the GRE.

Applicants with a bachelor’s degree must have a cumulative grade-point average of at least 3.04.0.

Applicants with a master’s degree must have a cumulative grade-point average of at least 3.54.0.

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 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 discipline other than engineering shall have completed undergraduate coursework in calculus, differential equations, and have some 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 completed 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 36 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 required 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 disci-
The applicable Degree Requirements for the Engineering Applied Mathematics Program must have their academic credentials evaluated by the College of Engineering Dean's Office and the applied mathematics division of the Department of Theoretical and Applied Mathematics. The Admission Requirements for the Doctor of Philosophy in Engineering at The University of Akron subject to the following modifications.

The interdisciplinary doctoral program has succeeded in providing doctoral students access to the interdisciplinary programs in Environmental Engineering, Materials Engineering, Mechanics, Systems Engineering, and Transport Processes. The objective of the proposal was to allow doctoral students access to the infrastructure resources of the entire college and permit the interdisciplinary programs to adapt to the changing research and funding environment. Since the approval of the proposal, the interdisciplinary areas have expanded from the original five programs to ten interdisciplinary programs. These interdisciplinary programs are broadly defined as follows.

- Environmental Engineering includes the study of water and air pollution, environmental health, chemical disposal, waste management, noise control, resource engineering, and appropriate fields of urban planning.
- Mechanics includes the theoretical and experimental study of the stresses, strains, and endurance of structures, machines and various materials, mechanics of solids, fluids, solid, and composite materials.
- Systems Engineering include the scientific prediction, control, and evaluation of the performance of integrated operational systems, and interaction effects among the components of engineering systems. It includes system analysis and design, operations research, linear and dynamic programming.
- Materials Engineering studies the materials from the physical, chemical, and engineering standpoints. Its purpose is to develop a better understanding of the composition, properties, and performance of various materials, and to develop new materials, manufacturing methods, and applications.
- Transport Processes include the theoretical and experimental study of the transfer of mass, energy, and power, as related to engineering systems and processes.
- Biomedical Engineering studies the theoretical and experimental application of engineering principles to biomedical problems. Some typical areas of interest are signal and image processing, biomechanics, and biotomers.
- Polymer Engineering combines fundamental engineering principles with the study of the chemical and mechanical 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 Physical Engineering studies small particles, surface science, agglomerate, and separation as applied to process engineering.

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

COORDINATED AND JOINT PROGRAMS

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

Admission Requirements

Applicants for the Engineering Applied Mathematics Program must have a graduate application and credentials evaluated by the College of Engineering Dean's Office and the applied mathematics division of the Department of Theoretical and Applied Mathematics. The Admission Requirements for the Doctor of Philosophy in Engineering, as given in the Graduate Bulletin, shall apply to all applicants for the Engineering Applied Mathematics Program.

Degree Requirements

The applicable Degree Requirements for the Engineering Applied Mathematics Program are those given in the Graduate Bulletin under the Section on 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 this applied mathematics division of the Department of Theoretical and Applied Mathematics and the participating faculty from one of the five departments in the College of Engineering.

The Interdisciplinary Doctoral Committee shall consist of at least six members. It shall have an equal number of faculty with primary appointments in the College of Engineering and participating program faculty from the applied mathematics division of the Department of Theoretical and Applied Mathematics. The participating faculty from the Department of Theoretical and Applied Mathematics must hold joint appointments in the College of Engineering.

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

Students participating in the Engineering Applied Mathematics Program must have at least 50 percent of minimum coursework from the College of Engineering and at least 50 percent of minimum coursework from the Department of Theoretical and Applied Mathematics.

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

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

Admission Requirements

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

Degree Requirements

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

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

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

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

The College of Engineering and NEOUCOM provide a coordinated program for those desiring both the M.D. and Ph.D. in Engineering degrees. This program integrates the knowledge and skills acquired by the student in each of the programs. Each individual coordinated degree program is tailored to suit the background and research interests of the student. Additional information may be obtained from The University of Akron Department of Biomedical Engineering or NEOUCOM.

Admission Requirements

Applicants with a bachelor's or master's degree in a discipline other than engineering or in engineering will be required to meet the Admission Requirements for the Doctor of Philosophy Degree in Engineering. Applicants 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:
The University's Academic Requirements

Applicants

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 graduates or provide evidence of an equivalent academic background to the Dean of the College of Engineering and the appropriate department chair.

Applicants must submit an official undergraduate transcript, whose native language is not English, must have a TOEFL score of at least 550 (paper-based) or 213 on the computer-based TOEFL, and also must submit their score on the Test of Written English (TWE).

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

Degree Requirements

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

- 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.

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.

**Note:** Students without a B.S. in Chemical Engineering are required to take 4200:536, 4200:541.

**Five Year BS/MS Chemical Engineering Program**

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.

**Master of Science in Civil Engineering**

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

**Master of Science in Electrical Engineering**

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

**Second Year**

**Chemical Engineering Courses**

- 4200:536 Physical Electronics
- 4200:541 Electronic Design
- 4200:537 Switching and Logic
- 4200:538 Energy Conversion I
- 4200:539 Energy Conversion Lab
- 4200:445 Analog Communications
- 4200:453 Antenna Theory
- 4200:472 Control Systems II
- **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**
- Approved Mathematics
- **Total** 15

- **Approved Electives**
- **Total** 30
**Nonthesis Option**

<table>
<thead>
<tr>
<th>Course Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Engineering Courses**</td>
<td>18</td>
</tr>
<tr>
<td>Approved Mathematics</td>
<td>6</td>
</tr>
<tr>
<td>Approved Electives</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33</strong></td>
</tr>
</tbody>
</table>

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

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

**Master of Science in Mechanical Engineering**

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4600:300</td>
<td>Thermodynamics I</td>
<td>4</td>
</tr>
<tr>
<td>4600:301</td>
<td>Thermodynamics II</td>
<td>3</td>
</tr>
<tr>
<td>4600:310</td>
<td>Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>4600:315</td>
<td>Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>4600:336</td>
<td>Analysis of Mechanical Components</td>
<td>3</td>
</tr>
<tr>
<td>4600:340</td>
<td>Systems Dynamics and Response</td>
<td>3</td>
</tr>
<tr>
<td>4600:380</td>
<td>Mechanical Metallurgy</td>
<td>2</td>
</tr>
<tr>
<td>4600:444</td>
<td>Fundamentals of Mechanical Vibrations</td>
<td>3</td>
</tr>
<tr>
<td>4600:445</td>
<td>Control System Design</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>27</strong></td>
</tr>
</tbody>
</table>

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

**Thesis Option**

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

**Nonthesis Option**

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

**Master of Science in Engineering**

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

**Admissions**

Except for students in biomedical engineering and polymer engineering, students should declare in writing to the Dean of Engineering of their intention to study toward the Master of Science in Engineering degree. Upon admission, the dean will appoint an advisory committee consisting of three faculty members who are selected from at least two different departments.

**Thesis Option**

<table>
<thead>
<tr>
<th>Course Category</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>6</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 Category</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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4800:601</td>
<td>Biomedical Instrumentation</td>
<td>4</td>
</tr>
<tr>
<td>4800:611</td>
<td>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>

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

**Polymer Engineering Specialization**

* 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 Engineering.

**Engineering Management Specialization**

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

<table>
<thead>
<tr>
<th>Course Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Courses</td>
<td>2</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>

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

**Required Courses**

<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>4</td>
</tr>
<tr>
<td>6400:602</td>
<td>Managerial Finance*</td>
<td>3</td>
</tr>
<tr>
<td>6500:600</td>
<td>Management and Organizational Behavior*</td>
<td>3</td>
</tr>
<tr>
<td>6800:600</td>
<td>Marketing Concepts*</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elective**

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

* More advanced graduate business courses shall be reviewed of students who have completed similar undergraduate courses. This determination shall be made by the Assistant Dean and Director of Graduate Business Programs, College of Business Administration.
** 6000:501 is a prerequisite for 6400:502.
College of Education

Elisabeth J. Struble, Ph.D., Dean
Robert K. Eley, Ed.D., Assistant Dean for Student Affairs
Charlene K. Reed, Ph.D., Assistant Dean for Administration and Strategic Initiatives

Mission Statement

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

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

The education program and courses presented in the bulletin reflect the most current courses and program offerings. For further information about specific programs and requirements, contact the College of Education Office of Student Affairs/Advisement Office. (330) 972-6770.

DOCTOR OF PHILOSOPHY DEGREE

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

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

Doctoral Residency Requirements

The minimum residency requirement for a doctoral candidate in all programs is at least two consecutive semesters of full-time study and involvement in departmental activities. Full-time study is defined as 9-15 semester credits, except for graduate teaching and research assistantships for whom full-time is specified by assistantship agreements. The summer session may count as one semester, provided that the candidate is enrolled for a maximum of 10 consecutive weeks of full-time study and for a minimum of six semester hours per five-week session.

Continuous Doctoral Program Enrollment

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

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

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

Program Description

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

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

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

1. Written and Oral Comprehensive

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

2. Dissertation

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

Admission Requirements

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

1. Graduate and undergraduate degrees from accredited universities and in programs considered to offer adequate preparation for the Ph.D. in Curricular and Instructional Studies (Ph.D., Elementary Education; Ph.D., Secondary Education).
2. Acceptable grade point averages in a completed graduate degree (at least a 3.50 GPA on a scale of 4.0).
3. Demonstration of doctoral level writing ability as evidenced by a Miller Analogies Test score of 45 or higher, (or a 550 on the verbal portion of the GRE), and a prescribed and evaluated writing sample.
4. Three or more failing evaluations on the controlled writing assignments of the program.
5. A grade point average of 3.0 in all graduate work.
6. A 3.50 in all courses in a foundation studies program designed to prepare the student for the specialized study.
7. A passing grade in the Miller Analogies Test/GRE.
8. Completion of an academic writing assignment.
9. Evidence of intellectual maturity and potential for scholarly achievement.
10. Approval of the Student's petition and an interview with the Program Director.

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

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

b. Applicants who score 45 or higher on the MAT (or 550 on the verbal portion of the GRE) and receive three or more failing evaluations on the controlled writing sample shall have their application deferred pending a faculty interview and reevaluation. The MAT may be repeated subject to The Psychological Corporation's rules for repeated testing.

1. Intended area of specialization is compatible with departmental resources and goals.
2. Obtain faculty sponsorship through completion of the "Agreement to Advise" form that is included with this information.

All doctoral applicants must do the following:

1. Complete all the admission materials, as specified in Requirements and Procedures of the Doctoral Program in Education by March 1 for Spring admission.
2. Complete the Miller Analogies Test or Graduate Record Exam. A MAT or GRE taken within the last five years will be accepted.

3. Complete a controlled writing sample offered in March.

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

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

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

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

**Additional Research Competency**

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

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

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

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

**Curricular and Instructional Studies Ph.D. Course Requirements**

**Social-Philosophical Foundations (15)**
5100:600 Philosophies of Education (or 602 or 634) 3
5100:620 Psychology of Instruction for Teaching and Learning (or 624 or 5400:500) 3
5100:701 History of Education in American Society (or 703) 3
5100:706 Seminar in Social/Philosophical Foundations of Education 3
5100:723 Teaching Behavior and Instruction (or 721 or 710) 3

**Research Foundations (18)**
5100:540 Techniques of Research 3
5100:740 Research Design 3
5100:741 Data Collection Methods 3
5100:742 Statistics in Education 3
5100:901 Seminar I: Expository/Qualitative 3
5100:901 Seminar II: Ethnographic/Historical or Case Study Research or Legal Research and Writing or another advisor-approved course 3

**Curricular and Instructional Studies Core (15)**
5500:600 Professional Doctoral Seminar in Curricular and Instructional Studies 3
5500:688 Seminar in Curricular and Instructional Studies 3
5500:680 Concepts of Curriculum & Instruction 3
5500:685 Seminar in Trends and Issues in Curriculum & Instruction 3

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

Area of Specialization: 18 credit hours

Cognitive Area Outside of Education: 6 credit hours

Dissertation: 20 credit hours

Total Program: 92 credit hours

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

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**Doctoral Programs in Counseling**

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

The Collaborative Program in Counseling Psychology allows the students a choice of entry options: one through the College of Education for students with a master’s degree and one through the College of Arts and Sciences for students with a baccalaureate degree. Students are expected to attain a level of broad scientific competence in the core areas of psychology: the biological, social, cognitive/ affective, and individual bases of human behavior. Counseling psychology coursework covers the special areas of theories of counseling and psychotherapy, supervision, vocational psychology, ethics, assessment, and research design. Practica and internship experiences are 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. Students receive exposure to both colleges through shared coursework and faculty involvement with dissertations but must formally enter through one or the other of the colleges.

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

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

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

- Psychology Core (3750:610, 620, 630, 640) is required of all students.
- Students register for dual listed courses (3750:6500) under their home department code.
- The comprehensive written examination is prepared, administered, and graded by a Comprehensive Examination Committee composed of four program faculty members, two from each college. At least one program faculty member from each college participates in the oral portion of the Comprehensive Examination.
- Dissertation – at least one program faculty member from each college is required on the student’s dissertation committee.
- Internship – 2,000 hours post-master’s with 1,700 hours over no more than two years. The internship site must be listed in the Association of Psychology Post-doctoral and Internship Centers (APPIC) Directory.
- Language and residency requirements are to be completed in accordance with the guidelines from the Graduate School and student's home department.
- Department of Counseling requirements:
  - Students may be considered for admission to the Counseling Psychology program through the Department of Counseling and Special Education if they have a master's degree in counseling, guidance and counseling, psychology, school psychology, or a related field.

**Admission Requirements—College of Education Ph.D.**

- Undergraduate GPA of 2.75 or above on a 4.00 scale on all undergraduate work completed as part of the baccalaureate degree, or
- a 3.00 or above on a 4.00 scale on all undergraduate work completed as part of the baccalaureate degree, or
- a 3.00 or above on a 4.00 scale must have been earned on the last 64 semester hours of undergraduate coursework completed as part of the baccalaureate degree from an accredited college or university. If, in counting back, only part of a semester, quarter, or summer session's coursework is needed to reach 64 semester hours, courses in that grading period with the highest quality points will be used.
- A 3.25 or above on a 4.00 scale must have been earned on all graduate work completed up to the time of screening. A completed master’s degree is not required to make application, however, a minimum of 20 semester hours of graduate work must be completed prior to the application deadline. Acceptance is contingent upon completion of a master’s degree and submission of a degree conferred transcript. Workshop credits are excluded from all applications.
- Graduate Record Examination General Scores — A minimum combined score of 1100 verbal and quantitative is recommended. In addition, the applicant's Graduate Record Examination Subject Score in Psychology will be considered when the applicant's materials are evaluated.

**Course Requirements**

5100:640 Techniques of Research 3
5400:671 Counseling: Theory and Philosophy 3
5500:656 Tests and Assessment in Counseling 4
5500:674 Career Development and Counseling Across the Lifespan 3
5500:651 Techniques of Counseling 3
3750:610 Core I: Social Psychology 2
3750:620 Core II: Cognitive Psychology 2
The doctoral program in Guidance and Counseling is designed for students who hold a master's degree in counseling or a related field. The program allows the student a choice of two specialty areas: (a) Counseling Practicum in Education and Supervision, and (b) Marriage and Family Therapy. Students in each specialty are expected to attain an advanced level of competence in the core areas of counseling, research, and their specialty. Practica and internship experiences are required in each specialty. In addition, the cognate and elective option allows students flexibility in designing a program that is consistent with their career goals. With the proper selection of courses, graduates of the program can meet the academic requirements to be licensed as a Professional Clinical Counselor in Ohio.

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

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

Ph.D. in Guidance and Counseling Requirements:

**Master's Degree**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:610:696:646 Multicultural Counseling</td>
<td>3</td>
</tr>
<tr>
<td>5100:620:620 Psychological Instruction</td>
<td>3</td>
</tr>
<tr>
<td>5100:723 Teacher Behavior and Instruction</td>
<td>3</td>
</tr>
</tbody>
</table>

**Research and Statistics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:742:743 Advanced Educational Statistics</td>
<td>3</td>
</tr>
<tr>
<td>5100:715 Research Design in Counseling I</td>
<td>3</td>
</tr>
<tr>
<td>5600:716 Research Design in Counseling II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Major: Guidance and Counseling**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5600:702 Advanced Counseling Practicum</td>
<td>12</td>
</tr>
<tr>
<td>5600:785 Doctoral Internship</td>
<td>6</td>
</tr>
<tr>
<td>5600:707 Supervision in Counseling Psychology I</td>
<td>4</td>
</tr>
<tr>
<td>5600:708 Supervision in Counseling Psychology II</td>
<td>4</td>
</tr>
<tr>
<td>5600:710 Theories of Counseling and Psychotherapy</td>
<td>4</td>
</tr>
<tr>
<td>5600:725 Doctoral Professional Development Seminar</td>
<td>2</td>
</tr>
<tr>
<td>5600:720 Topical Seminar: Guidance and Counseling/Ethical and Legal Issues</td>
<td>3</td>
</tr>
<tr>
<td>or 5600:714 Objective Personality Evaluation</td>
<td>4</td>
</tr>
<tr>
<td>or 5600:755 Assessment Methods and Treatment Issues in Marriage/Family Therapy</td>
<td>3</td>
</tr>
<tr>
<td>or 5600:720 Topical Seminar: Guidance and Counseling/DSDMIV</td>
<td>4</td>
</tr>
</tbody>
</table>

**Cognate Electives**

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissertation</td>
<td>15</td>
</tr>
<tr>
<td>Minimum Total Semester Credits</td>
<td>120</td>
</tr>
</tbody>
</table>

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

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

**DOCTORATE IN EDUCATIONAL ADMINISTRATION**

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

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

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

**Research (22)**

5100:899 Doctoral Dissertation: students must take at least 10 semester dissertation hours but may count up to 20 toward the degree

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:740 Research Design</td>
<td>3</td>
</tr>
<tr>
<td>5100:741 Data Collection Methods</td>
<td>3</td>
</tr>
<tr>
<td>5100:742 Statistics in Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:743 Advanced Educational Statistics</td>
<td>3</td>
</tr>
<tr>
<td>5100:801 Research Seminar: Exploratory Qualitative</td>
<td>3</td>
</tr>
<tr>
<td>5100:801 Research Seminar: Ethnographic Historical</td>
<td>3</td>
</tr>
<tr>
<td>5100:801 Research Seminar: Case Study Research</td>
<td>3</td>
</tr>
<tr>
<td>5100:801 Research Seminar: Legal Research and Writing</td>
<td>3</td>
</tr>
<tr>
<td>5100:801 Research Seminar: Empirical Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

**Educational Administration (29)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:704 Advanced Study of Educational Leadership</td>
<td>3</td>
</tr>
<tr>
<td>5100:706 Decision Making in Educational Leadership</td>
<td>3</td>
</tr>
<tr>
<td>5100:708 Economics in Education</td>
<td>3</td>
</tr>
<tr>
<td>5100:716 Advanced Evaluation of Educational Organizations</td>
<td>3</td>
</tr>
<tr>
<td>5100:730 Residency Seminar</td>
<td>3</td>
</tr>
<tr>
<td>5100:732 Public and Media Relations in Educational Organizations</td>
<td>3</td>
</tr>
<tr>
<td>5100:745 Seminar: Urban Issues</td>
<td>3</td>
</tr>
<tr>
<td>5100:746 Politics of Education</td>
<td>3</td>
</tr>
<tr>
<td>or 5100:710 Advanced School Law</td>
<td>3</td>
</tr>
<tr>
<td>or 5100:705 Internship</td>
<td>5</td>
</tr>
</tbody>
</table>

**Curriculum and Supervision (6)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:740 Theories of Educational Supervision</td>
<td>3</td>
</tr>
<tr>
<td>5100:709 Advanced Principles of Curriculum</td>
<td>3</td>
</tr>
</tbody>
</table>

**Cognate (12)**

(Must be graduate level coursework outside the field of education.)

**General Electives (9)**

**Total Program: 90**
**Outreach Master's in Education Programs**

The University of Akron's College of Education believes that improvement in teacher education and continuing professional development is the direct result of collaboration at many different levels and sites with local school personnel. This collaboration evolves through a wide variety of cooperative activities, including master's in education cohort programs currently offered at Akron Public Schools, Medina County Schools, Summit County Educational Service Center, and other district locations.

The goal of the outreach master's program is to offer graduate-level courses leading to a master's degree for teachers on-site or by distance learning, specifically in the areas of elementary education, literacy, secondary education, educational administration, and instructional technology. For more information, please send email to outreach@uakron.edu.

**Programs**

**Counseling**

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

The Graduate Record Examination (General Test) will be used as the qualifying examination in all Counseling master's programs. Admissions to the master's program will be twice a year (application deadline of March 15 for summer and fall semesters and October 1 for spring semester).

The Council for Accreditation of Counseling and Related Educational Programs (CACREP), a specialized accrediting body recognized by the Commission on Recognition of Postsecondary Accreditation (CPRQA), has conferred accreditation on the Community, Marriage and Family, and School Counseling programs. In addition, the Marriage and Family Counseling/Therapy program is accredited by the Commission on Accreditation for Marriage and Family Therapy Education of the American Association for Marriage and Family Therapy.

**Classroom Guidance for Teachers**

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

**Foundations Courses (Select one course from each area)**

- **Behavioral Foundations**
  - 5100:520 Psychology of Instruction for Teaching and Learning (3)
  - 5100:524 Seminar: Educational Psychology (3)
  - 5600:5010-548 Individual and Family Development Across the Lifespan (3)

- **Humanistic Foundations**
  - 5100:500 Philosophies of Education (3)
  - 5100:504 Topical Seminar in the Cultural Foundations of Education (3)
  - 5600:500 Multicultural Counseling (3)

- **Research**
  - 5100:640 Techniques of Research (3)

Minimum Foundation Hours Required: 3

**Required Departmental Courses**

- 5500:511 Elementary/Secondary School Counseling (3)
- 5500:547 Career Development and Counseling Across the Lifespan (3)
- 5500:545 Tests and Appraisal in Counseling (4)
- 5600:616 Counseling Skills for Teachers (3)
- 5600:661 Seminar in School Counseling (3)
- 5600:686 Field Experience MUST be taken before or concurrently with 5631 (1)
- 5610:540 Developmental Characteristics of Exceptional Individuals (3)
- 5610:604 Education and Management Strategies for Parents of Exceptional Individuals (3)

Minimum Department Hours Required: 20

**Area of concentration**

An area of concentration with a minimum of six (6) hours may be selected from one of the following areas (the student may, with advisor approval, propose an area of concentration not listed):

- Middle School Education
- Early Childhood Education
- School and Community Relations
- Curriculum and Instruction
- Physical Fitness and Well-Being
- Special Education
- Computer Education
- Family Ecology
- Communicative Disorders
- Outdoor Education

Total Area of Concentration Hours Required: 6

Minimum Semester Hours Required for Graduation: 35
School Counseling

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

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

Minimum Foundation Hours Required 9

- Required Counseling Department Courses
  - Professional Orientation (select one course from each area)
    5600:630 Seminar in Counseling 3
    5600:621 Seminar/Secondary School Counseling 3
    5600:659 Organization & Administration of Guidance Services 3
    Subtotal 7
  - Counseling Theory
    5600:643 Counseling Theory & Philosophy 3
    5600:647 Career Development and Counseling Across the Life Span 3
    Subtotal 6
  - Appraisal
    5600:645 Tests and Appraisal in Counseling (prerequisite: 5100:640) 4
    Subtotal 4
  - Counseling Process (all required)
    5600:651 Techniques of Counseling 3
    5600:653 Group Counseling (prerequisites 5600:651 and 5600:653) 3
    5600:667 Practicum in Counseling (prerequisite 5600:653) 5
    Subtotal 12
  - Internship
    5600:685 Internship in Counseling I (prerequisite 5600:675) 6
    Subtotal 6
  - Specialized Studies (both required)
    5610:540 Developmental Characteristics of Exceptional Individuals 3
    5600:621 Counseling Youth At Risk 3
    Subtotal 6

Minimum Semester Hours Required for Program 35

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

School Psychologist

(admissions temporarily suspended)

- College requirements:
  5100:640 Techniques of Research 3
  5602:634 Research Project 2
  or
  5602:698 Master’s Problem 2.4
  or
  5602:699 Master’s Thesis 4.6

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

- Program requirements:
  3750:520 Abnormal Psychology 4
  3750:530 Psychological Disorders of Children 4
  3750:720 Principles and Practice of Individual Intelligence Testing 4
  5100:604 Topical Seminar in the Cultural Foundations of Education 3
  5100:624 Seminar in Human Learning 3
  5104:741 Statistics in Education 3
  5602:600 Seminar: Role and Function of School Psychology 3
  5602:602 Behavioral Assessment 3
  5602:610 Educational Diagnosis for the School Psychologist 4
Sixth-Year School Psychology Master's Degree and Certification Program

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

- Professional requirements:
  - 3750:700 Survey of Projective Techniques 4
  - 3750:610 Psychological Disorders of Childhood 3
  - 3750:712 Principles and Practices of Individual Intelligence Testing 4
  - 5000:643 Counseling: Theory and Philosophy 3
  - 5000:603 Seminar: Role and Function of School Psychology 3
  - 5000:693 Behavioral Assessment 3
  - 5000:610 Educational Diagnosis for the School Psychologist 4
  - 5000:694 Research Project in Special Area 2-3
  - 5000:698 Master's Problem 2-4
  - 5000:699 Master's Thesis 46

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

- 3750:500 Personality 4**
- 5610:543 Developmental Characteristics of Learning Disabled Individuals 3
- 5000:626 Reading Diagnosis for School Psychologists and Support Personnel 3
- 5610:540 Developmental Characteristics of Exceptional Individuals 3**
- 3750:600 Abnormal Psychology 3**
- 5000:601 Cognitive Function Models: Principles of Educational Planning 3
- 5000:603 Consultation Strategies for School Psychology 3
- 5000:611 Practicum in School Psychology (this course is repeated once for a total of eight credits) 4

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

- 5000:630 Internship: School Psychology 3
- 5000:631 Internship: School Psychology 3
- 5000:640 Field Seminar: Professional Topics/Issues in School Psychology 3
- 5000:641 Field Seminar II: Low Incidence/Related Inquiries 3

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

- 5000:630 Elementary School Curriculum and Instruction 2
- 5000:696/698 Field Experience: Master's 3
- 5000:611 Elementary School Administration 3
- 5100:601 Principles of Educational Administration 3

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

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

**Required as part of Special Education master's.

Curricular and Instructional Studies

Elementary Education (M.A.)

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

- Foundation studies – nine credits.
  - 5500:600 Concepts of Curriculum and Instruction 3
  - 5500:605 Seminar in Trends and Issues in Curriculum and Instruction 3
  - Area of concentration within curriculum and instruction approved by the advisor – 15 credits.

  - 5500:696 Master's Project 6
  - 5500:699 Master's Thesis 6

- 36 total hours are required.
- A comprehensive exam is required.

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

Elementary Education with Reading Option (M.A.)

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

- Foundation studies – 9 credits:
  - 5100:600 Philosophies of Education 3
  - 5100:602 Comparative and International Education 3
  - 5100:604 Topical Seminar in the Cultural Foundations of Education 3
  - 5100:620 Psychology of Instruction for Teaching and Learning 3
  - 5100:624 Seminar: Educational Psychology 3
  - 5100:640 Techniques of Research 3
- Curricular and Instructional Studies – 6 credits:
  - 5500:600 Concepts of Curriculum and Instruction 3
  - 5500:625 Contemporary Issues in Reading Instruction 3
- Area of Concentration/Reading – 15 credits:
  - 5500:622 Children’s Literature in the Curriculum 3
  - 5500:627 Special Topics in Literacy Education: Teaching Young Adult Literature 3
  - 5500:522 Developmental Reading in the Content Area 3
  - 5500:720 Assessment of Reading Difficulties 3
  - 5500:524 Teaching Reading to Culturally Diverse Learners 3
  - 5500:627 Special Topics in Literacy Education 3
- Final Research Requirement:
  - 5500:596 Master’s Project 6
  - 5500:599 Master’s Thesis 6

- Minimum credit hours required: 36-42
- Students completing the Master of Arts degree are required to complete the Master’s Comprehensive Examination.

*Reading Endorsement requires 18 credit hours in reading and passage of Praxis II: Introduction to the Teaching of Reading (0039).

Elementary Education with Licensure (M.S.)
(admissions temporarily suspended)

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

- Foundation studies – 10 credits:
  - 5100:600 Philosophies of Education 3
  - 5100:604 Topical Seminar in the Cultural Foundations of Education 3
  - 5100:620 Psychology of Instruction for Teaching and Learning 3
  - 5100:624 Topical Seminar in Measurement and Evaluation 3
  - 5100:695 Field Experience: Master’s (Section 001) 1
- Curricular and Instructional Studies – 11 credits:
  - 5500:617 Elementary and Secondary Licensure Seminar 3
  - 5500:630 Field Experience (Section 011) 1
  - 5500:575 Instructional Technology Applications 3
  - 5500:618 Advanced Instructional Techniques 3
  - 5500:695 Field Experience (Section 021) 1
  - Field Experience (Student Teaching) – 11 credits:
    - 5500:696 Field Experience: Master’s (Section 006) 5
    - 5500:696 Field Experience: Master’s (Section 008) 5
    - Field Experience: Master’s (Section 031) 1
- Total Program: 32 credits
- A minimum of 29 additional undergraduate credits will be required for licensure. A comprehensive exam is required. See Department of Curricular and Instructional Studies for complete list of requirements.
Postsecondary Technical Education

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

Admission Requirements

- Full Admission: 2.75 grade point average on a completed Bachelor's degree and a score of 35 or better on the MAT or a minimum verbal score of 400 on the GRE.
- Provisional Admission:* 2.5 (or higher) grade point average on a completed Bachelor's degree or below a score of 35 on the MAT

*Those receiving provisional admission must meet with the Technical Education Program Committee to plan the necessary 9 credits of coursework that need to be completed at the graduate level with a grade of "B" or better before the student can be upgraded to full admission.

Program

- Foundation Studies – 12 credits:
  - 5100:530 Introduction to Instructional Computing
  - 5100:562 Comparative and International Education
  - 5300:504 Topical Seminar in Cultural Foundations
  - 5400:500 Postsecondary Learner
  - 5100:640 Techniques of Research
  - 5100:642 Topical Seminar in Measurements and Evaluation

- Professional Technical Education Courses – 16 credits:
  - 5400:501 Learning with Technology (prerequisite for all courses)
  - 5400:505 Workforce Education for Youth and Adults
  - 5400:530 Systematic Curriculum Design for Postsecondary Instruction
  - 5400:535 Systematic Instructional Design in Postsecondary Education
  - 5400:505 Advanced System Design: Needs Assessment and Evaluation
  - 5400:690 Internship in Postsecondary Education

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

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

Teaching Option (9 credits)

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

- 5400:600 Survey of Postsecondary Institutions
- Electives (with advisor’s approval)

Training Option (9 credits)

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

- 5400:515 Training in Business and Industry
- 5400:620 Postsecondary Teacher Leadership
- Electives (with advisor’s approval)

Instructional Technology Option (9 credits)

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

- 5400:630 Topical Seminar in Computer-Based Education
- 5400:635 Topical Seminar in Educational Technology
- 5400:614 Planning for Technology
- 5400:660 Postsecondary Distance Learning

Guidance Option (9 credits)

An approved schedule of career-related elective graduate courses selected from the Guidance School offerings. Course selection will be determined by the student’s academic and professional background with advisor approval.

- 5600:635 Community Counseling
- 5600:647 Career Development and Counseling
- Electives (with advisor’s approval)

Secondary Education (M.A.)

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

- Foundation studies – nine credits:
  - 5500:600 Concepts of Curriculum and Instruction

- 5500:605 Seminar in Trends and Issues in Curriculum and Instruction

- Area of Concentration (9): Select 9 credits at 5500 level or above.
  - 5500:694 Field Experience: Classroom Instruction (I)
  - 5500:692 Field Experience: Colloquium

A comprehensive examination is required.

Total Program: 45 credits

Secondary Education with Licensure (M.S.)

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

Admission Requirements

Students must be full-time in both the Graduate School and the teacher education program in order to enroll in this program. For full admission, a 2.75 grade point average overall is required as well as the following College of Education requirements:

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

See the Office of Student Affairs, Zook Hall 228, call (330) 972-6970, or visit http://www3.uakron.edu/education/about/admiss.html for more information.

Teacher Education Program

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

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

Student Portfolio

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

Clinical and Field-Based Experiences

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

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

Licensure

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

Special Education

The 36-hour graduate program in special education is designed for those individuals who currently hold an undergraduate degree in special education. The 36-hour master's program contains no electives. It is designed to provide school personnel with an in-depth knowledge base and advanced skills needed to work effectively in inclusive schools and other educational settings providing instructional services for individuals with special needs and their families. An inclusive approach is used with emphasis on collaboration/consultation, curriculum design, evaluation/research applications, supervision, legal and ethical issues in special education, and other clinical experiences (see master's program for specific courses).

Prerequisites for professionals who do not hold an undergraduate degree in special education

Professionals who do not hold an undergraduate degree in special education must take 20 prerequisite hours in special education courses in order to be admitted into the master's program. Individuals already possessing specific coursework will not need to retake them. A review of the individual's previous transcript and course work will determine the precise prerequisite courses and corresponding hours. The 20 prerequisite hours include the following courses:

5610:540 Developmental Characteristics of Exceptional Individuals 3
5610:547 Developmental Characteristics of Individuals with Mild/Moderate Educational Needs 3
5610:640 Developmental Characteristics of Individuals with Moderate/Intensive Educational Needs 3
5610:550 Special Education Programming: Early Childhood 3
5610:552 Special Education Programming: Secondary Vocational 3
5610:563 Assessment in Special Education 3

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

A signed program plan specifying the student's program, the sequence of course offerings, and timeline for completion must be completed with the student's advisor upon completion of 9 hours of graduate credit. As part of the program degree requirements, the student must pass a written comprehensive examination. All degree requirements must be completed within 8 years after beginning graduate level coursework at The University of Akron or elsewhere. Completion of the master's program at The University of Akron does not lead to licensure in special education. Additional hours are necessary for teacher licensure in special education as an intervention specialist for mild/moderate educational needs or moderate/intensive educational needs. Upon request from the student, his/her advisor can assist in program planning for licensure.

Educational Foundations and Leadership

Educational Administration

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

General Administration (Standard Program)

- Foundation – 12 credits:
  5100:600 Philosophies of Education 3
  5100:650 Principles of Educational Psychology 3
  5100:650 Psychological Counseling 3
  5100:650 Introduction to Educational Administration 3
  5100:650 Educational Administration 3
  5100:650 Administration of Special Education 3
  5100:650 Administration of School Systems 3
  5100:650 Administration of School Law 3
  5100:650 Administration of Student Services 3

- Curriculum and Supervision – 6:
  5100:600 Principles of Curriculum Development 3
  5100:610 Principles of Educational Supervision 3
  Total: 36 credits

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

The Principalship

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

Master's Degree in Educational Administration

- Foundation – 12 credits:
  5100:600 Philosophies of Education 3
  5100:600 Introduction to Educational Administration 3
  5100:600 Educational Administration 3
  5100:600 Administration of Special Education 3
  5100:600 Administration of School Systems 3
  5100:600 Administration of School Law 3
  5100:600 Administration of Student Services 3

The signed program plan specifying the student's program, the sequence of course offerings, and timeline for completion must be completed with the student's advisor upon completion of 9 hours of graduate credit. As part of the program degree requirements, the student must pass a written comprehensive examination. Degree requirements must be completed within 8 years after beginning graduate level coursework.
Administrative Specialist: Educational Research

- Foundation Studies – 18 credits:
  5100:600 Philosophies of Education
  5100:604 Topical Seminar in the Cultural Foundations of Education
  5100:620 Psychology of Instruction for Teaching and Learning
  5100:624 Seminar: Educational Psychology
  5100:636 Topical Seminar in Educational Technology
  5100:640 Techniques of Research
  5100:642 Topical Seminar in Measurement and Evaluation
  5100:741 Statistics in Education
- Educational Administration – 15 credits:
  5170:601 Principles of Educational Administration
  5170:604 School-Community Relationships
  5170:606 Evaluation in Educational Organizations
  5170:607 School Law
  5170:608 School Finance and Economics
- Post-Master's Requirements – 16 credits:
  5170:601 Principles of Educational Administration
  5170:604 School-Community Relationships
  5170:606 Evaluation in Educational Organizations
  5170:607 School Law
  5170:608 School Finance and Economics
  5170:707 The Superintendent

Administrative Specialist: Pupil Personnel Administration

- Foundation Studies – 12 credits:
  5100:600 Philosophies of Education
  5100:604 Topical Seminar in the Cultural Foundations of Education
  5100:620 Psychology of Instruction for Teaching and Learning
  5100:624 Seminar: Educational Psychology
  5100:636 Topical Seminar in Educational Technology
  5100:640 Techniques of Research
  5100:642 Topical Seminar in Measurement and Evaluation
  5100:741 Statistics in Education
- Educational Administration – 21 credits:
  5170:601 Principles of Educational Administration
  5170:603 Management of Human Resources
  5170:606 School-Community Relationships
  5170:607 School Law
  5170:608 School Finance and Economics
  5170:707 The Superintendent
- Post-Master’s Requirements – 16 credits:
  5170:604 School-Community Relationships
  5170:606 School Finance and Economics
  7600:625 Theories of Mass Communication
  7600:628 Contemporary Public Relations Theory
  5170:707 The Superintendent

Administrative Specialist: School and Community Relations

- Foundation Studies – 12 credits:
  5100:600 Philosophies of Education
  5100:604 Topical Seminar in the Cultural Foundations of Education
  5100:640 Techniques of Research
  5100:642 Topical Seminar in Educational Technology
  5100:707 The Superintendent
- Educational Administration – 21 credits:
  5170:601 Principles of Educational Administration
  5170:603 Management of Human Resources
  5170:606 School-Community Relationships
  5170:607 School Law
  5170:608 School Finance and Economics
  5170:707 The Superintendent
- Post-Master's Requirements – 16 credits:
  5170:604 School-Community Relationships
  5170:704 Advanced Principles of Educational Administration
  7600:625 Theories of Mass Communication
  7600:628 Contemporary Public Relations Theory
  5170:707 The Superintendent
Superintendent Program

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

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

- Educational Administration – 15 credits:
  5170:600 Principles of Educational Administration 3
  5170:604 School-Community Relations 3
  5170:606 Evaluation in Educational Organizations 3
  5170:607 School Law 3
  5170:613 Administration of Pupil Services 3

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

- Post-Master’s Requirements – 22 credits:
  5170:602 Management of Physical Resources 3
  5170:603 Management of Human Resources 3
  5170:608 School Finance and Economics 3
  5170:620 The Principleship 3
  5170:704 Advanced Principles of Educational Administration 3
  5170:707 The Superintendentship 3
  5170:706 Internship 4

- Electives (5 credits), to bring the program to a total of 60 semester hours.

Higher Education Administration

Specialized Option

All applicants to the program should have previously earned a bachelor’s degree. Special admission for concurrent studies toward a master’s degree and the higher education certificate may be allowed for persons currently employed in higher education. Students interested in admission should first meet with the program coordinator. Persons wishing to pursue a master’s degree in Educational Administration-Higher Education Option must, however, also apply to the Graduate School for admission to the program. Applicants wishing to pursue only the certificate program must apply to the Graduate School for admission as a special non-degree student.

- Foundation studies – nine credits.
- Required courses (25 credits):
  5190:500 Introduction to the Study of Higher Education 3
  5190:515 Administration in Higher Education 3
  5190:521 Law and Higher Education 3
  5190:520 Finance and Higher Education 3
  5190:526 Student Services and Higher Education 3
  5190:527 The American College Student 3
  or
  5190:525 Topical Seminar: Higher Education 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 3
  5190:602 Internship in Higher Education Seminar 2

Total Hours Required: 34.

- Electives:
  5190:626 Organizational and Policy Development in Higher Education 3
  5190:635 Instructional Strategies and Techniques for the College Instructor 3
  5190:645 Independent Study in Higher Education 1-3
  5190:590 Workshop 3

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

Educational Foundations (M.A.)

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

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

- College Core Foundation Studies (nine hours)
- Program Requirements for the specialization selected above (minimum of 15 hours)
- Outside Department (minimum of six hours except for Instructional Technology option)
- Master’s Comprehensive Examination (electronic portfolio for Instructional Technology)

- Election of master’s thesis (5100:699), or master’s problem (5100:698), or an additional six semester hours of coursework. Students choosing to do a master’s thesis or master’s problem require 30 semester credits to graduate. Students choosing to do only coursework require 36 semester credits to graduate.

Institutional Technology Option (30-36 hours)

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

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

- Foundation Studies (9 hours)
  5100:600 Philosophies of Education 3
  or
  5100:604 Topical Seminar in the Cultural Foundations of Education 3

- Required Courses (12 hours)
  5100:614 Planning for Technology 3
  5100:630 Topical Seminar: Advanced Multimedia (may be repeated for up to 9 credits) 3
  5100:631 Instructional Design 3
  5100:695 Field Experience: Master's 3

- Electives (choose 9-15 hours from the following)
  5100:512 Design and Production of Instructional Materials 3
  5100:520 Introduction to Instructional Computing 3
  5100:590 Workshop: Instructional Technology (may be repeated for up to 6 credits) 3
  5100:632 Web-Based Learning Systems 3
  5100:633 Hypermedia 3
  5100:634 Visual Literacy 3
  5100:635 Emerging Technologies 3
  5100:638 Integrating and Implementing Technology 3
  5100:639 Strategies for Online Teaching 3
  5100:696 Master’s Technology Project 3
  5100:697 Independent Study: Master’s 3
  5100:698 Master’s Problem 4-6
  5100:699 Master’s Thesis 4-6
  5100:742 Statistics in Education 3
  5170:609 Principles of Curriculum Development 3

Educational Psychology Option (30-36 hours)

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

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

- Electives (15-21 hours)
  5100:624 Seminar: Educational Psychology (may be repeated for up to 6 credits) 3
  5100:604 Topical Seminar in the Cultural Foundations of Education 3
  5100:606 Topical Seminar in Educational Technology 3
  5100:642 Seminar: Student in Measurement and Evaluation 3
  5100:695 Field Experience: Master’s 3
  5100:721 Learning Processes 3
  5100:723 Teacher Behavior and Instruction 3
Social/Philosophical Foundations of Education Option (30-36 hours)

This interdisciplinary graduate program is designed to facilitate professional educators' developing critical, interpretative, and normative perspectives of the interrelations between educational institutions and society. This program includes the academic disciplines of anthropology of education, comparative/international education, cultural studies in education, history of education, philosophy of education, and sociology of education. Students collaborate with their advisers in selecting one or more of the above disciplines to create a graduate program tailored to their needs, interests, and professional aspirations. Students may be either encouraged or required to study with faculty in other departments or institutions to develop interdisciplinary programs and perspectives.

Graduates of the program can earn a Master of Arts in Education degree in preparation for careers in both traditional and non-traditional educational settings and for further doctoral study in anthropology of education, comparative/international education, cultural studies in education, history of education, philosophy of education, and sociology of education. Graduates are more employable in positions that require in-depth understanding of the broader social contexts of educational policy.

- **Foundation Courses (9 credits)**
  - 5100:600 Philosophies of Education 3
  - 5100:624 Seminar: Educational Psychology 3
  - 5100:640 Techniques of Research 3

- **Electives (15-21 hours)**
  - 5100:622 Comparative and International Education 3
  - 5100:624 Topical Seminar in the Cultural Foundations of Education (may be repeated for up to 6 credits) 3
  - 5100:637 Philosophies of Educational Technology 3
  - 5100:701 History of Education in American Society 3
  - 5100:703 Seminar: History and Philosophy of Higher Education 3
  - 5100:705 Seminar: Social-Philosophical Foundations of Education (may be repeated for up to 6 credits) 3
  - 5100:697 Independent Study: Master’s 3
  - 5100:698 Master’s Project 3
  - 5100:699 Master’s Thesis 3

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

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

- **Foundation Courses (9 credits)**
  - 5100:600 Philosophies of Education 3
  - 5100:624 Seminar: Educational Psychology 3
  - 5100:640 Techniques of Research 3

- **Electives (15 hours)**
  - 5100:642 Topical Seminar in Measurement and Evaluation: Introduction to Psychometric Techniques 3
  - 5100:645 Topical Seminar in Measurement and Evaluation 3
  - 5100:698 Master’s Thesis 3
  - 5100:740 Research Design 3
  - 5100:742 Statistics in Education 3
  - 5100:743 Advanced Educational Statistics 3
  - 5100:798 Research Projects in Special Areas: Advanced Psychometric Techniques and Measurement 3
  - 5100:801 Research Seminar: Multiple Regression, Model Building-Data Analysis Procedures 3
  - 5100:801 Research Seminar: Path Analysis, Multivariate Statistical Techniques 3
  - 5100:801 Research Seminar: Qualitative 3
  - 5100:801 Research Seminar: SAS or SPSS 3
  - 5100:801 Independent Study 1-4

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

- **Outside Department Requirements (6 hours)**
  - 5500:696 Master’s Project 6
  - 5500:699 Master’s Thesis 6

- 36 total hours are required.
  - A comprehensive exam is required.

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**Sport Science and Wellness Education**

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

**Outdoor Education**

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

- **Foundation Studies—nine credits.**
- **Required Foundation Courses:**
  - 5100:640 Techniques of Research 3

  Remaining six (6) credits to be chosen, with approval of advisor, from 5100:560 or 5100:604 course offerings or 5550:606 Statistics: Qualitative and Quantitative Methods.

- **Required courses:**
  - 5560:550 Application of Outdoor Education to the School Curriculum 4
  - 5560:552 Resources and Resource Management for the Teaching of Outdoor Education 4
  - 5560:556 Outdoor Fun and Games 4
  - 5560:605 Outdoor Education: Social Topics 2-4
  - 5560:606 Outdoor Education: Rituals/Influences 3
  - 5560:695 Field Experience (at least 2 credits if only option selected) 2-4
  - 5560:698 Master’s Problem 2-4
  - 5560:699 Master’s Thesis 4-6

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

**Physical Education**

The graduate program in physical education, requiring 33 credits, is designed for post-baccalaureate and in-service physical educators. Training received in this program comes from two (2) areas: the foundations (6 cr.) and the program studies area of physical education (26 cr.). The emphasis in this curriculum is to provide answers to the questions "What can I learn about teaching and what decisions do I face as a professional educator?" Students will be assigned an advisor with whom they should consult on a regular basis. In fact, advisor approval is required on certain course work.

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

- **Required Department Courses:**
  - 5550:536 Foundations and Elements of Adapted Physical Education 3
  - 5550:601 Sports Administration and Supervision 3
  - 5550:602 Motor Behavior Applied to Sports 3
  - 5550:604 Current Issues in Physical Education 3
  - 5550:606 Tactics and Strategies in the Science of Teaching and Coaching 3
  - 5550:606 Physiology of Muscular Activity and Exercise 3
  - 5550:606 Statistics: Qualitative and Quantitative Methods 3
  - 5550:609 Motivational Aspects of Physical Activity 3
  - 5570:521 Comprehensive School Health 4
  - 5550:696 Field Experience: Master’s (minimum) 2
  - 5560:698 Master’s Problem (minimum) 2
  - 5560:699 Master’s Thesis (minimum) 2

With the approval of an advisor, the student may select additional courses and/or workshops related to the graduate program.
Option: Exercise Physiology/Adult Fitness

This graduate program, requiring a minimum of 34 credits, is designed to prepare students for advanced study in exercise physiology and future employment in adult fitness, corporate fitness and cardiac rehabilitation programs. Special attention is also given to knowledge and practical skills necessary for students preparing for American College of Sports Medicine certifications.

- **Required Foundation Courses:**
  - 5100:620 Psychology of Instruction for Teaching and Learning 3
  - 5100:624 Seminar: Educational Psychology 3
  - 5100:640 Techniques of Research 3

- **Required Department Courses:**
  - 5550:500 Musculoskeletal Anatomy I 3
  - 5550:501 Musculoskeletal Anatomy II 3
  - 5550:600 Biomechanics Applied to Sports and Physical Activity 4
  - 3100:569 Respiratory Physiology 3
  - 5550:562 Musculoskeletal Anatomy 1
  - 5550:601 Advanced Cardiovascular Physiology 3
  - 5550:605 Physiology of Muscular Activity and Exercise 3
  - 5550:666 Statistics: Qualitative and Quantitative Methods 3
  - 5550:680 Special Topics in Health and Physical Education: Laboratory Instrumentation 3
  - 7400:567 Sports Nutrition 3

- **At least two (2) credits from among the following:**
  - 5550:609 Field Experience: Master's 1
  - 5550:698 Master's Thesis 2 (minimum)

- **Electives:** Select at least one (1) course from among the following:
  - 5100:520 Introduction to Instructional Computing 3
  - 5100:741 Statistics in Education 3
  - 5100:743 Advanced Education Statistics 3
  - 5550:601 Sports Administration and Supervision 3
  - 5550:609 Motivational Aspects of Physical Activity 3

Option: Sport Science/Coaching

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

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

- **Required Courses:**
  - 5100:640 Techniques of Research 3
  - 5550:540 Injury Management for Teachers and Coaches 2
  - 5550:541 Advanced Athletic Injury Management: Upper Extremity 4
  - 5550:553 Principles of Coaching 3
  - 5550:562 Legal/ETHical Issues in Physical and Leisure Activity 3
  - 5550:601 Sports Administration and Supervision 3
  - 5550:602 Motor Behavior Applied to Sports 3
  - 5550:603 Tactics and Strategies in the Science of Teaching and Coaching 3
  - 5550:605 Physiology of Muscular Activity and Exercise 3
  - 5550:609 Motivational Aspects of Physical Activity 3
  - 7400:567 Sports Nutrition 3

- **At least two (2) credits from among the following:**
  - 5550:695 Field Experience: Master's 1
  - 5550:698 Master's Thesis 2 (minimum)

- **Electives:** The following courses are relevant to this degree. The student may select additional courses and/or workshops related to the graduate program:
  - 5550:590 Workshop I.e., Issues of Student Athletes 1-5
  - 5550:606 Statistics: Qualitative and Quantitative Methods 3
  - 5550:608 Special Topics I.e., Coaching Youth Sports 1-5
  - 5570:521 Comprehensive School Health 4

Total Program: 35

School Nurse License Program

Admission Requirements—Sequence 2

- R.N. License
- B.S.N. Degree
- Admittance to Graduate School
- Admittance to College of Nursing (Special/Non-Degree status)
- Selected coursework in College of Education and College of Nursing
- Supervised School Nurse experience

Course work distributed over the following areas:

- Community health
- Family counseling
- Mental and emotional health
- Current topics in health education
- Methods of teaching/instructional design
- Learner and learning process
- Evaluation and measurement of learning
- Principles, comprehensive school health
- Advanced pediatric/adolescent assessment
- Advanced nursing research

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

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

Subtotal: 12

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

- 8200:613 Nursing Inquiry 3
- 8200:650 School Nurse Practicum I 5
  - Can be waived based upon experience and submission of a portfolio
- 8200:594 School Nurse Practicum II (required of all school nursing students) 5
  - Subtotal: 11-16

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

- 8200:608 Pathophysiological Concepts 3
- 8200:656 Pharmacology for Child and Adolescent Health Nursing 3

Total graduate credits for licensure: 23-29

Admission Requirements—Sequence 3

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

Subtotal: 12

Matter's degree plus licensure.

* The school nurse practicum is contained in the MSN program in 8200:651 and 856 which fulfill the requirements of 8200:593 and 594.
College of Business Administration

Stephen F. Hallam, Ph.D., Dean
James T. Strong, Ph.D., Associate Dean
James R. Emore, D.B.A., Assistant Dean and Director of Undergraduate Programs
James J. Divoky, D.B.A., Assistant Dean and Director of Graduate Programs

Mission Statement
The MBA program is the principle graduate program of UA's College of Business Administration. The objective of the MBA program is to provide a diverse group of men and women with the skills, leadership, vision, and innovative spirit needed to rise to positions of organizational leadership in a global business environment characterized by intense competition and rapid rates of technological change. Graduates of UA's MBA program should possess:

1. The analytical and conceptual abilities needed to identify and cope successfully with ambiguous and unstructured business problems;
2. A solid grounding in the basic business functions, with an emphasis on the integration of those functions and an understanding of how those functions are linked in the formulation and execution of business strategy;
3. A strong ethical perspective, an appreciation of cultural diversity, and an ability to communicate in an effective, persuasive manner;
4. An understanding of the legal, political, regulatory, economic and technological environment; and,
5. An awareness of the global economy in which business operates and an understanding of the forces that shape competitiveness in that economy.

In order to accomplish these goals, the graduate faculty of the College of Business Administration commits itself to providing a quality graduate business experience. This experience will have a strong professional focus, characterized by team work among students. The faculty is dedicated to creating an intense and stimulating environment that emphasizes the application of theory to real managerial problems and that is permeated by the basic concepts of globalization, ethics, leadership, and planned change.

We recognize that there are many skills students need to acquire in their MBA program in addition to technical competencies in their field of concentration. These include communication and interpersonal skills, analytical reasoning and leadership skills. Eight of these "expanded" competencies to be intertwined throughout the program are as follows:

Communication
1. Ability to present views and concepts clearly in writing;
2. Ability to read, critique, and judge the value of written work;
3. Ability to present views and concepts clearly through oral communication.

Group work and people skills
4. Ability to understand group dynamics and work effectively with people from diverse backgrounds;
5. Ability to manage conflict;
6. Ability to organize and delegate tasks.

Critical thinking and creative and effective problem solving
7. Ability to solve diverse, structured and unstructured problems;
8. Ability to deal effectively with imposed pressures and deadlines.

The basics for most of these skills may be taught in prior bachelor degree programs and are taught in the foundation core courses. Experiences are provided to students throughout the program in a variety of ways to develop these skills. A student's progress is to be documented and evaluated by self evaluation, peer evaluation, and faculty evaluation.

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

During its long tradition, the college has sought to fulfill the educational and professional needs of its 450 graduate students, the community and regional business organizations. To meet its urban objectives, the college offers most graduate courses only between 5:20 p.m. and 10:40 p.m. The master's programs are designed to serve those who work full-time and wish to pursue a master's program on a part-time basis. However, many students enroll full-time to complete the master's program in a shorter period.

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

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

Even though an applicant is eligible for consideration, an offer of admission is not guaranteed. Since staff, facilities and resources are limited, a determination must be made as to the number of applicants who can be adequately served among those eligible. As a result, offers of admission may be limited to only the most qualified of the eligible applicants as determined by the CBA Graduate Admissions Committee. The committee will consider the following in making decisions: the difficulty of the applicant's undergraduate program; the length of time and activities since graduation; and the percentile ranking on the GMAT. For example, students admitted into the graduate business programs since January 1, 1999, had an average GMAT of 592 and an average point index of 1224.

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

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

Procedure
GMAT scores should be sent to the Director of Graduate Programs in Business, College of Business Administration, The University of Akron, Akron OH 44325-4800 (institution code 1429). The GMAT test is administered world-wide and the applicant should register for it sufficiently in advance to the filing of the graduate application, so evaluation for admission will not be delayed. GMAT registration bulletins can be obtained from the Graduate Programs in Business Office or the Educational Testing Service, Box 966-R, Princeton, NJ 08540. Those who have taken the GMAT more than five years ago are normally required to retake it.

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

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

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

Questions regarding these Policies, Procedures, and Requirements may be sent via e-mail to gradca@uakron.edu. Further information may be found at the College of Business Administration website: http://www.uakron.edu/cba.

Transfer Policy
The College of Business Administration will permit nine credits of comparable graduate credits to be transferred into any of the graduate business programs (10 law school credits into the J.D./M.Taxation program). These credits must be pre-
Second Degree

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

Master of Business Administration

The Master of Business Administration program is designed to give the student a general knowledge of the functional areas of business and permit the concentration of study in one of the 13 following areas: accounting, electronic business, entrepreneurship, finance, global sales management, health care management, international business, international finance, management, management of technology, marketing, quality management, or supply chain management. The program consists of 58 graduate credits. Foundation courses may be waived for those who have had recent study in the area. Foundation and advanced courses can be taken concurrently provided that all prerequisites have been met. Beginning with the Fall 1999 semester, all foundation level courses are available over the World Wide Web. Students should contact the graduate program office for more information about web-based courses.

- **Foundation Courses:**
  - All are required unless waived at the time of admission. Foundation courses may not be used as concentration or elective courses.
  - 3250:680 Foundation of Economic Analysis 3
  - 6200:691 International Accounting 3
  - 6400:602 Managerial Finance 3
  - 6400:663mat Government and Business 3
  - 6500:600 Management and Organizational Behavior 3
  - 6500:601 Quantitative Decision Making 3
  - 6500:602 Computer Techniques for Management 3
  - 6500:603 Marketing Concepts 3
  - 6500:610 Process Analysis and Cost Management 3
  - 6500:625 Strategic Financial Decision Making 3
  - 6500:670 Management of Operations 3
  - 6500:620 Strategic Marketing Management 3
  - 6700:696 Special Topics in Professional Development: Leadership 3
  - 6800:605 International Business Environments 3

- **Concentration (12 credits):**
  - The student must select 12 credits in a field of concentration (accounting, electronic business, entrepreneurship, finance, global sales management, health care management, international business, international finance, management, management of technology, marketing, quality management, or supply chain management).
  - **Free Electives (3 credits):**
    - The student must select 3 credits of free electives outside the area of concentration. 500-level courses may be used but the student may not count more than 6 credits of 500-level courses in total toward the fulfillment of degree requirements. Approval of Director is required.
  - **Integrative (3 credits):**
    - 6500:695 Business Strategy and Policy: Domestic and International 3

- **Program Summary**
  - Foundation Core 24
  - Functional Core 16
  - Concentration 12
  - Free Electives 3
  - Integrative 2
  - Total Program 66

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

**Concentration in Accounting**

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

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

- **Required:**
  - 6500:625 E-Business Foundations 3
  - 6500:627 E-Business Technologies 3

- **Choose 6 credits from the following:**
  - 6200:658 E-Business Risks, Controls and Assurance Services 3
  - 6400:685 E-Business Legal Issues 3
  - 6400:688 E-Business Financial Strategy and Planning 3
  - 6600:635 E-Business Marketing Strategies and Tactics 3

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

**Concentration in Entrepreneurship**

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

- **Required:**
  - 6300:640 Financing the Entrepreneurial Venture 3
  - 6300:699 Managing Entrepreneurial Growth 3
  - 6500:608 Entrepreneurship 3
  - 6500:663 Data Analysis for Managers 3

**Concentration in Finance**

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

- **Required (9 credits):**
  - 6400:631 Financial Markets and Institutions 3
  - 6400:648 Investment Analysis 3
  - 6400:678 Capital Budgeting 3

- **Choose three courses from the following:**
  - 6400:628 International Banking 3
  - 6400:650 Techniques of Financial Modeling 3
  - 6500:681 Multinational Corporate Finance 3
  - 6500:690 Selected Topics in Finance 3
  - 6600:651 International Markets and Investments 3
  - 6600:687 Independent Study in Finance 3
  - 6600:689 Independent Study: Business Law 3

**Concentration in Global Sales Management**

- **Required (complete all 6 credits):**
  - 6600:585 Global Sales Strategy 3
  - 6600:685 Business Relationship Management 3

- **Electives (choose 6 credits from the following):**
  - 6500:656 Management of International Operations 3
  - 6600:665 Marketing Communications 3
  - 6800:670 Competitive Business Strategies 3
  - 6800:680 International Marketing Policies 3

**Concentration in Health Care Management**

- **Required:**
  - 6500:693 Health Care Systems Management 3
  - 6500:694 Data Analysis for Managers 3

- **Choose 6 credits from the following:**
  - 6500:582 Health Care Operations Management 3
  - 6500:586 Special Topics in Health Services Administration 3
  - 6500:698 Health Services Research Project 3
  - 6500:699 Independent Study in Health Services Administration 3
  - 3000:680 Interdisciplinary Seminar in Life-Span Development and Gerontology 3
  - 3250:540 Special Topics: Economics (Medical) 3
  - 3850:615 Epidemiologic Methods in Health Research 3
  - 3850:656 Sociology of Health Care 3
  - 3980:672 Urban Planning and Health Care 3
  - 4900:630 Biomedical Computing 3
  - 6200:632 Fiscal Management in Nursing Administration 3

**Concentration in International Business**

- **Required (choose one of the following courses):**
  - 6200:664 Research and Quantitative Methods in Accounting 3
  - 6400:650 Techniques of Financial Modeling 3
  - 6500:682 Applied Operations Research 3
  - 6500:693 Data Analysis for Managers 3
  - 6600:840 Business Research Methods 3

- **Plus any 9 credits in International Business:**
  - 6800:630 International Marketing Policies 3
  - 6800:685 Multinational Corporations 3
  - 6800:699 Seminar in International Business 3
  - 6800:697 Independent Study in International Business 3
  - 5200:680 International Accounting 3
  - 6400:638 International Banking 3
  - 6400:691 Multinational Corporate Finance 3
  - 6400:691 International Markets and Investments 3
  - 6500:696 Management of International Operations 3
  - 6500:699 International Human Resource Management 3
  - 6500:691 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
2. This program prepares students for careers in international finance with emphasis in corporate banking or investment areas. With the globalization of business, cross-cultural competence is essential to manage the complexities of international trade. This program focuses on enterprise-wide management of technology and innovation in organizations. Value is added by a holistic integration of intellectual capital, manufacturing agility, new product development, knowledge management, and other competencies.

### Concentration in International Business for International Executives

- **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
  - 6500:693 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
  - 6200:690 International Accounting 1
  - 6400:681 Multinational Corporate Finance 3
  - 6400:691 International Markets and Investments 3
  - 6500:656 Management of International Operations 3
  - 6500:653 International Human Resource Management 3
  - 6600:661 Comparative Systems of Employee and Labor Relations 3

International Business students must also select one of the following options:

1. **Foreign Language Option:** demonstrate reading and conversational proficiency in a language other than English.

2. **Cross-Cultural Option:** select one course (three credits) from the following courses:
   - 3250:550 Comparative Economic Systems 2
   - 3250:565 Economics of Developing Countries 3
   - 3250:670 International Monetary Economics 3
   - 3250:671 International Trade 3
   - 3350:538 Land Use Planning Methods 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 International Finance

This program prepares students for careers in international finance with emphasis in corporate banking or investment areas. With the globalization of business, international finance has emerged as a major program for students interested in international business operations.

- **Required (9 credits):**
  - 6400:681 Multinational Corporate Finance 3
  - 6400:683 International Markets and Investments 3
  - 6400:685 International Banking 3

- **Choose three credits from the following:**
  - 6400:621 Financial Markets and Institutions 3
  - 6400:645 Investment Analysis 3
  - 6400:650 Techniques of Financial Modeling 3
  - 6400:678 Capital Budgeting 3
  - 6400:692 Selected Topics in Finance 3
  - 6400:697 Independent Study in Finance 3
  - 6400:698 Independent Study: Business Law 3

### Concentration in Management

- **Required:**
  - 6500:662 Applied Operations Research 3
  - 6500:693 Data Analysis for Managers 3

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

### Concentration in Management of Technology and Innovation

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

- **Required:**
  - 6500:656 Management of International Operations 3
  - 6500:662 Applied Operations Research 3
  - 6500:685 Data Analysis for Managers 3
  - 6500:693 Management of Technology 3
  - 6500:699 Polymer Management Decisions 3
  - 6600:540 Product and Brand Management 3

- **Recommended free elective (3 credits):**

  Select one course from the following courses:
  - 6500:636 Entrepreneurship 3
  - 6500:637 Business Negotiations 3
  - 6500:640 Management Information Systems 3
  - 6500:650 Fundamentals of Human Resource Administration 3
  - 6500:678 Project Management 3

### Concentration in Strategic Marketing

- **Required (9 credits):**
  - 6500:640 Business Research Methods 3
  - 6500:645 Innovation Marketing Strategies 3
  - 6500:670 Competitive Business Strategies 3

- **Choose three credits from the following:**
  - 6500:640 Business Research Methods 3
  - 6500:645 Innovation Marketing Strategies 3
  - 6500:646 Business Research Methods 3
  - 6500:651 International Management 3
  - 6500:652 Business Research Methods 3
  - 6500:653 Business Research Methods 3

### Concentration in Supply Chain Management

- **Required:**
  - 6500:675 Supply Chain Management 3
  - 6500:682 Applied Operations Research 3

- **Choose 6 credits from the following:**
  - 6500:676 Management of Production and Operations 3
  - 6500:679 Project Management 3
  - 6500:675 Quality and Productivity Techniques 3
  - 6500:651 Management of Organizational Transformation 3
  - 6500:642 Systems Simulation 3
  - 6500:641 Business Database Systems 3

*Three graduate credits approved by the Director.

### Master of Science in Accounting

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

- **Foundation Courses:**
  - 6600:600 Marketing Concepts 3
  - 6400:602 Managerial Finance 3
  - 6600:600 Management and Organizational Behavior 3
  - 6600:601 Financial Accounting 3
  - 6600:603 Business Systems with Processing Applications 3
  - 6400:601 Quantitative Decision Making 3
  - 6400:620 Legal Aspects of Business Transactions 3
  - 3250:600 Foundations of Economic Analysis 3

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

- **Required of all MSA Students:**
  - 6200:655 Advanced Information Systems 3
  - 3300:675 Writing for MBAs 3

- **Information Systems Auditors and Control Projects:**
  - 6200:660 Information Systems Auditors and Control Project 3

 NSA Students will select either the Professional Accounting option or the Accounting Information Systems option.

### Professional Accounting (PA) Option

- **Required of MSA (PA) students without undergraduate degrees in Accounting:**
  - 6200:612 Corporate Accounting and Financial Reporting I 3
  - 6200:622 Corporate Accounting and Financial Reporting II 3
The Master of Taxation curriculum consists of a set of foundation courses and a set of required taxation courses. A minimum of 30 semester credits is required for the degree. Foundation courses may be waived for those who have had recent study in the subject areas.

- **Foundation Courses:**
  - 6200/601 Financial Accounting 3
  - 6200/621 Corporate Accounting and Financial Reporting I 3
  - 6200/622 Corporate Accounting and Financial Reporting II 3
  - 6200/623 Legal Aspects of Business Transactions 3
  - 6200/630 Taxation I 3
  - 6200/631 Taxation II 3

- **Required Master of Taxation Courses:**
  - 6200/629 Basic Tax Research 2
  - 6200/631 Corporate Taxation I 3
  - 6200/632 Taxation of Transactions in Property 3
  - 6200/633 Estate and Gift Taxation 2

- **Electives:** 19 credits of graduate taxation courses, selected from the list below:
  - 6200/641 Taxation of Partnerships 3
  - 6200/642 Corporate Taxation II 3
  - 6200/643 Tax Accounting 2
  - 6200/644 Income Taxation of Decedents, Trusts, and Estates 2
  - 6200/645 Advanced Individual Taxation 3
  - 6200/646 Consolidated Tax Returns 2
  - 6200/647 Qualified Pension and Profit-Sharing Plans 3
  - 6200/648 Tax Practice and Procedure 2
  - 6200/649 State and Local Taxation 3
  - 6200/650 Estate Planning 2
  - 6200/651 United States Taxation and Transnational Operations 2
  - 6200/652 Tax Exempt Organizations 2
  - 6200/653 Business Planning 2
  - 6200/654 Independent Study in Taxation 1-3
  - 6200/656 Nonqualified Executive Compensation 2
  - 6200/661 Advanced Tax Research and Policy 3
  - 6200/690 Service in Taxation 3
  - 6200/693 Selected Topics in Taxation: Limited Liability Companies 2
  - 6200/696 S Corporations 3
  - 6200/697 Mergers and Acquisitions 2
  - 6200/698 Advanced Partnership Tax Planning 2

Total Required Taxation Courses: 30-48

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

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**Master of Science in Management**

The Master of Science in Management program allows students to concentrate their advanced study in one of the two areas: human resource management or information systems management. Because of the complex nature of these specializations, they are not normally offered as options in traditional MBA programs. They are designed for individuals who know what they want to do or to help them apply what they already know more effectively. For example, computer science majors may choose to concentrate in information systems while psychology majors may benefit from the human resource management option. The introductory coursework for this program is termed a foundation core and consists of 24 credits which may be waived if the student has completed prior study in the area. The remaining 33 credits of coursework consists of 12 credits of general management coursework, 18 credits of specialization courses and one 3-credit free elective. If all foundation courses are waived, the program is 33 credits in length.

- **Foundation Core:**
  - All are required unless waived at time of admission:
  - 3250/500 Foundations of Economic Analysis 3
  - 6200/651 Financial Accounting 3
  - 6400/650 Managerial Finance 3
  - 6400/655 Government and Business 3
  - 6500/650 Management and Organizational Behavior 3
  - 6500/651 Quantitative Decision Making 3
  - 6600/652 Computer Techniques for Management 3
  - 6800/650 Marketing Concepts 3

- **Management Core Courses (12 credits):**
  - 6600/660 Management Information Systems 3
  - 6600/663 Data Analysis for Managers 3
  - 6600/665 Organizational Behavior 3
  - 6600/666 Organizational Theory 3
  - 6600/667 Applied Operations Research 3
  - 6500/670 Operations Management 3

- **Free Elective (3 credits):**
  - The student must select 3 credits of free electives from outside the area of concentration. A 500-Level course may be used but the student may not count more than 6 credits of 500-Level courses in total toward the fulfillment of degree requirements. Approval of Director is required.

**Options:**

Choose a concentration from the following:

**Information Systems Management (ISM)**

- **ISM Required Concentration Courses (12 credits):**
  - 6500/641 Business Database Systems 3
  - 6500/643 Analysis and Design of Business Systems 3
  - 6500/644 Management of Telecommunications 3
  - 6500/645 Advanced Management Information Systems 3

- **ISM Restricted Electives (6 credits):**
  - 6500/645 Business Applications Development 3
  - 6600/650 E-Business Foundations 3
  - 6600/652 E-Business Technologies 3
  - 6600/654 Systems Simulation 3
  - 6600/656 Knowledge Management 3
  - 6600/656 Process Redesign with Enterprise Resource Planning 3
  - 6700/651 Management of Organizational Transformation 3
  - 6700/656 Management of Technology 3
  - 6700/657 Project Management 3
Human Resource Option (HRM)

- **HRM Required Concentration Courses (12 credits)**
  - 6500:650 Fundamentals of Human Resource Administration 3
  - 6500:658 Strategic Human Resource Management 3
  - 6500:660 Employment Regulation 3
  - 6500:662 Organizational Behavior 3
  - 9600:653 Organizational Theory 3

- **HRM Restricted Electives (select 6 credits)**
  - 6500:651 Management of Organizational Transformation 3
  - 6500:659 Compensation Administration 3
  - 6500:659 International Human Resource Management 3
  - 6500:661 Comparative Systems of Employee and Labor Relations 3
  - 3 credits approved by the Director 3

  **Total concentration** 18

  **Total program** 33**

*Has to be taken if business application development proficiency requirement has not been satisfied.

If proficiency is satisfied, a different elective must be taken for credit.

**57 total credits if foundation courses are required, see Graduate Director.

### Joint Programs

The School of Law and the College of Business Administration (CBA) offer a joint program in legal and administrative studies (J.D./M.B.A.), a joint program in legal and taxation studies (J.D./M.Tax.) and a joint program in legal and human resource studies (J.D./M.S.M.). These combinations are open to the student preparing for a career in such areas as corporate law, tax accounting, human resource management or legal practice in government. The amount of time required to complete a joint degree program is shorter than the time required to complete both programs independently. To pursue either one of these cooperative programs, the student 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 44325-2910). A baccalaureate degree is required.

### Degree Requirements

A student is required to fulfill the requirements of the School of Law, 87 credits, which includes 10 credits transferred from the CBA. The requirements of the CBA may be met by fulfilling the requirements previously listed which include the common body of knowledge (Foundation) courses (unless waived because of prior undergraduate credits earned), and 25 credits for M.B.A. (24 for the M.S.M.-HR) of advanced courses of the CBA plus 10 credits transferred from the School of Law. The Master of Taxation program consists of 20-24 credits of advanced courses in the CBA plus 10 credits transferred from the School of Law. The reciprocal acceptance of course credits by each school is the essence of the joint programs. All law courses used to fulfill CBA requirements must be approved by the director of Graduate Programs in Business prior to completion. To earn both degrees, a total of 97 J.D./M.B.A., 102 J.D./M.Tax., or 101 J.D./M.S.M.-HR credits is required, depending on the master's program pursued. More credits may be required for the master's degree if Foundation courses are required.

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

J.D./M.B.A. students may transfer nine credits of School of Law courses into the M.B.A. program. Six credits must be in 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. These credits of free electives may be chosen from other business-related law courses and must be approved by the director of graduate programs in Business Administration.

J.D./M.S.M.-HR students may transfer nine credits of School of Law courses into the M.S.M. program. Six credits must be in their area of concentration and must be selected from the courses listed below. These credits of free electives may be chosen from other business-related law courses and must be approved by the director of graduate programs in Business Administration.

### Law Courses to be used as M.B.A Concentration Courses

#### Choices for Concentration Electives:

**Accounting (choose 6 credits)**

- 9200:639 Estate and Gift Taxation
- 9200:640 Individual Taxation
- 9200:641 Corporate Taxation
- 9200:665 Taxation of Partnerships
- 9200:666 Qualified Pensions and Profit Sharing
- 9200:685/686 Wills, Trusts and Estates I, II

- **Finance (choose 6 credits)**
  - 9200:629 Commercial Law II
  - 9200:635 Bankruptcy Law
  - 9200:639 Estate and Gift Taxation
  - 9200:652 Land Use Planning
  - 9200:671 Securities Regulation
  - 9200:675 Special Problems in Estate Planning
- 9200:680 Qualified Persons and Profit Sharing
- 9200:685/686 Wills, Trusts and Estates I, II
- 9200:691 International Investments
- 9200:694 International Law
- 9200:676 International Trade
- 9200:691 International Investments and Commercial Transactions

#### Management (choose 6 credits)

- 9200:637 Equal Opportunity Law
- 9200:650 Labor Law and Collective Bargaining
- 9200:651 Employment Law
- 9200:659 Lawyer as Negotiator
- 9200:660 Workers’ Compensation
- 9200:672 Seminar in Business Planning
- 9200:679 Labor Law

#### Marketing (choose 6 credits)

- 9200:627 Commercial Law I
- 9200:659 Lawyer as Negotiator
- 9200:682 Media Law
- 9200:667 Patent Law
- 9200:672 Seminar in Business Planning
- 9200:683 Seminar in Product Liability
- 9200:684 Sports and Entertainment Law

### Law Courses to be used as M.S.M-HR Concentration Courses

- 9200:637 Equal Opportunity Law
- 9200:650 Labor Law and Collective Bargaining
- 9200:651 Employment Law
- 9200:659 Lawyer as Negotiator
- 9200:660 Seminar in Workers’ Compensation
- 9200:679 Seminar in Labor Law
College of Fine and Applied Arts

Mark S. Auburn, Ph.D., Dean
James M. Lynn, Ph.D., Associate Dean
Philip G. Thomson, M.M., Assistant Dean

Mission Statement
The College of Fine and Applied Arts is dedicated to enhancing the quality of life of the individual, the University, and the community. Through instruction, research, creative activity, and outreach programs, the College fosters artistic and social inquiry and direct application of knowledge to self, family and society. Students are supported in their quest for knowledge of their chosen fields and encouraged to shape their artistic and social environments.

MASTER'S DEGREE

Family and Consumer Sciences
A program of study is offered leading to the Master of Arts in Family and Consumer Sciences. The degree offers options in child development; child life; clothing, textiles and interiors; family development; and food science. Students must meet the following admission requirements for acceptance in the program:

- Minimum GPA of 2.75 for four years of undergraduate study or 3.00 for the last two years of undergraduate study.
- Completion of general Graduate Record Examination within the five years preceding application, with a minimum total score of 1200 on the three parts of the GRE.
- Submission of a letter of personal career goals, sent to the director of graduate studies.

Two letters of recommendation may be submitted, if desired. The graduate faculty of the School of Family and Consumer Sciences may require an interview with any applicant. Accepted students will be expected to comply with the following requirements:

- Complete the course of study in one of the five options, with a minimum of 40 credits.

These credits will include:
- Foundation courses to prepare for research in family and consumer sciences as an interdisciplinary field.
- Core courses in the area of specialty.
- Option electives and cognate electives, selected in consultation with an academic advisor, from within the School or in another discipline. These are chosen to strengthen the student's professional goals.
- Pass a written comprehensive examination over major and minor areas after the completion of at least 24 credits of graduate work.

- Complete a master's thesis or a master's project. The thesis option involves the design and evaluation of original research in an appropriately related area, commensurate with the student's background and area of pursuit. The project option involves the design, development, implementation, and evaluation of original and creative programs and/or resource materials. A written proposal for the thesis or project cannot be submitted until the successful completion of the comprehensive examination.
- Apply for advancement to candidacy upon successful completion of 24 credits of graduate study, the written comprehensive examination, and an approved prospectus or proposal for a thesis or project.
- Pass an oral examination covering the thesis or project report.

Foundation Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7400:654</td>
<td>Orientation to Graduate Studies in Family and Consumer Sciences</td>
<td>1</td>
</tr>
<tr>
<td>7400:680</td>
<td>Historical and Conceptual Bases of Family and Consumer Sciences</td>
<td>3</td>
</tr>
<tr>
<td>7400:685</td>
<td>Research Methods in Family and Consumer Sciences</td>
<td>3</td>
</tr>
</tbody>
</table>

Child and Family Development Option

- Core Courses:
  - 7400:602 Family in Lifespan Perspective 3
  - 7400:605 Developmental Parent-Child Interactions 3
  - 7400:610 Child Development Theories 3
  - 7400:665 Development in Infancy and Early Childhood 3

- Option Electives
  Select 9 credits from the following courses with approval of advisor (if a course has been taken at the undergraduate level, other courses must be selected):
  - 7400:501 American Families in Poverty 3
  - 7400:504 Juvenile Justice in the Family Context 3
  - 7400:506 Family Financial Management 3
  - 7400:540 Family Crisis 3
  - 7400:542 Human Sexuality 3
  - 7400:546 Culture, Ethnicity and the Family 3
  - 7400:548 Before and After School Child Care 2
  - 7400:550 Organization and Supervision of Child-Care Centers 3
  - 7400:556 Parent Education 3
  - 7400:603 Family Relationships in the Middle and Later Years 3
  - 7400:688 Parenting 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

- Core Courses:
  - 7400:634 Material Culture Studies 3
  - 7400:639 Theories of Fashion 3

- Options Electives:
  - 7400:518 History of Interior Design I 4
  - 7400:519 History of Interior Design II 4
  - 7400:523 Professional Image Analysis 3
  - 7400:525 Advanced Textiles 3
  - 7400:527 Global Issues in Textiles and Apparel 3
  - 7400:536 Principles and Practices Interior Design 3
  - 7400:538 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 within the School of Family and Consumer Sciences OR from a cognate area outside the School OR from a combination of the two.

Graduate Studies 57
Food Science Option (admissions temporarily suspended)

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

- Option Electives:
  Select 9-12 credit hours with the approval of advisor from among the following (if a course has been taken at the undergraduate level, other courses must be selected):
  3100:500 Food Prin 2
  3250:540 Special Topics: Economics and World Food Problems 2
  7400:574 Cultural Dimensions of Food 3
  7400:565 Seminar in Family and Consumer Sciences (Food Science topic) 2-3
  7400:570 The Food Industry: Analysis and Field Study 3
  7400:503 Advanced Food Preparation 3
  7400:524 Nutrition in the Life Cycle 3
  7400:624 Advanced Human Nutrition I 3
  7400:625 Advanced Human Nutrition II 3
  7400:686 Practicum in Family and Consumer Sciences 3

- Cognate Electives:
  Select 5-8 credits with approval of advisor from the School of Family and Consumer Sciences OR from a cognate area outside the School OR from a combination of the two:
  7400:690 Thesis Research/Reading 4
  7400:694 Master's Project 5
  7400:696 Master's Thesis 5
  Total 40

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

Nutrition and Dietetics

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

- Meet the minimum GPA of 2.75 for four years of undergraduate study or 3.00 for the last two years of undergraduate study.
- Have completed the general Graduate Record Examination within the five years preceding the application and achieved a minimum total score of 1200 on the three parts of the GRE.
- Submit a letter of personal career goals.
- Offer two letters of recommendation if desired.

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

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

- Complete the course of study with a minimum of 40 credits. These credits will include:
  - foundation courses to prepare the student for research in family and consumer sciences as a discipline:
    - core courses in the area of specialty;
  - electives selected from within the department or from another discipline to strengthen student's professional goals. These courses will be selected in consultation with and approval from the student's graduate faculty advisor.
  - Pass a written comprehensive examination over major and minor areas after the completion of at least 24 credits of graduate work.
  - Apply for advancement to candidacy upon successful completion of 25 credits of graduate study, the written comprehensive examination, and an approved prospectus for a thesis or project.
  - Complete a thesis or a project. The thesis option involves the design and evaluation of original research in an appropriately related area commensurate with the student's background and area of pursuit. The project option involves the design, development, implementation and evaluation of original and creative programs and/or resource materials. A written proposal for the thesis or project option cannot be submitted until the successful completion of a comprehensive examination.
  - Pass an oral examination covering the thesis or project.

Foundation Courses

- Required by all program options.
  7400:694 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

- Core Courses:
  7400:624 Advanced Human Nutrition I 3
  7400:625 Advanced Human Nutrition II 3

Electives (9 to 12 credits required)

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

- 3100:565 Cardiac Physiology 3
- 3100:584 Pharmacology 3
- 3100:670 Medical Physiology, Pathophysiology, and Pharmacology 3
- 3100:688 Research in the Biology of Aging 3
- 7500:501 Biochemistry I 3
- 7500:600 Biochemistry II 3
- 7400:500 Nutrition Communication and Education Skills 4
- 7400:520 Experimental Foods 3
- 7400:524 Nutrition in the Life Cycle 3
- 7400:574 Cultural Dimensions of Foods 3
- 7400:576 Developments in Food Science 3
- 7400:586 Community Nutrition I-Lecture 3
- 7400:582 Community Nutrition I-Lecture 3
- 7400:587 Sports Nutrition 3
- 7400:588 Practicum in Dietetics 1-3
- 7400:591 Professional Preparation for Dietetics 1
- 7400:634 Nutrition in Dying/Health 3
- 8200:561 Advanced Physiological Concepts in Health Care I 3
- 8200:562 Advanced Physiological Concepts in Health Care I 2

Cognate Electives (5 to 11 credits required)

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

Nutrition and Dietetics:

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

Music

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

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

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

For the performance option in voice, a proficiency equal to two semesters each of Italian, German and French is required for completion of the Master of Music Degree in Voice Performance.

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

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

- Major required courses – 21-22 credits:
  7500:601 Choral Literature 2
  7500:618 Musical Styles and Analysis IV (20th Century) 2
  7500:624 Music History Survey: Music Since 1500 2
  7500:647 Master's Chamber Recital 1
  7500:699 Master's Thesis/Project 1
  7510:692 Ensemble Participation in two ensembles required 2
  7520:642 Applied Composition 8
### Music Education Option

#### Thesis Option - 32 credits

- **Required Music Education Core Courses - 13-15 credits**
  - 7500:611 Foundations of Music Education (summer) - 3
  - 7500:612 Practices and Trends in Music Education (fall) - 3
  - 7500:614 Measurement and Evaluation in Music Education (spring) - 3
  - 7500:699 Master's Thesis/Project - 4

- **Additional music/education courses - select 23 credits with approval of music education and graduate advisors.** Choices may include the following:
  - 7500:675 Seminar in Music Education - 9
  - 7500:697 Advanced Problems in Music Education* - 4
  - 7500:612 Music Workshops* - 3
  - 7520:5---/6- Applied - 8
  - 7510:---/6- Ensemble - 2
  - 5100:---/6- Educational Foundations and Leadership - 4
  - 5170:---/6- General Administration - 4
  - 55--:5---/6- Curricular and Instructional Studies - 13

#### Non-Thesis Option - 34 credits

- **Required Music Education Core Courses - 9 credits**
  - 7500:611 Foundations of Music Education (summer) - 3
  - 7500:612 Practices and Trends in Music Education (fall) - 3
  - 7500:614 Measurement and Evaluation in Music Education (spring) - 3

- **Additional music/education courses - select 25 credits with approval of music education and graduate advisors.** Choices may include the following:
  - 7500:675 Seminar in Music Education - 9
  - 7500:697 Advanced Problems in Music Education* - 4
  - 7500:690 Music Workshops - 6
  - 7520:5---/6- Applied - 8
  - 7510:---/6- Ensemble - 2
  - 5100:---/6- Educational Foundations and Leadership - 4
  - 5170:---/6- General Administration - 4
  - 55--:5---/6- Curricular and Instructional Studies - 13

- **Non-Thesis Option - 34 credits**
  - **Required Music Education Core Courses - 9 credits**
    - 7500:611 Foundations of Music Education (summer) - 3
    - 7500:612 Practices and Trends in Music Education (fall) - 3
    - 7500:614 Measurement and Evaluation in Music Education (spring) - 3

- **Additional music/education courses - select 25 credits with approval of music education and graduate advisors.** Choices may include the following:
  - 7500:675 Seminar in Music Education* - 9
  - 7500:697 Advanced Problems in Music Education* - 4
  - 7500:690 Music Workshops - 6
  - 7520:5---/6- Applied - 8
  - 7510:---/6- Ensemble - 2
  - 5100:---/6- Educational Foundations and Leadership - 4
  - 5170:---/6- General Administration - 4
  - 55--:5---/6- Curricular and Instructional Studies - 13

#### Music Education Option: Instrumental Emphasis

#### Thesis Option - 32 credits

- **Required Music Education Core Courses - 13-15 credits**
  - 7500:611 Foundations of Music Education (summer) - 3
  - 7500:612 Practices and Trends in Music Education (fall) - 3
  - 7500:614 Measurement and Evaluation in Music Education (spring) - 3
  - 7500:699 Master's Thesis/Project - 4

- **Additional music/education courses - select 23 credits with approval of music education and graduate advisors.** Choices may include the following:
  - 7500:675 Seminar in Music Education* - 9
  - 7500:697 Advanced Problems in Music Education* - 4
  - 7500:690 Music Workshops* - 6
  - 7520:5---/6- Applied - 8
  - 7510:---/6- Ensemble - 2
  - 5100:---/6- Educational Foundations and Leadership - 4
  - 5170:---/6- General Administration - 4
  - 55--:5---/6- Curricular and Instructional Studies - 13

#### 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

- **Additional music/education courses - select 25 credits with approval of music education and graduate advisors.** Choices may include the following:
  - 7500:675 Seminar in Music Education* - 9
  - 7500:697 Advanced Problems in Music Education* - 4
  - 7500:690 Music Workshops* - 6
  - 7520:5---/6- Applied - 8
  - 7510:---/6- Ensemble - 2
  - 5100:---/6- Educational Foundations and Leadership - 4
  - 5170:---/6- General Administration - 4
  - 55--:5---/6- Curricular and Instructional Studies - 13

#### Music Education Option: Choral Emphasis

#### Thesis Option - 32 credits

- **Required Music Education Core Courses - 13-15 credits**
  - 7500:611 Foundations of Music Education (summer) - 3
  - 7500:612 Practices and Trends in Music Education (fall) - 3
  - 7500:614 Measurement and Evaluation in Music Education (spring) - 3
  - 7500:699 Master's Thesis/Project - 4

- **Additional music/education courses - select 23 credits with approval of music education and graduate advisors.** Choices may include the following:
  - 7500:675 Seminar in Music Education* - 9
  - 7500:697 Advanced Problems in Music Education* - 4
  - 7500:690 Music Workshops* - 6
  - 7520:5---/6- Applied - 8
  - 7510:---/6- Ensemble - 2
  - 5100:---/6- Educational Foundations and Leadership - 4
  - 5170:---/6- General Administration - 4
  - 55--:5---/6- Curricular and Instructional Studies - 13

#### Non-Thesis Option - 34 credits

- **Required Music Education Core Courses - 9 credits**
  - 7500:611 Foundations of Music Education (summer) - 3

- **Additional music/education courses - select 25 credits with approval of music education and graduate advisors.** Choices may include the following:
  - 7500:675 Seminar in Music Education* - 9
  - 7500:697 Advanced Problems in Music Education* - 4
  - 7500:690 Music Workshops* - 6
  - 7520:5---/6- Applied - 8
  - 7510:---/6- Ensemble - 2
  - 5100:---/6- Educational Foundations and Leadership - 4
  - 5170:---/6- General Administration - 4
  - 55--:5---/6- Curricular and Instructional Studies - 13
Music Education Option: Choral Conducting

• Required courses - 13 credits:
  - 7500:555 Advanced Conducting: Instrumental 2
  - 7500:556 Advanced Conducting: Choral 2
  - 7500:561 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: Renaissance through 19th Century 2
  - 7500:653 Music History Survey: Baroque 2
  - 7500:654 Music History Survey: Classical and Romantic 2
  - 7500:655 Music History Survey: Music Since 1900 2
  - 7500:656 Music History Survey: Since 1900 2
  - 7500:657 Music History Survey: Baroque 2
  - 7500:658 Music History Survey: Classical and Romantic 2
  - 7500:659 Music History Survey: Music Since 1900 2

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

Degree Total: 33 credits.

Music History and Literature Option

• Music core courses - 8 credits (to be selected):
  - 7500:555 Advanced Conducting: Instrumental 2
  - 7500:556 Advanced Conducting: Choral 2
  - 7500:561 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: Renaissance through 19th Century 2
  - 7500:653 Music History Survey: Baroque 2
  - 7500:654 Music History Survey: Classical and Romantic 2
  - 7500:655 Music History Survey: Music Since 1900 2
  - 7500:656 Music History Survey: Since 1900 2
  - 7500:657 Music History Survey: Baroque 2
  - 7500:658 Music History Survey: Classical and Romantic 2
  - 7500:659 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
  - 7520:6** Composition (elective) 4
  - 7500:697 Graduate Research in Communication 3

Degree Total: 33 credits.
Graduate-level (music, workshops, applied lessons, advanced problems and/or courses to be selected by student and advisor.

- Electives – four credits.*

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

Degree total: 34-36 credits.

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

**Performance Option in Voice**

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

- Major required courses – 20-22 credits:
  - 7500:618 Musical Styles and Analysis IV (20th Century) 2
  - 7500:665 Vocal Pedagogy 3
  - 7500:666 Advanced Song Literature 3
  - 7500:698 Graduate Recital 2-4
  - 7501:624 Applied Voice 8

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

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

- Electives – four credits.

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

Degree total: 34-36 credits.

**Performance Option in Keyboard**

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

- Major required courses – 19-21 credits:
  - 7500:618 Musical Styles and Analysis IV (20th Century) 2
  - 7500:662 Responsive Pedagogy: Organ or
    - 7500:633 Teaching and Literature: Piano and Harpsichord 2
  - 7501:621 Advanced Problems in Music 2
  - 7500:698 Graduate Recital 2
  - 7501:614 Keyboard Ensemble participation in two ensembles required** 8
  - 7526:0 Applied Music (piano, organ and/or harpsichord) 2-4

- Additional music courses – three to four credits.

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

- Electives – four credits.

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

Degree total: 34-36 credits.

- Electives (6 credits)
  - 7500:570 Foundations of Music Education 3
  - 7500:571 Practices and Trends in Music Education 3
  - 7500:572 Measurement and Evaluation in Music Education 3
  - 7500:615 Master's Thesis/Performance* 4
  - 7500:616 Music Styles and Analysis II 2
  - 7500:617 Music Styles and Analysis III 2
  - 7500:697 Advanced Problems 1-2

- Graduate Recital (2 credits)
  - 7500:698 Graduate Recital 2

- Electives (3 credits)

Graduate-level music courses, workshop, advanced problems and/or applied lessons, to be selected by student and advisor. Areas may include graduate-level courses in music education, languages, or other disciplines with the approval of the advisor. Students are strongly advised to have 2 credits in choral ensemble in addition to the above requirements.

- Master's Paper (12 credits)

- Electives (3 credits)

Degree total: 36 credits

**Theory Option**

- Music core courses – six credits to be selected:
  - 7500:552 Theory in Music 2
  - 7500:555 Advanced Conducting: Instrumental 2
  - 7500:556 Advanced Conducting: Choral 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 – 26-28 credits:
  - 7500:615 Musical Styles and Analysis IV (20th Century) 2
  - 7500:616 Musical Styles and Analysis II (Baroque through early Beethoven) 2
  - 7500:617 Musical Styles and Analysis III (Late Beethoven through Mahler/Strauss) 2
  - 7500:618 Musical Styles and Analysis IV (20th Century) 2
  - 7500:619 Theory and Pedagogy 2
  - 7500:657 Advanced Problems in Music 2
  - 7500:699 Master's Thesis/Project 4
  - 7510:698 Ensemble participation in two ensembles required** 2
  - 7526:042 Applied Composition 2

- Additional music courses – zero to two credits.

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

- Electives – zero to two credits.

To be selected by student and advisor. Areas include graduate-level courses in other disciplines in which student obtains permission of instructor or 7520:042 Applied Composition.

Degree total: 34-36 credits.

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

**Communication**

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

**Entrance requirements:**

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

**Program requirements:**

- Complete 36 credits, distributed as follows:
  - School core courses – 12 credits:
    - 7600:620 Introduction to Graduate Study in Communication 3
    - 7600:621 Empirical Research in Communication 3
    - 7600:624 Survey of Communication Theory 3
  - or
    - 7600:625 Theories of Mass Communication 3

*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.
School coursework – 12 credits.
Graduate electives – 6 credits.
Thesis (699) or Project/Production (698) – 6 credits.
Total – 36 credits.

• Comprehensive examination required for students not pursuing a thesis, project, or production after 24 credits of coursework, including all core courses.

• Advancement to candidacy. Registration for six (6) credits of Thesis (699) or Project/Production (698).

• Presentation and defense of a thesis/project/production:

The thesis, project, or production requirement is designed to be the culmination of the student's academic program and involves the conceptualization, design and execution of an academic, practical, or aesthetic problem in a manner which requires a high level of substantive, methodological, technical, and written skills. These skills may be demonstrated in any of the three types of activities, depending on the student's background and career orientation.

Theatre Arts
The School of Dance, Theatre, and Arts Administration offers a master of arts degree. The following will qualify the student in the field of theatre.

• Complete the general requirements for admission to the Graduate School.

• Complete an undergraduate major in the area of proposed graduate work or equivalent work as approved by the coordinator of the graduate theatre program.

• Complete an oral defense of the thesis or thesis project.

Arts Administration Option
• Complete a minimum of 45 credits.

• Required theatre arts courses (30-33) credits:

7800:600 Introduction to Graduate Studies in Theatre Arts 3
7800:605 Colloquium in the Arts 3
7800:685 Audience Development 3
7800:686 Principles of Arts Management 3
7800:682 Fund Raising and Management in the Arts 3
7800:591 Arts Administration Practices and Policies 3
7800:692 Legal Aspects of Arts Administration 3
7800:698 Internship 3-6
7800:699 Master's Thesis 1-6

• Required business courses (9 credits):

6200:590 Special Topics in Accounting 3
6500:600 Management and Organizational Behavior 3
6600:600 Marketing Concepts 3
or 6600:630 Marketing of Services 3

• Electives in related fields (3-6 credits):

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

• Complete an oral defense of the thesis.

• General electives 0-3

Theatre Option
Complete a minimum of 36 credits distributed as follows:

School core courses - 24 credits:

7800:600 Introduction to Graduate Studies 3
7800:641 Problems in Directing 3
7800:645 Seminar in Dramatic Literature 3
7800:646 Graduate Acting: Techniques 3
7800:658 History of Theatre 3
7800:662 Seminar in Scene Design 3
7800:699 Master's Thesis 1-6

Graduate electives:
12 credits to be selected from Theatre Arts, English, Communication, Music, etc., in consultation with the student's advisor or the graduate program coordinator.

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

• Complete requirements for admission to the Graduate School.

• Hold an undergraduate major in the area of proposed graduate study. The School of Speech-Language Pathology and Audiology offers a one-year postbaccalaureate program for students who have completed an undergraduate degree in a different field. Students enrolled in the postbaccalaureate program can apply for admission to the Graduate School for the following year.

• Complete the department requirements for admission which include submission of three letters of recommendation and the Graduate Record Examination Aptitude Test results.

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

Applications for admission are accepted and considered only once per year. Applications for admission should be received by February 15th.

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

For speech-language pathology majors:

7700:540 Augmentative Communication 3
7700:580 Early Intervention for Preschoolers 2
7700:585 Teaching and Learning Strategies in SLP 2
7700:611 Research Methods in Communicative Disorders I 3
7700:620 Augmentation 2
7700:623 Support Systems for Indv and Families with Communicative Disorders 2
7700:624 Neurogenic Speech and Language Disorders 3
7700:626 Voice and Cleft Palate 3
7700:627 Stuttering: Theories and Therapies 2
7700:628 Topics in Differential Diagnosis of Speech and Language Disorders 2
7700:630 Clinical Issues in Child Language 4
7700:631 Acquired Brain Injury 3
7700:632 Dysphagia 2
7700:633 Professional Issues 2
7700:650 Advanced Clinical Practicum: Speech-Language Pathology 4-6
7700:695 Externship: Speech Pathology and Audiology (student must register twice)

For audiology majors:

7700:611 Research Methods in Communicative Disorders I 3
7700:612 Research Methods in Communicative Disorders II 2
or 7700:699 Research and Thesis 4-6
7700:654 Advanced Clinical Practicum: Audiology (minimum 1)
7700:695 Externship: Speech Pathology and Audiology (student must register twice)

Completion of 5610:693 Student Teaching in Speech Pathology or 5610:692 Student Teaching in Audiology may be substituted for one 7700:685 registration. The audiology student must take 4 credits in speech-language pathology, and the speech-language pathology student must take 4 credits in audiology. It is recommended that the speech-language pathology major elect 7700:639 Advanced Clinical Testing to fulfill this requirement.

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

no more than 4 credits of workshop courses
no more than 6 credits of directed study course work (including 7700:697)
no more than 6 credits taken in disciplines other than speech-language pathology and audiology

• Students must be registered for clinical practicum, externship, or student teaching during any academic period in which they are involved in in-house practicum, externship, or student teaching.

Social Work
The Master of Social Work Program is a joint degree program administered by 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 edu-
cational 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 March 15. All application materials must be received by this date. Full-time and part-time admissions are available only for the fall semester.

A recent resume which reflects professional experience and how it relates to the applicant’s interests in the field.

- Graduate application form accompanied by an application fee for first-time applicants
- An official transcript from each college or university attended (must include content in human biology as well as liberal arts coursework)
- The following must be submitted to the School of Social Work:
  - An essay of 3–5 typed pages explaining:
    - a) why he/she wants to be a social worker;
    - b) why a graduate degree is felt to be necessary to fulfill his/her 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 how this situation impacted the desire to pursue an advanced degree in social work.
  - Two letters of reference/recommendation forms (including one from immediate supervisor, if employed).
  - A completed Application Checklist.

In addition, applicants to the Joint MSW Program must have:

- Undergraduate degree in social work or a related field.
- Minimum GPA of 3.00 in social and behavioral science courses taken prior to application for admission.
- Well-balanced liberal arts curriculum.

Admission to the master's degree program is on a competitive 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.

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
  - 7750:609 Social Work Practice with Small Systems
  - 7750:622 Fundamentals of Research I
  - 7750:630 Human Behavior and Social Environment: Small Social Systems
  - 7750:646 Social Welfare Policy I

- **Spring Semester**
  - 7750:602 Foundation Field Practicum
  - 7750:606 Social Work Practice with Large Systems
  - 7750:647 Social Welfare Policy II
  - 7750:653 Fundamentals of Research II
  - 7750:632 Human Behavior and Social Environment: Large Systems

**Second Year Concentrations (Direct Practice):**

- **Fall Semester**
  - 7750:603 Advanced Field Practicum
  - 7750:607 Advanced Practice with Small Systems I
  - 7750:611 Dynamics of Racism and Discrimination
  - 7750:603 Psychopathology and Social Work
  - One elective

- **Spring Semester**
  - 7750:604 Advanced Field Practicum
  - 7750:608 Advanced Practice with Small Systems II
  - 7750:604 Direct Practice Research
  - One elective

**Second Year Concentrations (Macro Practice):**

- **Fall Semester**
  - 7750:603 Advanced Field Practicum
  - 7750:611 Dynamics of Racism and Discrimination
  - 7750:674 Community, Economic Systems and Social Policy Analysis
  - 7750:673 Community Organization and Planning
  - One elective

- **Spring Semester**
  - 7750:604 Advanced Field Practicum
  - 7750:671 Social Work Administration
  - 7750:672 Strategies of Community Organization
  - 7750:675 Program Evaluation
  - One elective

**Part-Time Program**

**Professional Foundation:**

- **Fall Semester (First Year)**
  - 7750:631 HBSE: Small Systems
  - 7750:646 Social Welfare Policy I

- **Spring Semester (First Year)**
  - 7750:632 HBSE: Large Systems
  - 7750:547 Social Welfare Policy II

- **Fall Semester (Second Year)**
  - 7750:622 Fundamentals of Research I
  - 7750:609 Social Work Practice with Small Systems
  - 7750:601 Foundation Field Practicum

- **Spring Semester (Second Year)**
  - 7750:623 Fundamentals of Research II
  - 7750:605 Social Work Practice with Large Systems
  - 7750:602 Foundation Field Practicum

**Transfer Students**

An applicant who wishes to transfer from another MSW program must follow the same admission process and meet the same admission requirements as other degree candidates. A formal written request for transfer must be made at the time of application for admission. A maximum of 20 graduate credit hours may be transferred from another program accredited by the Council of Social Work. The 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. Credits will not be given for work life experience. Transfers 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:
Concentrations (Direct Practice):

- Fall Semester (Third Year)
  7750:611 Dynamics of Racism and Discrimination 3
  7750:663 Psychopathology and Social Work 3

- Spring Semester (Third Year)
  7750:664 Direct Practice Research 3
    One elective 3

Fall Semester (Fourth Year)
  7750:607 Advanced Practice with Small Systems I 3
  7750:603 Advanced Field Practicum 3
    One elective 3

Spring Semester (Fourth Year)
  7750:608 Advanced Practice with Small Systems II 3
  7750:604 Advanced Field Practicum 3
    One elective 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)
  7750:676 Program Evaluation 3
    One elective 3

Fall Semester (Fourth Year)
  7750:673 Community Organization and Planning 3
  7750:603 Advanced Field Practicum 3
    One elective 3

Spring Semester (Fourth Year)
  7750:672 Strategies of Community Organization 3
  7750:671 Social Work Administration 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
    One elective 3

- Spring Semester
  7750:664 Direct Practice Research 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
  7750:673 Community Organization and Planning 3
  7750:674 Community, Economic Systems and Policy Analysis 3
  7750:603 Advanced Field Practicum 3
    One elective 3

- Spring Semester
  7750:671 Social Work Administration 3
  7750:672 Strategies of Community Organization 3
  7750:675 Program Evaluation 3
  7750:604 Advanced Field Practicum 3
    One elective 6

Tasting 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
7750:646 Social Welfare Policy
7750:622 Fundamentals of Research I
College of Nursing

Cynthia F. Capers, R.N., Ph.D., Dean
Elaine Nichols, R.N., Ed.D., Associate Dean of Academic Affairs
Judith H. Lewis, R.N., Ed.D., Director, Nursing Education
Kathleen M. Ross-Aaalomki, R.N., Ph.D., Coordinator, Master of Science in Nursing Program
Christine A. Wynd, R.N., Ph.D., Director, Joint Ph.D. in Nursing Program

Mission Statement
As an integral part of The University of Akron, the College of Nursing promotes the general mission of The University of Akron. The college offers diverse and comprehensive nursing education programs at the undergraduate and graduate levels. The programs of study, based on professional standards, prepare individuals to provide nursing care in a variety of settings. The College of Nursing supports nursing research that contributes to the health and well-being of society. The college is committed to serving culturally, racially, and ethnically diverse populations. Through academic and community collaboration, the college promotes excellence in nursing education, research, practice, and service.

Goals
• Prepare generalist and advanced practice nurses who are eligible for initial licensure and for certification.
• Prepare scholars in nursing at the doctoral level, focusing on the conduct of nursing research and the dissemination of research findings with their implications for nursing practice and health care policy.
• Provide a foundation for lifelong commitment to professional development and scholarship through continuing education and advanced study at the master's and doctoral levels.
• Prepare nurses who are sensitive in caring for diverse populations in a variety of settings.
• Prepare professional practitioners who integrate leadership roles and ethical standards in a continuously changing health care arena and society.

Philosophy
The College of Nursing faculty believe that the joy of professional nursing are individuals, families, and communities.

The individual is seen as a complex whole whose existence involves patterns, dynamic change, transformation and interdependence. The individual interrelates within the environment in biological, psychological, social, spiritual, cultural and other dimensions. The individual is unique and universal. The individual is a thinking, feeling, interacting, evolving, creating, valuing being.

Families are individuals dynamically connected with each other over time in traditional and nontraditional family configurations.

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

Health is comparative, dynamic, multidimensional and has personal meaning. It includes disease, 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 interactions with the environment, knowledge and skill acquisition, development of critical thinking, and self-awareness. Self-expression enables the student to respond to clients who have unique human values and cultural heritage. Each nursing student brings attitudes, beliefs, values, feelings, knowledge and experience into the learning environment. These variables influence learning that occurs through curricular construction and reconstruction of experience in relation to environmental influences.

Nursing education at the baccalaureate level synthesizes knowledge from nursing, humanities, social, cultural, physical and natural sciences to operationalize clinical decision-making. The student is prepared to function as nurse generalist in a variety of settings. Faculty and student continually seek to refine the commitment to and understanding of the relationship between theory and practice. Students are encouraged to become self-directed, collaborative, interdependent and independent. These variables are the foundation for 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 test the conceptual formulations and research findings in advanced practice.

Nursing education at the doctoral level prepares nurses for full participation in the disciplinary scholarship and practice. 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.

JOIN PROGRAM FOR THE DOCTOR OF PHILOSOPHY IN NURSING
Kent State University and The University of Akron offer the Joint Ph.D. in Nursing (JPDN), a single doctoral program with a single, unified doctoral nursing faculty and doctoral student body. Students may choose which university will grant their degree. The diploma will be issued from the student's university of record and will recognize the Joint Doctor of Philosophy program. JPDN courses will be cross listed and scheduled at each university.

Program Purpose and Description: Preparation of Scholars in Nursing
The JPDN program is characterized by excellence through scholarship, integrity, and caring. The primary purpose of the JPDN is to produce nurse scholars. This purpose will be realized through: the development and testing of theories and models of nursing science and nursing practice, the consideration of the social, political, legal, and economic implications of health care policies and practices, and the dissemination of knowledge.

Graduates will be characterized by their leadership and their ability to conduct and apply research, to integrate and extend knowledge through teaching, and to develop and implement health care policy. Interdisciplinary collaboration and community outreach will be emphasized throughout the program.

Admission, Progression, and Graduation
Students may apply to the joint program through the Graduate Colleges or the Colleges of Nursing at either Kent State University or The University of Akron. Completed applications should be returned to the addresses indicated on the application forms. Applications will be reviewed by the JPDN admissions committee with a single set of JPDN admission criteria. Each applicant for admission into the Ph.D. in Nursing Program must meet the following criteria:
• Evidence of successful completion of a master's degree in nursing at an accredited program with a minimum graduate grade point average of 3.0 on a 4.0 scale.
• Evidence of current licensure, or eligibility for licensure, by the Ohio Board of Nursing.
• Official evidence of scores on the Graduate Record Examination.
• A clear and succinct statement about the applicant's need for the doctorate and its application toward clearly defined career goals.
• A sample of written work that indicates the logic and writing skills of the applicant, for example, by an essay, term paper, thesis, published article, or professional report.
• Three (3) letters of reference from professionals or professors who can adequately evaluate the applicant and the applicant's previous work or potential for success.
• At the request of the JPDN admissions committee, successfully complete a personal interview with a graduate faculty member who will assess research interest, and motivation for successful completion of doctoral study in the JPDN program.
• Register for courses within two (2) years of acceptance into the JPDN, or 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 JPDN 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 qualifying examination and dissertation requirements;
- successfully complete and orally defend a dissertation based upon original investigation and critical scholarship.

Students who do not meet the criteria for successful progression and graduation will be notified in writing.

Program Description and Curriculum

The JPDN is a post master’s degree, requiring 72 semester credit hours including the dissertation. It consists of five components, with selected customization to 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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>8200:810</td>
<td>History and Philosophy of Nursing Science</td>
<td>3</td>
</tr>
<tr>
<td>8200:815</td>
<td>Theory Construction and Development in Nursing</td>
<td>3</td>
</tr>
<tr>
<td>8200:820</td>
<td>Introduction to Nursing Knowledge Domains</td>
<td>3</td>
</tr>
<tr>
<td>8200:840</td>
<td>Nursing Science Seminar I</td>
<td>3</td>
</tr>
<tr>
<td>8200:850</td>
<td>Nursing Science Seminar II</td>
<td>3</td>
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Research methods, designs, and statistics:

Three required methods/design courses (9 credits)

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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>8200:825</td>
<td>Quantitative Research Methods</td>
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<tr>
<td>8200:830</td>
<td>Qualitative Research Methods</td>
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</tr>
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<td>8200:845</td>
<td>Advanced Methods for Research</td>
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</tbody>
</table>

(1 advanced nursing research methods course selected with the approval of the student’s academic advisor.)

Two required statistics courses (6 credits)

<table>
<thead>
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<th>Course Title</th>
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<tbody>
<tr>
<td>8200:827</td>
<td>Advanced Health Care Statistics I</td>
<td>3</td>
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<tr>
<td>8200:837</td>
<td>Advanced Health Care Statistics II</td>
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Cognates:

Three required courses (9 credits)

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<tr>
<td>8200:895</td>
<td>Cognates</td>
<td>9</td>
</tr>
</tbody>
</table>

(Three courses are selected with the approval of the student’s academic advisor from a discipline outside of nursing to support the student’s research interest.)

Electives:

<table>
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<th>Course Title</th>
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<tbody>
<tr>
<td>8200:892</td>
<td>Field Experience in Nursing</td>
<td>1-12</td>
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<tr>
<td>8200:899</td>
<td>Special Topics in Nursing</td>
<td>2-6</td>
</tr>
<tr>
<td>8200:896</td>
<td>Individual Investigation in Nursing</td>
<td>1-3</td>
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<tr>
<td>8200:898</td>
<td>Research in Nursing</td>
<td>1-15</td>
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</table>

Health Care and nursing policy:

<table>
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<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>8200:905</td>
<td>Nursing and Health Care Policy</td>
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Doctoral dissertation

30 credit hours required

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<td>1</td>
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</table>

Qualifying for Candidacy for the Doctoral Dissertation

- All students in the JPDN Program are required to successfully complete a qualifying examination before proceeding to conduct dissertation research. To be eligible for candidacy for the dissertation, students must have completed 42 hours of required courses, have maintained a minimum GPA of 3.0 on a 4.0 scale in the doctoral program, have successfully completed the qualifying examination, and have been approved by the appropriate substantive bodies of the program.

- Dissertation Prospectus: The dissertation prospectus is a written document that includes an outline of the parameters of the projected dissertation topic with a rationale and statement of the problem to be researched, the methodology and design of the study, a preliminary review of the literature substantiating the need for the study, and the principle sources of information for the dissertation.

- Approval of the prospectus permits the student to proceed with the dissertation.

- Dissertation: The dissertation is based upon original investigation and demonstration of mature 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 JPDN 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 Joint Ph.D. in Nursing Program for BSN Graduates and for Students Enrolled in MSN Option

The Innovative Pathways into the Joint Ph.D. in Nursing Program (JPDN) is an accelerated program that allows individuals with a BSN and students enrolled in the RN-MSN program direct admission into the JPDN program. Acceleration is accomplished by restructuring MSN and Ph.D. curricula to recognize the mastery of specific content, thereby facilitating graduate study. There are two pathways: one for BSN graduates and one for RN-option students. Since existing 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 (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.
- 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. By-pass credit is given in accordance with applicable University of Akron policy.
Upon successful completion of 8200:815, 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 interest and goals.
- Give a sample of written work. This may include, for example, a scientific term paper, a research paper, an honor's project, a professional report, or a published article.
- Submit three (3) letters of recommendation from professors or other professionals who can adequately evaluate previous work and potential for success in the Ph.D. program. One of the three letters must be from a Doctoral Faculty Council member who has worked closely with the student.
- Satisfactorily complete a personal interview with a Doctoral Faculty Council member.
- Register for full-time study during the fall semester after acceptance into the Ph.D. program, or otherwise the acceptance is void.

Students enrolled in The University of Akron RN-Option receive a maximum of six (6) by-passed credits after successfully completing six credit hours of level courses. By-passed credit is given for Nursing Inquiry I (8200:613) and Nursing Inquiry II (8200:618) after the student successfully completes Qualitative Research Methods (8200:825) and Quantitative Research Methods (8200:830) in accordance with applicable University of Akron policy. Students admitted to this innovative program are required to take the RN-BSN research course 8200:436, rather than receive by-passed credits for it.

**MASTER OF SCIENCE IN NURSING**

**Accreditation**

The master's degree programs are fully accredited by the National League for Nursing Accrediting Commission (NLNAC) and has preliminary approval from the Commission on Collegiate Nursing Education (CCNE). NLNAC is a resource of information regarding the structure, content, and length of program and can be contacted at: 350 Hudson Street, New York, New York 10014. 1-888-666-9656 extension 153. CCNE can be contacted at One Dupont Circle, N.W., Suite 530, Washington, D.C., 20036.

**Characteristics of the Graduate**

Upon completion of the program graduates will be able to:

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

**Admission**

- Baccalaureate degree in nursing from an NLNAC or CCNE accredited nursing program.
- 3.00 GPA on a 4.0 scale for all previous college work.
- Miller Analogies Test taken within the last five years with a minimum score of 50 or GRE taken within the last five years. During the past three years, the range of GRE scores has been: verbal 400-614, quantitative 400-695, and analytical 400-640.
- Three (3) letters of reference from a recent employer; a member of the nursing profession; a former faculty member.
- 300-word essay describing professional goals.
- Interview prior to admission to the program.
- Current state of Ohio license to practice nursing and evidence of malpractice insurance.
- Prerequisite course requirements: Undergraduate Statistics, Nursing Research, Basic Health Assessment and Computer Skills. Graduate Level Statistics.

A one year experience in an area where critical care and emergencies occur is required for all students admitted to the nurse anesthesia specialty.

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

**Admission Procedures**

The student secures application for Graduate School from the Office of the Dean of the Graduate School. The University of Akron, or the Office of Student Affairs, College of Nursing. Criteria specific for admission to the Graduate Nursing Program may be secured from the Coordinator of the Graduate Program in Nursing or the Office of Student Affairs.

A graduate admissions committee of the College of Nursing will review all applications and make recommendations to the Coordinator of the Graduate Program regarding the applicant's status. The Coordinator will send a recommendation to the Dean of the Graduate School, who will notify the student of admission status.

Applications received in the graduate office of the College of Nursing will be reviewed when the file is complete to facilitate the admission process.

**International Program**

The Master of Science in Nursing curriculum includes a minimum of 36 credit hours of study depending on the specialty track. The advanced practice tracks include Adult/Gerontological Health Nursing, Behavioral Health Nursing, Child and Adolescent Health Nursing, and Nurse Anesthesia. Graduates are prepared for advanced practice as clinical nurse specialists, nurse practitioners, or nurse anesthetists, or for roles as administrators or educators. The curriculum is based on theory and research both in nursing and in related disciplines. It provides the foundation for doctoral study and for ongoing professional development.

The Master of Science in Nursing with a focus on Nurse Anesthesia prepares the graduate to sit for the national certification examination that upon successful completion allows the individual to use the title of Certified Registered Nurse Anesthetist (CRNA).

**Nursing Core**

The curriculum consists of a core of 17 credit hours. These courses encompass advanced theory, research, computers in nursing, health policy, and pathophysiological concepts.

**Nursing Research**

All students enroll in a research core for a total of 7 credits: 8200:672, Nursing Inquiry I and 8200:699 Master's Thesis or 8200:618 Nursing Inquiry II.

**Advanced Practice Options**

Options are provided for advanced practice as a clinical nurse specialist, nurse practitioner, or nurse anesthetist, or for advanced roles as an administrator. Requirements for admission include at least one year of practice in the area of interest.

The Master of Science in Nursing curriculum requires from 36 to 60 credits, depending on the Advanced Practice option selected by the student.

Core courses required of all students:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>8200:608</td>
<td>Pathophysiological Concepts of Nursing Care</td>
</tr>
<tr>
<td>8200:603</td>
<td>Theoretical Basics for Nursing</td>
</tr>
<tr>
<td>8200:605</td>
<td>Computer Applications in Nursing</td>
</tr>
<tr>
<td>8200:607</td>
<td>Policy heute in Nursing</td>
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<tr>
<td>8200:613</td>
<td>Nursing Inquiry</td>
</tr>
<tr>
<td>8200:618</td>
<td>Nursing Inquiry II</td>
</tr>
<tr>
<td>8200:688</td>
<td>Master's Thesis</td>
</tr>
</tbody>
</table>

Functional role courses selected by students based on area of specialty:

- **Nurse Anesthesia**
  - The Anesthesia Track (60 credit hours) is accredited by the Council of Accreditation of Nurse Anesthesia Programs.
  - 8200:561 Advanced Physiological Concepts in Health Care I: 3
  - 8200:562 Advanced Physiological Concepts in Health Care II: 3
  - 8200:637 Nurse Anesthesia Residency I: 4
**MATERIAL OF PUBLIC HEALTH**

The Northeastern Ohio Universities Master of Public Health (NEOMPH) program is a multidisciplinary, interdepartmental, and inter-institutional organization that provides opportunities for graduate studies in public health. As a consortium-based program, the Master in Public Health degree is awarded by The University of Akron and utilizes faculty at The University of Akron, Cleveland State University, Kent State University, Northeastern Ohio Universities College of Medicine, and Youngstown State University. This program focuses on enabling public health and health care practitioners to better serve the community.

Students take core courses as a cohort at distance learning sites on participating campuses using interactive videoconferencing. Core courses are scheduled on Saturdays from 9:00 a.m. to 4:00 p.m. (including an hour for lunch). Electives are taken on the campus where they are being offered and may be taken at any time during the program.

**Admission**

Applications are sent to Northeastern Ohio Universities Master of Public Health, Division of Community Health Sciences, Northeastern Ohio Universities College of Medicine, 4209 State Route, P.O. Box 96, Rootstown, Ohio 44272.

Students must meet the following admission requirements:

- submit completed application by the required date
- possess a bachelor’s degree from an accredited college or university
- provide official transcripts from each institution of higher education attended
- a minimum undergraduate GPA of 2.75
- three letters of recommendation from individuals familiar with applicant’s academic or professional background submitted to: NEOUMPH Admissions Committee, Division of Community Health Sciences, NEOMCOM, 4209 State Route, P.O. Box 96, Rootstown, Ohio 44272. Letters should include assessments of the applicant’s work quality and estimation of her/his ability to succeed in the program.
- successful completion of a college-level mathematics or statistics course and a college-level social or natural science course
- acceptable GRE taken within the last five years (may be waived if applicant has a professional degree [master’s or doctoral] in a relevant area)
- international candidates for whom English was not the language of instruction must achieve a minimum score of 550 on the TOEFL
- two years’ work experience in a relevant field is highly recommended
- cover letter (maximum two pages) explaining candidate’s educational and professional history, area of interest in public health, interest and motivation for seeking the MPH, and professional or academic career plans upon completion of the program
- $35 non-refundable application fee

Admitted students are assigned to an “enrollment university” based on preference. Questions may be directed in writing to the above address or applicants may contact the Program Director by telephone (330) 325-6179, fax (330) 325-5907, or e-mail at pubh@neoucom.edu. The Program Director can be reached at (330) 372-6209.

**Curriculum**

The MPH program contains five core areas basic to public health: biostatistics, epidemiology, environmental health sciences, health services administration, and social and behavioral sciences.

- Core courses:
  - 8300:601 Public Health Concepts 3
  - 8300:602 Social and Behavioral Sciences in Public Health 3
  - 8300:603 Epidemiology in Public Health 3
  - 8300:604 Biostatistics in Public Health 3
  - 8300:605 Health Services Administration in Public Health 3
  - 8300:606 Environmental Health Sciences in Public Health 3
  - Subtotal 18

- Additional program requirements:
  - 6901:697 Capstone Project 34
  - Electives 15-18
  - Total 39

A “grant” project, capstone project, portfolio, and exit presentation is required of each student.
College of Polymer Science and Polymer Engineering

Frank N. Kelley, Ph.D., Dean
Ernst D. von Meerwall, Ph.D., Associate Dean

HISTORY
The University of Akron has been a focus for education and research in polymer science since 1910 when Professor Charles M. Knight began offering courses in rubber chemistry. Master’s theses treating rubber chemistry on the University library shelves date to 1920. The University began developing major laboratories in 1942 under the leadership of Professor G.S. Whitby, and the UA program played a significant role in the synthetic rubber industry of the U.S. government during World War II. An Institute of Rubber Research under the direction of Professor Maurice Morton was created in 1956, which became an Institute of Polymer Science in 1984. A Ph.D. program in Polymer Chemistry was introduced in 1986. In 1987, a Department of Polymer Science in the College of Arts and Sciences was formed which awarded M.S. and Ph.D. degrees in Polymer Science.

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

MISSION STATEMENT
The mission of the College of Polymer Science and Polymer Engineering is to serve its students through a high quality educational experience, incorporating both classroom and laboratory learning, as well as a stimulating research environment. Its graduates and former research associates provide a well-trained workforce for employers throughout the world, but especially for the State of Ohio. With the generation of new knowledge from research and the application of that knowledge, the College serves society with benefits to both the economy and the environment.

- The primary purpose of the College is to educate its students in the science and engineering of polymers. Since the College is involved principally in graduate level education (M.S. and Ph.D.), its students are taught the skills of research by the faculty, occasionally supervised by visiting scientists and post-doctoral associates.
- The involvement of the College faculty, students and associated staff in research provides a further purpose, i.e., to develop new knowledge concerning polymeric materials and processes, and to disseminate that knowledge to the broader community of researchers, technologists, and manufacturers who employ that knowledge to their own aims.
- The College provides a variety of services through its institutes and centers to aid the economic and cultural development of our society. Individual faculty members provide services as consultants to industry, government, and civic institutions, concerning the developments in knowledge and applications of polymers.
- An additional function of the College is to provide training for those individuals who wish to improve their skills and knowledge concerning various types of polymers, their properties, processes and uses. Undergraduate students from other colleges within the University participate in specialized courses taught by the polymer science faculty as they pursue their traditional degree programs. Also, a variety of non-credit offerings are presented as continuing education, intensive short courses, and seminars.

DESCRIPTION
The College of Polymer Science and Polymer Engineering carries out a program of research and education, primarily at the graduate level, and serves as a major intellectual resource for the scientific and technological development of polymers and related materials and processes. The college consists of the Department of Polymer Science, the Department of Polymer Engineering, the Maurice Morton Institute of Polymer Science and the Institute of Polymer Engineering.

The Department of Polymer Science and The Institute of Polymer Science, emphasize polymer synthesis, the physical chemistry, physics and mechanical behavior and technology of polymers, and many of their applications. The Department of Polymer Engineering and the Institute of Polymer Engineering, emphasize polymer processing (including reactive processing), solid state structure/ morphology and properties of polymers as related to process history as well as engineering analysis and design. Collaborative research among the faculty in the two departments is common and provides a unique environment and capability for solving modern-day problems. This provides a fertile environment for students to obtain multidisciplinary training.

ADMISSION REQUIREMENTS
Admissions to the graduate program in the college are competitive. The departmental admission committees carefully consider each applicant. Early application is suggested.

DEPARTMENT OF POLYMER SCIENCE
Students with an undergraduate degree in chemistry, physics, or engineering and a grade point average of 2.75/4.0 or better are admissible. Students holding a degree in a natural science usually need additional undergraduate engineering courses, which are required prerequisites for core courses. For such students, depending upon their background, a special non-degree admission may be given followed by full admission upon successful completion of a series of required remedial courses.

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

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

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

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

- Complete a course of study prescribed by the student's advisory committee based on the committee's judgment of the student's background and on the result of any special examinations it might impose. This course will consist of a minimum of, but usually more than, 36 credits in graduate courses, or their equivalent, plus sufficient Ph.D. research credits to make a total of 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 coursework and dissertation credits must be completed at the University.

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

- Completion of 18 credits among the following core courses (2 credits each) in polymer science:

  4 credits of polymer chemistry courses:
  9871/601 Polymer Concepts
  9871/702 Synthesis and Chemical Behavior of Polymers
  9871/704 Condensation Polymerization
MASTER'S DEGREE

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

Master of Science in Polymer Science

• A minimum of 24 credits in appropriate courses in biology, chemistry, mathematics, physics, polymer science and engineering as prescribed by the advisory committee.

Completion of 11 of 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 semester-type discussions scheduled by the department. Credits for participation in either polymer science or polymer engineering seminars do not apply toward the degree.

• Demonstrated competence in computer skills.

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

Master of Science in Polymer Engineering

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

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

• Polymer engineering core:

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

• Polymer engineering elective:

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

• Approved engineering and science elective (a minimum of 3 credits of approved science or mathematics required):

  3450 Approved Mathematics 3
  4300:601 Advanced Engineering Materials 3
  4600:622 Continuum Mechanics 3
  9871:613 Polymer Science Laboratory 3
  9871:674 Polymer Structure and Characterization 2
  9871:675 Polymer Thermodynamics 2

• Thesis:

  9841:699 Master's Thesis 6

• Requirements:

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

• Attendance at and participation in department seminars as directed by the advisory committee is required.

Doctor of Philosophy in Polymer Engineering

The Department of Polymer Engineering administers a graduate program in which students, with primarily engineering backgrounds, are guided through a course of study and research under the supervision of a faculty member. Students may be admitted directly to the Ph.D. program upon screening of their qualifications and recommendation by the department chair and dean. Students in Polymer Engineering will earn the degree of Doctor of Philosophy in Polymer Engineering*. Requirements in the interdisciplinary field of Polymer Engineering for that degree are as follows:

• Successfully complete a qualifying examination within three semesters after admission into the program. The examination shall cover graduate courses that the student has completed and basic undergraduate topics.

• Develop a plan of study approved by the student's advisory committee.

• Complete courses in the plan of study developed by the student advisory committee on the basis of the qualifying examination. A minimum of 96 credits of graduate work must be earned. A total of 48 credit hours of lecture courses and 48 credit hours of research must be completed. Twelve credit hours must be dissertation research.

• A student receiving a Master of Science degree from The University of Akron in Polymer Engineering may use all lecture course credits toward the 48 lecture course credit requirement.

• A student entering with a master's degree or graduate credits from another institution may be given up to 24 credit hours toward the lecture course requirement.

• All doctoral students must complete the Polymer Engineering core requirements for the Master of Science degree.

• Each candidate must pass a candidacy exam and must present his/her research proposal for approval by the advisory committee and taken after 90% of the coursework specified in the plan of study has been completed. The candidacy exam may be based on the research proposal.

• Each candidate must pass an oral examination in defense of the dissertation.

*This change from Doctor of Philosophy in Engineering (Polymer Engineering) still requires approval by the Ohio Board of Regents.
ACUTE CARE NURSE PRACTITIONER - POST-MASTER'S

The Post-Master's Acute Care Nurse Practitioner certificate program prepares acute care nurse practitioners to provide advanced practice nursing care to acutely and/or critically ill adults. The program requires one calendar year of intense study including advanced clinical practice and theory. The program is built upon a core of advanced assessment, pathophysiology, and pharmacology. Acute Care Nurse Practitioners are prepared to conduct comprehensive physical assessments, appraise health risks and promote health behaviors, order and interpret diagnostic tests, diagnose and manage commonly occurring health problems and diseases. The program consists of 16 credits of graduate level course work and 525 hours of clinical practice.

Admission Criteria

Hold an MSN degree from a professionally accredited nursing program.

Minimum of a 3.0 GPA on a 4.0 scale for the master's degree program.

Recent acute/critical care experience (within the past three years).

A 300 word essay describing professional goals.

Completion of the following prerequisite courses: graduate level pharmacology, pathophysiology, and advanced assessment.

Completion of an interview with the selection committee.

Advanced Cardiac Life Support (ACLS) Certification.

Program of Study

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<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>8200:694</td>
<td>Acute Care Nurse Practitioner III</td>
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<td>8200:695</td>
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</table>

ADVANCED CERTIFICATE IN FAMILY CONFLICT AT THE CENTER FOR CONFLICT MANAGEMENT

The University of Akron has a long history of the interdisciplinary study of conflict, because understanding the nature of conflict is the first step toward reducing conflict and violence at home, in our communities, workplaces, and schools. This graduate certificate, jointly administered by the departments of Political Science and Sociology, will build on that tradition to enhance the capacity of students to effectively work toward reducing the harm associated with family conflict and violence.

Required Core Courses:

- Conflict Analysis Core Courses
  - 3700:622 Seminar in Alternatives to Violence at Home and Abroad
  - 3850:555 Family Violence
- Skill Development Core Courses
  - 7400:595-008 Seminar: General Mediation Training
  - 7400:595-007 Seminar: Divorce Mediation Training
- Elective Courses: (choose two):
  - 3850:523 Sociology of Women
  - 3850:529 Victim in Society
  - 3700:690 Special Topics (conflict related)
  - 9200:538 Family Law
  - 6000:684 Alternative Dispute Resolution

**Law School classes are offered on a space available basis and require the permission of instructor.

Required Core Courses:

- Seminar in Alternatives to Violence at Home and Abroad
- Seminar: General Mediation Training
- Seminar: Divorce Mediation Training
- Sociology of Women
- Victim in Society
- Special Topics (conflict related)
- Family Law
- Alternative Dispute Resolution

Total credit hours: 17
ADVANCED CERTIFICATE IN GLOBAL CONFLICT AT THE CENTER FOR CONFLICT MANAGEMENT

The University of Akron has a long history of the interdisciplinary study of conflict, because understanding the nature of conflict is the first step toward reducing conflict and violence at home, in our communities, workplaces, and schools. This graduate certificate, jointly administered by the departments of Political Science and Sociology, will build on that tradition to enhance the capacity of students to effectively work toward reducing the harms associated with global conflict and violence.

Required Core Courses:
- Conflict Analysis Core Courses: 3700:522 Seminar in Alternatives to Violence at Home and Abroad (3)
  - 3850:555 Family Violence (3)
- Skill Development Core Courses: 7400:564:008 Seminar in General Mediation Training (3)
  - 7400:365:007 Seminar in Divorce Mediation Training (3)
- Elective Courses: (choose three)*
  - 3850:521 Race and Ethnic Relations (3)
  - 3700:512 Global Environmental Politics (3)
  - 3700:510 Seminar in International Politics (3)
  - 3700:590 Special Topics (global conflict related) 1-3
- Total credit hours: 19

*To complete the certificate, students must submit a seminar paper from one of their courses selected from the electives list to the Director of the Center for approval as a scholarly investigation of the issues surrounding family conflict.

ADVANCED ROLE SPECIALIZATIONS IN NURSING MANAGEMENT AND BUSINESS

This certificate program is open to all current master’s and doctoral students in the College of Nursing, post-baccalaureate students, post-MSN students, and post-doctoral nurses who are currently in advanced practice.

Admission:
Formal admission to the University of Akron is required as either a post-baccalaureate student, graduate student, or nondegree graduate student. The awarding of this certificate is contingent upon a degree completion program.

Requirements:
- Students should successfully complete all four courses listed below.
  - 8200:630 Resource Management in Nursing Settings (3)
  - 8200:632 Fiscal Management in Nursing Administration (3)
  - 8200:634 Nursing Leadership in Organizations II (3)
  - 8200:635 Organizational Behavior in Nursing Settings (3)
- Total credit hours: 12

APPLIED POLITICS

John C. Green, Ph.D., Director

The Ray C. Bliss Institute and the Department of Political Science have combined to offer a Certificate Program in Applied Politics for graduate students. The Certificate Program in Applied Politics offers coursework in the history, organization, and management of campaigns intended to influence the outcomes 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 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 or the University may be admitted to the Master’s level certificate program upon the recommendation of the dean of the department of the campus or school in which they are enrolled. Students shall seek admission to this program by filing an application with the Bliss Institute. The student shall schedule courses with the assistance of an advisor at the earliest possible time.

Core Courses (required—12 credits):
- 3700:570 Campaign Management I (3)
- 3700:571 Campaign Management II (3)
- 3700:672 Seminar: Political Influence and Organizations (3)
- 3700:695 Internship in Government and Politics (3)

Electives:
Six credits selected from the following (at least 3 credits must be from 3700:502, 540, 572, 573, 574, 575, 576, or 630):
- 3700:502 Politics and the Media (3)
- 3700:540 Survey Research Methods (3)
- 3700:572 Campaign Finance (3)
- 3700:573 Voter Contact and Elections (3)
- 3700:674 Political Opinion, Behavior and Electoral Policies (3)
- 3700:675 American Interest Groups (3)
- 3700:676 American Political Parties (3)
- 3700:680 Seminar in National Politics (3)
- 3980:614 Ethics and Public Service (3)

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

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

BEHAVIORAL HEALTH NURSE PRACTITIONER - POST-MSN

Requirements
The Post-MSN Behavioral Health Nurse Practitioner certificate program is designed for those nurses who hold the Master's degree in Psychiatric Mental Health Nursing and are seeking preparation for the role of the psychiatric nurse practitioner. Upon completion of the 16 credit program, the students are eligible to sit for the psychiatric nurse practitioner certification examination.

Admission
Admission criteria include the following:
1. Holds an earned master’s degree with a specialty of psychiatric nursing.
2. A GPA of 3.0 or better from the master’s degree program.
3. Completes an interview with the program coordinator.

Program
The program consists of five courses for a total of 16 credit hours. Students must complete a minimum of 500 clinical hours for eligibility to sit for certification.

Required Courses:
- 6200:609 Pathophysiological Concepts (3)
- 6200:610 Advanced Adult/Gerontological Assessment (3)
- 6200:612 Advanced Clinical Pharmacology (3)
- 6200:662 Clinical Psychopharmacology (3)
- 6200:663 Behavioral Health Nursing Internship (required) 1-4
- Total: 16

CASE MANAGEMENT FOR FAMILIES

Helen K. Clemenshaw, 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.
**CHILD AND ADOLESCENT HEALTH NURSE PRACTITIONER - POST-MSN**

**Requirements**
The Post-MSN Child and Adolescent Health Nurse Practitioner certificate program is designed for those nurses who hold the Master of Science in Nursing degree and are seeking preparation for the role of the pediatric nurse practitioner. Upon completion of the 17 credit hour program, the students are eligible to sit for the pediatric nurse practitioner certification examination.

**Admission**
Admission criteria include the following:

- Hold an MSN degree from a professionally accredited nursing program.
- Minimum of a 3.0 GPA on a 4.0 scale for the master's degree program.
- A minimum of one year of clinical experience in a pediatric setting.
- Complete an interview with the program coordinator.

Completion of the following prerequisite courses: Pathophysiological Concepts, Advanced Pediatric/Adolescent Assessment, Nutrition.

**Program**
The program consists of four courses for a total of 17 credits. Students are required to complete a minimum of 600 clinical practice hours in conjunction with the Child and Adolescent Health Nursing courses.

**Required Courses:**
- 1820:651 Child and Adolescent Health Nursing I 3
- 1820:652 Child and Adolescent Health Nursing II Practicum 2
- 1820:653 Child and Adolescent Health Nursing II Practicum 3
- 1820:656 Pharmacology for Child and Adolescent Health Nursing 3
- 1820:658 Child and Adolescent NP Internship (required 4 credits) 1-4

**Total:** 17

**COMPOSITION**

Lance Svehla, Ph.D., Coordinator

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

**Required Courses:**
- 3300:676 Theory and Teaching of Basic Composition 3
- 3300:670 Theory of Composition 3
- 3300:674 Research Methodologies in Composition 3

**Optional Courses:**
- 3300:570 History of English Language 3
- 3300:571 U.S. Dialects: Black and White 3
- 3300:569 Seminar in English: Grammatical Structures of Modern English 3
- 3300:565 Theory of Rhetoric 3
- 3300:689 Seminar in English: Sociolinguistic 3
- 3300:670 Modern Linguistics 3
- 3300:688 Seminar in English: Stylistics 3
- 3300:689 Seminar in English: Contextual Linguistics 3

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**DIVORCE MEDIATION**
Heilen Cleminshaw, Ph.D., Coordinator

**Requirements**
This graduate certificate program in divorce mediation requires a minimum of 15 graduate credits dependent upon previous educational background. The program has been designed to serve the practicing or prospective divorce mediator.

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

**Core:**
- 1800:601 Divorce Mediation 3
- 1800:602 Divorce Mediation Practicum 2

**Select at least one from each area:**

- **Law**
  - 9200:638 Family Law 3
  - 7400:651 Family Consumer Law 3

- **Accounting**
  - 6200:601 Financial Accounting 3
  - 9200:621 Accounting for Lawyers 3

- **Family**
  - 5600:655 Marriage and Family Therapy: Theory and Techniques 3
  - 5600:659 Marital Therapy 3
  - 7400:607 Family Dynamics 3

**Electives:**
- Students who have already completed coursework in Law, Accounting or Family may select from courses listed below:
  - 5600:647 Career Counseling 3
  - 5600:699 Systems Theory in Family Therapy 3
  - 7400:540 Family Crisis 3
  - 7400:590 Family and Divorce 2
  - 7400:602 Family in Life-Span Perspective 2
  - 9200:884 Alternate Dispute Resolution 3

**E-BUSINESS**

B. S. Vijayaraman, Ph.D., Director

A new model for business (e-Business) is taking shape that is built on the world's largest communications network, the Internet. The Internet has opened up new possibilities for organizing and running a business and is changing the way businesses transact goods and services. The Internet creates a global platform for buying and selling goods and is used for redesigning business processes within organizations. As businesses invest in the commercialization of the InternetWWW, there is an enormous need from a variety of fronts to understand the implications for strategic initiatives, marketing and advertising, financial markets, information systems strategy, human resource management, supply chain management and legal issues. A certificate program in e-Business is designed for students to learn how organizations can use Internet technology to create new business opportunities and how they can transform an existing business into an e-Business.

Persons are eligible for admission to the graduate certificate program in e-Business if they have been admitted to Graduate School at The University of Akron.

**Required Courses:**
- 6500:620 E-Business Foundations 3
- 6500:622 E-Business Technologies 3
- 6400:585 E-Business Legal Issues 3
- 6200:658 E-Business Risks, Controls, and Assurance Services 3

**E-LEARNING**

Sajit Zachariah, Ed.D., Coordinator

**Program**
This certificate program in E-Learning requires a minimum of 16 credit hours. The certificate in E-Learning Technologies has been designed to assist students in
began becoming competent, employable professionals capable of making a significant contribution in the field of education and training. The graduate curriculum provides its students with exposure to a wide range of distance learning technologies while still ensuring the basic competencies required of all practitioners. In this way, the program directly addresses the rapidly accelerating changes in distance learning technologies.

Admission
All applicants to the program should have previously earned a Bachelor's degree. Applicants wishing to pursue a Master's degree in Environmental Studies must be approved by the Graduate Studies Committee. Applicants must be selected from a minimum of three different departments: environmental science, and science.

This graduate certificate program is designed for environmental professionals who wish to broaden their background or update their skills. In order to qualify for the certificate, it is recommended that students have a B.S. degree in a related field.

Admission Criteria
This certificate is designed primarily for students with a B.S. degree in Civil Engineering or a closely related field.

Program of Study
Civil Engineering students may earn a Geotechnical Engineering Certificate by completing a total of 15 credit hours. Civil Engineering students may earn an Environmental Engineering Certificate by completing five of the following courses:

- Environmental Fundamentals
- Topical Seminar: Advanced Multimedia
- Instructional Design
- Web-based Learning Systems
- Strategies for Online Instruction

Total: 16

ENVIRONMENTAL ENGINEERING
This certificate program provides practicing professionals an opportunity to expand their knowledge base in environmental engineering. It is designed for people who cannot make the full time commitment to the graduate degree program but would like to receive recognition of their continued effort in the area of study or would like to cumulate credit hours toward their ultimate graduate degree goal.

Admission Criteria
This certificate is designed primarily for students with a B.S. degree in Civil Engineering or a closely related field.

Program of Study
Civil Engineering students may earn a Geotechnical Engineering Certificate by completing a total of 15 credit hours. Civil Engineering students may earn an Environmental Engineering Certificate by completing five of the following courses:

4300:523 Chemistry for Environmental Engineers
4300:526 Environmental Engineering Design
4300:527 Water Quality Modeling and Management
4300:528 Physical-Chemical Treatment Processes
4300:529 Biological Wastewater Treatment Processes
4300:631 Soil Remediation

Total: 16

ENVIRONMENTAL STUDIES
Ira D. Sasowsky, Ph.D., Director

Program
This graduate certificate program is designed for environmental professionals who wish to broaden their background or update their skills. In order to qualify for the certificate, it is recommended that students have a B.S. degree in a related field of the sciences, engineering, or a strong background in mathematics and science.

Admission
To participate in the program the student should:
- Be formally admitted to The University of Akron as a graduate or non-degree graduate student.
- Make a written application to the program and receive written notification of admission from the Center for Environmental Studies.

Requirements
A plan of study will be developed in consultation with the director of the Center for Environmental Studies. Students must complete the core requirement and a minimum of 14 credits from the list of electives or other courses approved by the director. Electives must be selected from a minimum of three different departments.

Core (required):
- 3010:501 Seminar in Environmental Studies (may be repeated as an elective)

Electives (minimum of 14 credits):
- 3010:501 Seminar in Environmental Studies
- 3010:590 Workshop in Environmental Studies
- 3010:602 Evaluation of Environmental Data
- 3010:525 Freshwater Ecology Field and Laboratory Studies
- 3010:501 Seminar in Environmental Studies
- 3010:590 Workshop in Environmental Studies
- 3010:602 Evaluation of Environmental Data
- 3010:525 Freshwater Ecology Field and Laboratory Studies
- 3010:501 Seminar in Environmental Studies
- 3010:590 Workshop in Environmental Studies
- 3010:602 Evaluation of Environmental Data
- 3010:525 Freshwater Ecology Field and Laboratory Studies
- 3010:501 Seminar in Environmental Studies
- 3010:590 Workshop in Environmental Studies
- 3010:602 Evaluation of Environmental Data
- 3010:525 Freshwater Ecology Field and Laboratory Studies

GEOTECHNICAL ENGINEERING
This certificate program provides practicing professionals an opportunity to expand their knowledge base in geotechnical engineering. It is designed for people who cannot make the full time commitment to the graduate degree program but would like to receive recognition of their continued effort in the area of study or would like to cumulate credit hours toward their ultimate graduate degree goal.

Admission Criteria
This certificate is designed primarily for students with a B.S. degree in Civil Engineering or a closely related field.

Program of Study
Civil Engineering students may earn a Geotechnical Engineering Certificate by completing a total of 15 credit hours. Civil Engineering students may earn an Environmental Engineering Certificate by completing five of the following courses:

4300:612 Advanced Soil Mechanics
4300:614 Foundation Engineering I
4300:615 Foundation Engineering II
4300:617 Numerical Methods in Geotechnical Engineering
4300:717 Soil Dynamics

Four of the following workshop courses may be taken and substituted for two of the courses above:
- Load and Resistance Factor Design of Foundations and Geotechnical Features
- Ground Improvement Methods
- Mechanically Stabilized Earth Walls and Reinforced Soil
- Slopes
- Deep Foundations

Students interested in these workshop courses should contact the Department of Civil Engineering.
GERONTOLOGY
Harvey Sterns, Ph.D., Director

Requirements
This certificate program is a special course of study in gerontology that complements graduate degree programs in various departments and colleges throughout the University. The graduate certificate is to be received with either a master’s or doctoral degree. Individuals who already hold a graduate degree may also pursue the certificate. The program represents a concentration involving current knowledge and research in gerontology. It adds another dimension to the knowledge and skills a student is able to offer in the many professions that are becoming specialized in research and service to adults and older adults. This course of study coordinates multidisciplinary training of personnel in adult development and aging and helps to meet the critical shortage of trained individuals in the field of gerontology.

The undergraduate and graduate curriculum committees of the Institute for Life-Span Development and Gerontology will oversee this certificate program and certify, through the director of the Institute, that all requirements of the certificate have been completed.

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

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: 22 credits

Core:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Methods Course</td>
<td>3*</td>
</tr>
<tr>
<td>Interdisciplinary Seminar in Life-Span Development and Gerontology</td>
<td>3</td>
</tr>
<tr>
<td>Practicum in Life-Span Development and Gerontology</td>
<td>3</td>
</tr>
<tr>
<td>Psychology of Adulthood and Aging</td>
<td>3</td>
</tr>
<tr>
<td>Social Gerontology</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives:  

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retirement Specialist</td>
<td>2</td>
</tr>
<tr>
<td>Workshop - Women: Middle and Later Years</td>
<td>2</td>
</tr>
<tr>
<td>Workshop - Aging: Process and Intervention</td>
<td>2</td>
</tr>
<tr>
<td>Psychology Core II: Developmental, Perceptual, Cognitive</td>
<td>2</td>
</tr>
<tr>
<td>Epidemiologic Methods in Health Research</td>
<td>3</td>
</tr>
<tr>
<td>Social Gerontology</td>
<td>3</td>
</tr>
<tr>
<td>Postsecondary Learner</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Health Care Management</td>
<td>3</td>
</tr>
<tr>
<td>Health Services Systems Management (permission)</td>
<td>3</td>
</tr>
<tr>
<td>Family Relationships in Middle and Later Years</td>
<td>3</td>
</tr>
<tr>
<td>Neurogenic Speech and Language Disorders</td>
<td>3</td>
</tr>
</tbody>
</table>

Increase in credit hours from 18 to 22 pending Ohio Board of Regents approval.

*From student’s home department.

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

GLOBAL SALES MANAGEMENT
Scott Widmier, Ph.D., Coordinator

Program
The Global Sales Management Certificate is a special course of study which prepares an individual for a career in managing a global sales force. The program takes into account the complexities of culture as far as doing business in foreign countries.

Admission
To participate in the program, the student must be formally admitted to The University of Akron as a graduate or non-degree graduate student, and complete at least 15 credits. Students should visit the Director of Graduate Studies in Business Administration to request that notation of the certificate be included on the student's transcript as soon as the course of study is completed.

Requirements (complete all 6 credits):

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6600:580 Sales Management</td>
<td>3</td>
</tr>
<tr>
<td>6600:585 Global Sales Strategy</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives (complete all 9 credits):

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3250:561 Principles of International Economics</td>
<td>3</td>
</tr>
<tr>
<td>3250:671 International Trade</td>
<td>3</td>
</tr>
<tr>
<td>6500:600 Management and Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>6500:652 Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>6500:656 Management of International Operations</td>
<td>3</td>
</tr>
<tr>
<td>6600:690 Marketing Concepts</td>
<td>3</td>
</tr>
<tr>
<td>6600:695 Consumer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>6600:605 International Business Environments</td>
<td>3</td>
</tr>
<tr>
<td>6800:630 International Marketing Policies</td>
<td>3</td>
</tr>
<tr>
<td>7600:645 Intercultural Communication Theory</td>
<td>3</td>
</tr>
</tbody>
</table>

HIGHER EDUCATION

Requirements*
This certificate program in higher education requires a minimum of 18 credits. The program of studies has been designed to serve the practicing or prospective college or university administrator or instructor.

Admission
All applicants to the program should have previously earned a bachelor's degree. Special admission for concurrent studies toward a master’s degree and the higher education certificate may be allowed for persons currently employed in higher education. Students interested in admission should first meet with the program coordinator. Persons wishing to pursue a master’s degree in Educational Administration-Higher Education Option must, however, also apply to the Graduate School for admission to the program. Applicants wishing to pursue only the certificate program must apply to the Graduate School for admission as a special non-degree student.

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

Required:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5100:703 Seminar: History and Philosophy of Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>5190:500 Introduction to the Study of Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>5190:600 Advanced Administrative Colloquium in Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>5190:601 Internship in Higher Education</td>
<td>2</td>
</tr>
<tr>
<td>5190:602 Internship in Higher Education Seminar</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
</tr>
</tbody>
</table>

Options:

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

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5190:515 Administration in Higher Education (A)</td>
<td>3</td>
</tr>
<tr>
<td>5190:525 Topical Seminar: Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>5190:624 Organization and Policy Development in Higher Education (B)</td>
<td>3</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5190:525 Topical Seminar: Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>5190:626 Student Services in Higher Education (A)</td>
<td>3</td>
</tr>
<tr>
<td>5190:627 The American College Student (B)</td>
<td>3</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5190:530 Higher Education Curriculum and Program Planning (A)</td>
<td>3</td>
</tr>
<tr>
<td>5190:635 Instructional Strategies and Techniques for the College Instructor (B)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total hours required: 18

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

Helen Clemenshaw, Ph.D., Coordinator

Program

This certificate program is a special course of study along with undergraduate and graduate degree programs in various departments and colleges throughout the University. Undergraduate students will earn the certificate upon graduation in their degree program. Individuals who already hold undergraduate or graduate degrees may also pursue the certificate. Students with an undergraduate degree who do not seek a graduate degree may pursue the certificate in the postbaccalaureate program. Students who already hold a graduate degree may be admitted to the program as non-degree graduate students. Students pursuing graduate degrees will receive their graduate certificate upon completion of the requirements for their graduate degree. The program represents a concentration in current theoretical knowledge and practice in home-based intervention. It adds another dimension to the knowledge and skills a student is able to offer in the many professions that relate to services to at-risk children and their families. This course of study coordinates multidisciplinary training of personnel in home-based intervention and helps to meet the need for trained professionals in home-based intervention.

The undergraduate and graduate curriculum committees of the Center for Family Studies will oversee the certificate program and certify through the Director of the Certificate Programs in Home-Based Intervention that all requirements for the certificate have been completed.

Admission

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

- Be formally admitted to The University of Akron Graduate School.
- Make written application to the program countersigned by student’s major academic advisor (if applicable).
- Have an interview with the Director of the Certificate Programs in Home-Based Intervention.
- Receive written notification for admission from the Director of the Certificate Programs in Home-Based Intervention.
- Consult with the Director of the Certificate Programs in Home-Based Intervention to formulate a program of study.

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

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

Requirements

Core Courses:

- 1820:503 Home-Based Intervention Theory 3
- 1820:504 Home-Based Intervention Techniques and Practice 3
- 1820:505 Home-Based Intervention Internship 3

Eligibility Courses:

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

Theoretical Frameworks:

- Systems Theory
  - 3850:620 General Systems Theory 3
  - 5600:643 Theories and Philosophy of Counseling 3
  - 5600:655 Manage and Family Therapy: Theory and Techniques 3
  - 7400:607 Family Dynamics 3

- Developmental Theory
  - 3850:512 Socialization: Child to Adult 3
  - 7400:602 Family in Life Span Perspective 3
  - 7400:605 Developmental Parent-Child Interactions 3
  - 7400:610 Child Development Theories 3

- Therapeutic Theory
  - 5600:651 Techniques in Counseling 3
  - 5600:667 Marital Therapy 3
  - 5600:669 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
  - 3850:588 Human Ecology 3
  - 3850:753 Family and Health (Special Topics) 3

- Counseling
  - 5600:550 Counseling Problems Related to Life-Threatening Illness and Death 3
  - 5600:620 Issues in Sexuality for Counselors 3

- Special Education
  - 5610:540 Developmental Characteristics of Exceptional Individuals 3
  - 5610:634 Collaboration and Consultation Skills for Special Educators 3

- Multicultural Education (Curricular and Instructional Studies)
  - 5500:571 Characteristics of Culturally Diverse Populations 3

- Family and Consumer Sciences
  - 7400:501 Family Life Patterns in the Economically Deprived Homes 2
  - 7400:504 Adolescence in the Family Context 3
  - 7400:508 Family Financial Management 3
  - 7400:540 Family Crisis 3
  - 7400:542 Human Sexuality 3
  - 7400:546 Culture, Ethnicity, and the Family 3
  - 7400:599 Workshop in Family and Consumer Sciences: Family and Divorce 2
  - 7400:599 Parent Education 3

- Social Work
  - 7750:510 Minority Issues in Social Work Practice 3
  - 7750:592 Social Work and Mental Health 3
  - 7750:594 Social Work in Juvenile Justice 3

MANAGEMENT OF TECHNOLOGY AND INNOVATION

R. Ray Gehani, D.Eng., Ph.D., Director

In an increasingly global economy integrated with technology, the innovative enterprises with effective and efficient management of technology and innovation will gain competitive advantage over their rivals. To respond to these needs of our potential employers, this certificate program in Management of Technology and Innovation was developed by the College of Business Administration with the cooperation of the College of Polymer Science and Polymer Engineering and the guidance of the members of the Advancement Council's 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.

Required Courses:

- 6500:665 Management of Technology 3
- 6500:669 Polymer Management Decisions 3
- 6600:600 Marketing Concepts 3
- 6200:601 Financial Accounting 3

Recommended Electives:

From these courses, select any six credits for which you have the proper prerequisites.

- 6200:610 Process Analysis and Cost Management 3
- 6400:602 Managerial Finance 3
- 6500:636 Entrepreneurship 3
- 6500:600 Management and Organizational Behavior 3
- 6500:602 Computer Techniques for Management 3
- 6500:650 Fundamentals of Human Resource Administration 3
- 6600:540 Product and Brand Management 3
- 6600:575 Business Negotiation 3
- 6800:506 Management of International Operations 3
NEW MEDIA TECHNOLOGIES

All applicants to the program should have previously earned a bachelor's degree. Applicants wishing to pursue a master's degree in Educational Foundations emphasizing Instructional Technology must apply to the Graduate School for admission into the program. Applicants wishing to pursue only the certificate program must apply to the Graduate School for admission as a special non-degree student.

To receive the certificate in New Media Technologies, students are required to take 18 hours from the list of available electives.

**Available Electives:**

- 5100:590 Workshop: Instructional Technology*
- 5100:630 Instructional Design
- 5100:632 Web-Based Learning Systems
- 5100:633 Hypermedia
- 5100:634 Visual Literacy
- 5100:635 Emerging Technologies
- 5100:636 Local Seminar: Advanced Multimedia may be repeated for 6 hours
- 5500:576 Instructional Technology Applications
- 7100:590 Workshop in Art*
- 7500:553 Music Software Survey and Use
- 7500:580 Workshops in Music Technology*
- 7600:516 New Media Writing
- 7600:517 New Media Production
- 7600:568 Nonlinear Editing
- 7600:590 Workshops in Communication*

*Workshops may be repeated for a total of 6 credit hours.

NURSING EDUCATION

The certificate in Nursing Education allows for advanced role specialization in nursing education. Four sequential courses for a total of 12 credit hours comprise the certificate requirements. The certificate program is open to all current master's and doctoral students in the College of Nursing, post-baccalaureate students, post-MSN students, post-doctoral and faculty currently teaching in nursing programs. Formal admission to The University of Akron is required as either a post-baccalaureate student, graduate student or non-degree graduate student. The awarding of this certificate is 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
- 8200:682 Nursing Curriculum Development
- 8200:683 Evaluation in Nursing Education
- 8200:684 Practicum: The Academic Role of the Nurse Educator

PARENT AND FAMILY EDUCATION

Susan D. Witt, Ph.D., Coordinator

**Program**

This certificate program is a special course of study which can be added to any graduate degree program. It may also be completed by a non-degree graduate student with special permission from the director of the Center for Family Studies. This certificate represents a concentration in theoretical and practical knowledge in parent and family education for community-based services. This course of study promotes collaboration among disciplines and services.

**Admission**

To participate in the program the student should:

- Be formally admitted to The University of Akron as a post-baccalaureate, graduate or non-degree graduate student.
- Make written application to the program and receive written notification of admission from the coordinator of the program.

**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
- 7400:605 Developmental Parent-Child Interactions
- 7400:794 Practicum in Parent and Family Education

**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
  - 7400:504 Adolescence in the Family Context
  - 7400:540 Family Crisis
7400:546 Culture, Ethnicity and the Family 3
7400:662 Family in Life-Span Perspective 3
7400:610 Child Development Theories 3
7400:651 Family and Consumer Law 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
7750:686 Social Welfare Policy and Services: Family and Children 3

• Nursing

8200:661 Child and Adolescent Health Nursing I 5

• Psychology

3750:630 Psychological Disorders of Children 4
3750:726 Child Psychology 4
3750:737 Psychology of Learning Disabilities 4

• Sociology

3850:612 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
5600:650 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 Paraprofessionals 2

• Multicultural Education (Curricular and Instructional Studies)

5690:571 Characteristics of Culturally Diverse Populations 3

• Educational Administration

5170:604 School-Community Relations 3

POSTSECONDARY TEACHING
Sandy Coyner, Ph.D., Coordinator (e-mail: scoyner@uakron.edu)

Program

This certificate program in Postsecondary Teaching is a special course of study within the College of Education undergraduate and graduate programs to serve the practicing or prospective postsecondary faculty.

Persons are eligible for admission to the Certificate in Postsecondary Teaching if they have been admitted to study as special, non-degree or full-time students in any department of the University. Individuals who already hold graduate or undergraduate degrees may also pursue this certificate. Students who already hold a graduate degree or do not wish to pursue a graduate degree may be admitted to the program as a non-degree graduate student. Students pursuing graduate degrees will receive their graduate certificate upon completion of all the requirements for their graduate degree.

Those formally admitted to the University of Akron and meeting the certificate entrance requirements may pursue the Certificate in Postsecondary Teaching. Students shall seek admission to this program by filing an application with the Program Coordinator. The student will schedule courses with the assistance of the Program Coordinator.

Those who have completed either a B.S. or M.S. in Technical Education at The University of Akron prior to the Fall of 1994 must seek advisor approval before pursuing the certificate. Only six hours of prior technical education coursework can be accepted toward the certificate and all accepted coursework must be no older than five years at the time of completion of the certificate. Only graduate credit may be used for a graduate certificate and only undergraduate credit may be used for an undergraduate or post baccalaureate certificate. Any course substitutions must be made with the advisor's prior written approval. Students must maintain at least a 3.0 average in certificate coursework to receive this certificate. Enrollment will be limited to space availability. All those applying for the undergraduate certificate must have completed at least 60 semester hours with a 2.75 GPA. For those applying for the graduate certificate, students must have a 3.0 GPA in their completed undergraduate degree. All coursework must be completed within six years.

Admission

To participate in the program the student should:
- Be formally admitted to The University of Akron as a graduate student.
- Make written application to the Program Coordinator.
- Receive written notification from the Program Coordinator.
- Consult with a Program Coordinator to formulate a program of study.

Requirements

Minimum: 19 Credits

5400:500 Postsecondary Learner 3
5400:501 Learning with Technology 1
5400:520 Postsecondary Instructional Technology 3
5400:530 Systematic Curriculum Design for Postsecondary Instruction 3
5460:536 Systematic Instructional Design in Postsecondary Education 3
5460:600 Survey of Postsecondary Institutions 3
5460:690 Internship in Postsecondary Education 3

The Internship is the last course taken. This course cannot be taken until all other certificate courses have been completed with a 3.0 GPA or better.

PUBLIC POLICY

Stephen C. Brooks, Ph.D., Chairman, Coordinating Committee

Program

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

Admission

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

Requirements

Core:

- Economics (choose one)
  - 3260:190 Human Resource Policy 3
  - 3260:200 Public Finance 3
  - 3260:280 Seminar on Economic Planning 3

- Political Science (choose one)
  - 3700:541 The Policy Process 3
  - 3700:542 Methods of Policy Analysis 3
  - 3700:668 Seminar in Public Policy Agendas and Choices 3
  - 3700:670 Seminar in the Administrative Process 3

- Sociology (choose one)
  - 3850:612 Sociology of Program Evaluation and Program Improvement 3
  - 3850:679 Political Sociology 3

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

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

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

At least 25% of the credits earned for this certificate must be in 600- or 700-level courses. No more than three courses in which the student enrolls, of the seven required for the Graduate Certificate in Public Policy, may also apply toward meeting requirements for a graduate degree at The University of Akron.

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

Administration of the Program

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

**STRUCTURAL ENGINEERING**

This certificate program provides professionals an opportunity to expand their knowledge base in the design and behavior of structural systems. It is designed for people who cannot make the full time commitment to the graduate degree program but would like to receive recognition of their continued effort in 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 graduates may earn a Structural Engineering Certificate by completing the following five courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4300:551</td>
<td>Computer Methods of Structural Analysis</td>
<td>3</td>
</tr>
<tr>
<td>4300:564</td>
<td>Advanced Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>4300:605</td>
<td>Structural Stability</td>
<td>3</td>
</tr>
<tr>
<td>4300:684</td>
<td>Advanced Reinforced Concrete Design</td>
<td>3</td>
</tr>
<tr>
<td>4300:695</td>
<td>Advanced Steel Design</td>
<td>3</td>
</tr>
</tbody>
</table>

**TEACHING ENGLISH AS A SECOND LANGUAGE**

Kenneth J. Pakenham, Ph.D., Director

**Requirements**

This program is intended for those seeking training and an initial qualification in the teaching of English as a second language for the purpose of teaching ESL in settings other than the Ohio public school system.

The program is designed to introduce the student to the central issues in the theory and practice of teaching English to non-native speakers through courses in modern and applied linguistics, in second language pedagogy and in related disciplines.

Students who do not have English as a native language must demonstrate adequate proficiency in English with a valid TOEFL score of at least 550.

**Program**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3300:573</td>
<td>Seminar in Teaching ESL: Theory and Method</td>
<td>3</td>
</tr>
<tr>
<td>3300:589</td>
<td>Seminar in English: Grammatical Structures of English</td>
<td>3</td>
</tr>
<tr>
<td>5500:570</td>
<td>Multicultural Education in the U.S. **</td>
<td>3</td>
</tr>
<tr>
<td>3300:589</td>
<td>Seminar in English: Sociolinguistics</td>
<td>2-3</td>
</tr>
<tr>
<td>5500:543</td>
<td>Techniques for Teaching ESL in the Bilingual Classroom</td>
<td>4</td>
</tr>
</tbody>
</table>

**TRANSPORTATION ENGINEERING**

This certificate program provides practitioners 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 Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4300:564</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>4300:563</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 CREDITS
WOMEN'S STUDIES

Judith A. Hanna, Interim Director

For information, contact the Interdisciplinary Office, located in Leigh Hall 201, (330) 972-7008.

Building on an interdisciplinary foundation, the Women's Studies Graduate Certificate Program allows students to examine the cultural practices that have largely excluded and devalued differences in gender, sexual orientation, ethnicity, race and class. This program is designed for graduate students interested in feminist research and/or pedagogy. Students take three core classes in Women's Studies and pursue the electives in their area of concentration or a related field. This program requires a minimum of 14 credits to complete—between 6 and 7 of these credits are in required Women's Studies classes, the remainder of the credits are taken in cross-disciplined electives.

Admission

Hold a Bachelor's Degree with a minimum 2.75 grade point average.

Requirements (required 5-7)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1840:580</td>
<td>Feminist Theory</td>
<td>3</td>
</tr>
<tr>
<td>1840:590</td>
<td>Workshop: Women's Studies Lecture Series</td>
<td>3</td>
</tr>
<tr>
<td>1840:593</td>
<td>Individual Studies on Women</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Electives

Three classes selected from the Women's Studies Coordinating Council-approved list of graduate level courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1840:585</td>
<td>Special Topics in Women's Studies; Women, Minorities and Media</td>
<td>3</td>
</tr>
<tr>
<td>1840:586</td>
<td>Special Topics in Women's Studies; Women, Poverty and Welfare</td>
<td>3</td>
</tr>
<tr>
<td>1840:587</td>
<td>Special Topics in Women's Studies; Women as Survivors</td>
<td>3</td>
</tr>
<tr>
<td>1840:588</td>
<td>Selected Topics in Ancient Culture: Women and Gender in Classical Antiquity</td>
<td>2</td>
</tr>
<tr>
<td>1840:589</td>
<td>Internship in Women's Studies</td>
<td>3</td>
</tr>
<tr>
<td>3300:580</td>
<td>Seminar in English: Twentieth Century Women Writers</td>
<td>3</td>
</tr>
<tr>
<td>3300:589</td>
<td>Seminar in English: Women and Film</td>
<td>3</td>
</tr>
<tr>
<td>3400:500</td>
<td>Women in Revolutionary China</td>
<td>3</td>
</tr>
<tr>
<td>3700:574</td>
<td>Psychology of Women</td>
<td>4</td>
</tr>
<tr>
<td>3800:523</td>
<td>Sociology of Women</td>
<td>3</td>
</tr>
<tr>
<td>7100:501</td>
<td>Special Topics in History of Art: Women in Art</td>
<td>3</td>
</tr>
<tr>
<td>7600:508</td>
<td>Women, Minorities and News</td>
<td>3</td>
</tr>
<tr>
<td>7700:511</td>
<td>Women's Issues in Social Work Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

or other classes as approved by Women's Studies graduate coordinator for the certificate.
**SECTION 5. Graduate Courses**

## Interdisciplinary Programs

**DIVORCE MEDIATION** 1800:

601 DIVORCE MEDIATION 3 credits
Prerequisite: Admission to the Graduate Certificate Program on Divorce Mediation. Overview of divorce mediation process includes guidelines for negotiating separation and divorce agreements, division of personal and real property, support, custody, and future spousal support.

602 DIVORCE MEDIATION PRACTICUM 2 credits
Prerequisite: 601. Practical application of divorce mediation procedures. Review of strategies and ethical considerations.

**HOME-BASED INTERVENTION THERAPY** 1820:

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

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

505 HOME-BASED INTERVENTION INTERNSHIP 3-5 credits
Prerequisite: 504. Allows students the opportunity to apply knowledge of home-based intervention in actual delivery process working with families in their homes under the direct supervision of trained/experienced home-based intervention therapists.

## WOMEN'S STUDIES 1840:

580 FEMINIST THEORY 3 credits
Prerequisite: 1840:300. A summary of feminist theory to familiarize students with the main currents in contemporary feminist theory and the origins and evolution of that thought.

585 SPECIAL TOPICS IN WOMEN'S STUDIES 1-3 credits
(May be repeated for a maximum of 3 credits toward graduation.) Prerequisites: upper-college student status and permission. Selected topics on feminist theory offered by professionals. Intended to provide advanced undergraduate education and continuing education for student and practitioners in the health sciences. Graduate credit.

589 INTERNSHIP IN WOMEN'S STUDIES 1-4 credits
(May be repeated for a maximum of 4 credits.) Prerequisite: permission of Director of Women's Studies. The class provides supervised experience and on-the-job training in an organization, agency, corporation or group dealing with women's issues.

590 WORKSHOP 1 credit
(May be repeated.) Group instructional special topics in special issues in Women's Studies.

## MEDICAL STUDIES 1880:

591 Special Topics: Medical Education 1-3 credits
(May be repeated with change of topic with a maximum of three credits toward graduation.) Prerequisites: upper-college student status and permission. Selected topics on medical education offered by professionals. Intended to provide advanced undergraduate education and continuing education for student and practitioners in the health sciences. Graduate credit.

## COOPERATIVE EDUCATION 3000:

501 COOPERATIVE EDUCATION 6 credits
Prerequisite: must complete 12 graduate credit hours with at least a 3.0 overall grade point average. (May be repeated.) For cooperative education students only. Work experience in business, industry, or governmental agency. Comprehensive performance evaluation and written report required. Graduate credit.

## INSTITUTE FOR LIFE-SPAN DEVELOPMENT & GERONTOLOGY 3006:

680 INTERDISCIPLINARY SEMINAR IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY 3 credits
Prerequisites: permission. The seminar is for graduate students only. Explores interdisciplinary issues in life-span development and gerontology. Guest speakers from various disciplines and services which have life-span development and gerontological components and from government and community facilities and services.

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

686 RETIREMENT SPECIALIST 2 credits
An investigation of issues related to the design and implementation of pre-retirement planning and evaluation of life-span planning and education as employed by labor, business and education.

690 WORKSHOP 1-4 credits
(May be repeated.) Group studies of special topics in life-span development and gerontology. May be used as elective credit but not as part of certificate required courses.

695 PRACTICUM IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY 3 credits
Prerequisite: satisfactory performance. Supervised experience in research, community agency work, or other activities.

## ENVIRONMENTAL STUDIES 3010:

501 SEMINAR IN ENVIRONMENTAL STUDIES 2 credits
Prerequisite: graduate standing. Specific environmental topics or topics from interdisciplinary viewpoints each semester. The director of Environmental Studies coordinates course, resource persons are drawn from the University and surrounding community.

500 WORKSHOP IN ENVIRONMENTAL STUDIES 1 credit
Prerequisite: varies with topic. Credit in graduate program must have prior approval of advisor. Skills, attitudes and fundamental concepts dealing with timely environmental problems and issues covered. Instruction under direction of University faculty.
BIOLOGY 3100:

540 FOOD PLANTS 2 credits
Prerequisite: 351 or permission of instructor. A survey of the plants used for human food, including their history, structure, uses.

556 PRINCIPLES OF SYSTEMATICS 3 credits
Prerequisite: 112, 211, 216. 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
Prerequisite: 217. Advanced study of the ecology of individual populations, communities, and conserving our earth's ecological diversity. Active participation/discussion of primary literature in ecology is required.

518 FIELD ECOLOGY 4 credits
Field study emphasizing sampling techniques, design of experiments and observations, and computer analysis; some local natural history.

521 TROPICAL FIELD BIOLOGY 4 credits
Prerequisite: 111, 112, 217, and 218. Zoology of coral reefs, tidal pools, mangroves, intertidal zone, and seagrass beds. Field study in the Bahamas. Focus on habitat structure and the relationship between habitat and animal behavior. May be repeated for a maximum of 6 credit hours.

529 POPULATION BIOLOGY 3 credits
Prerequisites: 211 and 217. 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
Prerequisite: 217. A study of the ecology of wetlands and prairies. Field studies will be conducted at Inlet Nature Preserve, Laboratory. Field trips involved; minor transportation costs.

527 AQUATIC ECOLOGY 4 credits
Prerequisite: 217 or permission of instructor. Exploring life in freshwater and marine systems, emphasizing the Great Lakes ecosystem. Includes field trips. Laboratory.

528 BIOLOGY OF BEHAVIOR 2 credits
Prerequisites: 211, 217, and 218. Biocultural basis of behavior: ethological theory, function, causation, evolution and adaptiveness of behavior. May be taken without 219/519.

532 BIOLOGY OF BEHAVIOR LABORATORY 2 credits
Prerequisites or corequisites: 4295/525 and permission of instructor. Individualized, directed study to prepare the student for firsthand observation in observing, specifying, and interpreting animal behavior.

530 COMMUNITY/ECOSYSTEM ECOLOGY 4 credits
Prerequisite: 217. The history of the ecosystem concept; components, processes, and dynamics of communities and ecosystems; analysis and design of ecosystem experiments. Laboratory.

533 PATHOGENIC BACTERIOLOGY 4 credits
Prerequisite: 351. 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
Prerequisite: 211. A survey of the immune system, the body's natural defense against infection. Laboratory.

538 ADVANCED IMMUNOLOGY 3 credits
Prerequisite: 431. Immunology is studied from a historical and current perspective. Topics include T cells, B cells, antigen presentation, HIV, and transplantation.

540 MOLECULAR BIOLOGY 4 credits
Prerequisite: 122. Structure, life history, classification of representative fungi with emphasis on the importance of fungi to humans. Laboratory.

541 PLANT DEVELOPMENT 4 credits
Prerequisite: 122 and one or two courses in biological science. Emphasis on the development of plant tissues and organs. Laboratory.

542 PLANT ANATOMY 3 credits
Prerequisite: 112. Structure and development of cells, tissues, organs and organ systems of seed plants. Laboratory.

543 PHYSIOLOGY 4 credits
Prerequisite: 122. Examination of the major groups of algae with emphasis on their relationship to algae form and structure. Laboratory.

546 MARINE PHYSIOLOGY 3 credits
Prerequisite: 122. Collection and identification of tropical marine algae on San Salvador island, The Bahamas. Dissection of various algae and the study of major groups of Caribbean algae. Laboratory.

548 PLANT MORPHOLOGY 4 credits
Prerequisite: 122. Structure, reproduction, life cycles, ecology, evolution, economic significance, and importance of plant structure to agriculture and human health. Laboratory.

551 GENERAL ENTOMOLOGY 4 credits
Prerequisite: 111, 217. Invertebrate zoology. (May be repeated) A minimum of 2 credits required. May be repeated for a maximum of 6 credit hours.

557 INVERTEBRATE ZOOLOGY 4 credits
Prerequisite: 112, 217, 350. Study of the major groups of invertebrates, their classification, functional morphology, behavior and physiology, natural history, and commercial exploitation of fishes. Laboratory includes field trips to fishery areas.

560 ORNITHOLOGY 4 credits
Prerequisite: 112. Introduction to the birds of Ohio. Classification, anatomy, physiology, behavior, ecology, and conservation of birds. Field trips involved; minor transportation costs.

567 HERPETOLOGY 4 credits
Prerequisite: 112. Survey of the diversity, ecology and evolution of amphibians and reptiles. Special emphasis is given to Ohio species. Laboratory.

568 VERTEBRATE ZOOLOGY 4 credits
Prerequisite: 217. or permission. Biology of vertebrates, except birds - evolution, ecology, behavior, and morphology. Laboratory with field trips.

561, 2 HUMAN PHYSIOLOGY 4 credits each
Prerequisite: senior or graduate standing. In-depth study of function of the human body with special emphasis on muscular, cardiovascular, respiratory, renal and endocrine physiology. Laboratory.

554 COMPARATIVE ANIMAL PHYSIOLOGY 4 credits
Prerequisite: 462/562. Study of the physiological mechanisms involved in heart attack, stroke, fluid balance, hypertension and heart disease. Laboratory.

565 ADVANCED CARDIOVASCULAR PHYSIOLOGY 3 credits
Prerequisite: 462/565 or 465/565. Study of the cardiovascular system with emphasis upon mammalian cardiovascular control. Laboratory.

569 RESPIRATORY PHYSIOLOGY 3 credits
Prerequisite: 462/562 or 465/565. Study of respiratory pathophysiology. Emphasis given to normal human lung function. Clinical aspects are not covered.

599 LAB ANIMAL REGULATIONS 1 credit
May be repeated for a maximum of 2 credits. Required of anyone working with animals, and covers government regulations, care of animals and lab techniques to teach basic animal handling and management techniques.

571 PHYSIOLOGICAL GENETICS 4 credits
Prerequisite: 211. Nature of the gene; genetic codes; hereditary determinants; mutagenesis and inactivation. Laboratory.

585 CELL MORPHOLOGY 4 credits
Prerequisite: 211. Ultrastructure of plant and animal cells. Laboratory.

586 MOLECULAR REPRODUCTION 4 credits
Prerequisite: 311. Structure and functional organization of reproductive systems of flowering plants. Laboratory.

587 GENETICS 4 credits
Prerequisite: 311. Principles of genetic modification, Mendelian genetics, and genes in population. Laboratory.

589 EMBRYOLOGY 4 credits
Prerequisite: 311. Nature of the gene; genetic codes; hereditary determinants; mutagenesis and inactivation. Laboratory.

590 PHYSIOLOGICAL GENETICS 3 credits
Prerequisite: 211. Nature of the gene; genetic codes; hereditary determinants; mutagenesis and inactivation. Laboratory.

591 MOLECULAR GEOMETRY 3 credits
Prerequisite: 311. Structure and functional organization of cells, tissues, and organ systems of seed plants. Laboratory.

592 PLANT MORPHOLOGY 4 credits
Prerequisite: 122. Structure, reproduction, life cycles, ecology, evolution, economic significance, and importance of plant structure to agriculture and human health. Laboratory.

595 SCANNING ELECTRON MICROSCOPY 3 credits
Prerequisite: 311. Structure and functional organization of cells, tissues, and organ systems of seed plants. Laboratory.

596 PRINCIPLES OF TRANSMISSION ELECTRON MICROSCOPY 3 credits
Prerequisite: 311. Introduction to biological electron microscopy and its use in biology. Laboratory.

597 METHODS IN MOLGENIC BIOLOGY 4 credits
Prerequisite: 311. Study of molecular techniques used in biology. Laboratory.

598 WORKSHOP IN BIOLOGY 1-2 credits
May be repeated. Prerequisite: permission. 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.

599 BIOLOGICAL PROBLEMS 1-2 credits each
Prerequisite: permission. Hands-on lab work usually consisting of laboratory investigations. A grade of C or better may apply toward the major degree requirements.

625 BASIC DNA TECHNIQUES 3 credits
Basic DNA techniques including extraction of DNA, cleavage and DNA ligating. Laboratory.

639 ENVIRONMENTAL PHYSIOLOGY 3 credits
Prerequisites: 311, 561. Study of physiological reactions of human mammals to natural changes or extremes of physical environment.

670 MEDICAL PHYSIOLOGY, PATHOPHYSIOLOGY, AND PHARMACOLOGY 3 credits
Prerequisites: 311, 561. Admission to M.S. program, or 311, 561, or consent of Instructor. Selected principles of human physiology, pathophysiology, and pharmacology are examined in detail, integrated, and related to the care of patients in the clinical setting.

681 ANIMAL PATHOLOGY 3 credits
Prerequisite: 311. Structure and functional organization of cells at ultrastructural level. Three lecture hours a week.

682 PRINCIPLES OF TRANSMISSION ELECTRON MICROSCOPY 3 credits
Prerequisite: 311 or 561. An overview of modern methods used in transmission electron microscopy. Laboratory.

683 PRINCIPLES OF SCANNING ELECTRON MICROSCOPY 3 credits
Prerequisites: 311, 681 or equivalent. An introduction to modern cathodoluminescence microscopes. A portfolio is required to demonstrate proficiency in modern techniques, the use of supplemental equipment such as the critical point drier and sputter-coating apparatus and the efficient use of the scanning electron microscope.

684 SPECIAL TOPICS: BIOLOGICAL PHYSIOLOGY 1-3 credits
May be repeated. Prerequisite: permission. Special courses offered once or only occasionally in areas where no formal course exists.

685 BIOLOGY COLLOQUIUM 1 credit each
May be repeated. Prerequisite: permission. Attendance at all departmental seminars and presentation of a seminar based on original research. Required of all thesis option students who wish to present their thesis research.

686 MASTER'S THESIS 16 credits
May be repeated. A minimum of six credits is required for thesis option students.
BIOLOGY/NEUROCOM  3110:

630 HUMAN GROSS ANATOMY I  3 credits
Prerequisites: graduate standing and permission. An intensive survey of human macroanatomy.

631 HUMAN GROSS ANATOMY II  3 credits
Prerequisite: Graduate standing and permission. An intensive survey of human macroanatomy.

695 SPECIAL TOPICS: BIOLOGY/NEUROCOM  1-3 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

502 BIOCHEMISTRY LECTURE II  3 credits
Prerequisite: 401/501. Overview of metabolism: thermodynamics, carbohydrate, fatty acid, amino acid, and nucleic acid absorption and catalysis; hormone control of metabolism. Phosphorylation.

572 ADVANCED INORGANIC CHEMISTRY  3 credits

590 WORKSHOP IN CHEMISTRY  1-3 credits
(May be repeated) Group studies of special topics in chemistry. May not be used to meet undergraduate or graduate major requirements in chemistry.

603 BIOCHEMISTRY LECTURE III  3 credits
Prerequisites: 501 and 502, DNA, RNA and protein metabolism. Translation and transcription. Gene function and expression.

610 BASIC QUANTUM CHEMISTRY  3 credits
Prerequisite: 314 or permission of instructor. Quantum mechanics with applications to molecular systems. Includes angular momentum, molecular Hamiltonians, vibration and perturbation methods and molecular orbital theory.

611 SPECTROSCOPY  3 credits
Prerequisite: 610 or permission of instructor. Interaction of light with matter, linear and nonlinear spectroscopy. Rotational, vibrational and electronic spectroscopy. Radiationless transitions and photochemistry.

619 TRANSITION-METAL ORGANO METALLICS  3 credits
Prerequisites: 472 or equivalent. Synthetic and organometallic chemistry of the transition metal elements. Topics covered include synthesis, characterization methods, structure, bonding, reactivity, and application.

620 MAIN GROUP ORGANO METALLICS  3 credits
Prerequisites: 472 or equivalent. The organometallic chemistry of main-group elements. Topics covered include synthesis, characterization methods, structure, bonding, reactivity, and applications.

621 ADVANCED PREPARATIONS  1-2 credits
Prerequisite: permission. Methods for preparing and purifying organic and inorganic compounds. Laboratory.

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

629 PHYSICAL INORGANIC CHEMISTRY  3 credits
Prerequisites: 341, 472, or permission. Detailed treatment of chemistry of transition elements. Group theoretical applications, ligand field theory, kinetics and mechanism magnetism, electronic spectra, molecular orbital theory.

630 THEORETICAL INORGANIC CHEMISTRY  2 credits
Prerequisites: 341, 472, or permission. Detailed treatment of chemistry of transition elements. Group theoretical applications, ligand field theory, kinetics and mechanism magnetism, electronic spectra, molecular orbital theory.

635 THERMODYNAMICS AND STATISTICAL THERMODYNAMICS  3 credits
Prerequisites: 372 and 314 or permission of instructor. Rigorous treatment of laws of thermodynamics and their applications to selected chemical systems. Fundamentals of statistical thermodynamics and applications to systems in chemical equilibrium.

636 CHEMICAL KINETICS  3 credits
Prerequisite: 635 or permission of the instructor. Phenomenological kinetics, experimental methods of investigation and analysis systems. Theoretical treatments of reaction rates.

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

640 CHEMICAL SEPARATIONS  3 credits
Prerequisites: 423 and 421 or equivalent. General theory, instrumentation and applications of methods of separation. Emphasis on modern chromatographic techniques and recent developments.

641 SPECTRAL METHODS  3 credits
Prerequisite: 423 and 421 or equivalent. Theory and application of instrumental measurements. Interpretation of data.

645 X-RAY CRYSTALLOGRAPHY  3 credits
Prerequisite: Permission. The theoretical and practical aspects of single crystal x-ray crystallography discussed. Topics covered include diffraction, space groups, structure solution and refinement.

670 SPECTROSCOPIC IDENTIFICATION OF ORGANIC COMPOUNDS  3 credits
Prerequisites: 253, 264 or permission of instructor. Determination of the structure of organic compounds by spectroscopic analysis: GRU, UV/VIS spectroscopy, IR spectroscopy, mass spectrometry, NMR spectroscopy, 2D-NMR.

683 MECHANISTIC AND SYNTHETIC INORGANIC CHEMISTRY I  3 credits
Prerequisites: 283, 264 or permission of instructor. Introduction to the structural and mechanistic aspects of organic reactions: HRON, acetics, bases, equilibria, kinetics, linear free energy relationships, reactive intermediates, reaction mechanisms.

684 MECHANISTIC AND SYNTHETIC INORGANIC CHEMISTRY II  3 credits
Prerequisite: 683 or permission of instructor. Synthetic organic chemistry from a mechanistic perspective: nucleophiles and electrophiles, mechanisms of organic reactions, carbon-heteroatom bonding, functional group manipulations, oxidations, reductions, cycloaddition reactions.

699 MASTERS THESIS  1-3 credits
For properly qualified candidates for master's degree. Supervised original research in analytical, organic, inorganic, physical or biochemistry.

710 SPECIAL TOPICS: ANALYTICAL CHEMISTRY  1-3 credits (May be repeated) Prerequisite: permission. Topics in advanced analytical chemistry. Electroanalysis, activation analysis, atomic absorption spectrometry, mass spectrometry, liquid liquid, fluorochemical and gas chromatography, on exchange, thermodynamic methods, separations, standards, sampling, recent developments.

711 SPECIAL TOPICS: INORGANIC CHEMISTRY  1-3 credits (May be repeated) Prerequisite: permission. Consideration of topics in modern inorganic chemistry such as coordination compounds, chemistry of the iodide state, representative elements, and heterocyclic compounds, homogeneous catalysis.

712 SPECIAL TOPICS: ORGANIC CHEMISTRY  1-3 credits (May be repeated) Prerequisite: permission. Topics in advanced organic chemistry such as natural products, heterocyclic compounds, photochemistry.

713 SPECIAL TOPICS: PHYSICAL CHEMISTRY  1-3 credits (May be repeated) Prerequisite: Subject from modern physical chemistry.

715 SPECIAL TOPICS: BIOCHEMISTRY  1-3 credits (May be repeated) Prerequisite: Permission. Recent developments in areas of biochemistry.

720 ADVANCED BIOCHEMICAL TECHNIQUES  3 credits
Prerequisite: 402/502. An advanced lecture course on physical techniques in biochemistry. Includes optical and hydrodynamic methods, radioanalytical techniques, scattering and magnetic resonance spectroscopy.

722 ENZYMIC REACTIONS  3 credits
Prerequisites: 401/501, 402/502 or permission. Mechanisms of enzyme catalyzed reactions, general aspects and specific examples for phosphoryl, glycolate transfers, eliminations, oxidation/reduction, isomerization and rearrangements. Chemistry of cofactors.

724 BIOINORGANIC CHEMISTRY  3 credits
Prerequisites: 401/501 and 402/502. Survey of the structure and properties of metal ion complexes with amino acids, nucleotides and macromolecules; metal on metabolism; metals in medicine.

726 ADVANCED ORGANOMETALCOM  3 credits
Prerequisites: 401/501 and 402/502. Study of advanced pathways in carbohydrate, lipid and protein metabolism with emphasis placed on metabolic dysfunction.

740 PHYSICAL ORGANIC CHEMISTRY  3 credits
Prerequisites: 594, 664 or permission of instructor. An advanced treatment of the theoretical foundations of organic chemistry: MO theory, molecular mechanics, molecular strain, chemical reactivity, activity functions, linear free energy relationships.

741 ADVANCED SYNTHETIC ORGANIC CHEMISTRY  3 credits
Prerequisites: 666, 668 or permission of instructor. An advanced treatment of organic functional group manipulations in the context of the total synthesis of natural products.

789 DOCTORAL DISSERTATION  1-16 credits
Open to qualified students accepted as a candidate for Doctor of Philosophy in Chemistry. Supervision of original research undertaken in organic, inorganic, physical or biochemistry.

CLASSES  3200:

501 EGYPTOLOGY I  3 credits
The history and linguistics of ancient Egypt.

504 ASSYRIOLOGY  3 credits
(May be repeated for credit with another cuneiform language) Prerequisite: permission of instructor.

509 WORKSHOP IN CLASSICS  1-3 credits
(May be repeated with change in topic) Group studies of special topics in Classics. Cannot be used to fulfill undergraduate major requirements in Classics; for elective credit only.

597 READING AND RESEARCH IN THE ANCIENT NEAR EAST  1-3 credits
Prerequisite: permission of instructor. Advanced work in various aspects of Ancient Near Eastern Studies (Archaeology, Assyriology, Egyptology, etc.).

ANTHROPOLOGY  3230:

556 CULTURE AND PERSONALITY  3 credits
Prerequisite: 150 or permission. Examination of functional and causal relationships between culture and individual cognition and behavior. Lecture.

557 CULTURE AND MEDICINE  3 credits
Prerequisite: 150 or permission 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  3 credits
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 analysis.

563 SOCIAL ANTHROPOLOGY  3 credits
Prerequisite: 150 or permission. Comparative structural analysis of Western systems of kinship and social organization in terms of status, role, reciprocal expectation, nomenclature, nuclear and extended households and other kinship groupings. Lecture.

562 SPECIAL TOPICS: ANTHROPOLOGY  3 credits
(May be repeated) Prerequisites: 150 and permission. Designed to meet students with interests in selected topics in anthropology. Offered irregularly when resources and opportunities permit. May include anthropological research or advanced coursework not presently offered by department on regular basis.

594 WORKSHOP IN ANTHROPOLOGY  1-3 credits
May be repeated) Groups studies of special topics in anthropology. May not be used to meet departmental undergraduate or graduate major requirements. May be used for elective credit in anthropology.

651 SEMINAR IN ANTHROPOLOGICAL THEORIES AND METHODS  3 credits

697 DEPARTMENTAL INVESTIGATION  1-3 credits
Prerequisites: permission of instructor and chair of department. Intensive reading and research in student's chosen field of interest. Regular conferences with instructor. Preparation of a research paper.

83 Graduate Courses
ARCHEOLOGY

510 SUBSURFACE GEOPHYSICAL SURVEYING IN ARCHEOLOGY 3 credits
Prerequisites: 290 or 3370:101 or 3370:312. Advanced instruction principles of subsurface geophysical survey techniques in archeology. Emphasizes gradient and electric resistivity technique and its application.

522 SPECIAL TOPICS IN ARCHEOLOGY 3 credits
Prerequisite: 250 or permission. Designed to meet the needs of students with interests in selected topics in archeology. Offered irregularly when resources and opportunity permit. May include archeological field school, laboratory research or advanced course work not presently offered by department on a regular basis.

ECONOMICS

525: 3250:

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

523 APPLIED GAME THEORY 3 credits
Prerequisite: 200. Application of the basic concepts of game theory analysis of strategic behavior of governments, United States Treasury and Federal Reserve System.

527 ECONOMIC FORECASTING 3 credits
Prerequisites: 200 and 201 or 244, 3470:261, and 3470:262. Study of methods for building, identifying, fitting, and checking dynamic economic models and the use of these models for forecasting. Emphasis is on the availability of application computer software systems.

530 LABOR MARKET AND SOCIAL POLICY 3 credits

510 FOUNDATIONS OF MACROECONOMIC ANALYSIS I 3 credits
Prerequisite: 200 or equivalent. Formulation of functional relations among economic variables suitable for statistical estimation from observational data and construction of multivariate macroeconomic models and methods of estimation.

533 THEORIES OF WAGE AND EMPLOYMENT 3 credits
Analytical approach to integration of economic theory with observed labor market phenomena. Discussion of wage and employment theories, effects of unions, collective bargaining on the allocation of income and effects of government regulation.

566 SEMINAR ON REGIONAL ECONOMIC GROWTH AND DEVELOPMENT 3 credits
Review of main theories of economic growth since age of classical economics. Problems in development of emerging countries. Discussion of appropriate macroeconomic of capital formation, investment, technology and external trade.

572 FOUNDATIONAL MONETARY ECONOMICS 3 credits

573 INTERNATIONAL TRADE 3 credits
Traditional trade theory. Recent developments in trade theory, policy implications in trade relations among developing and developed economies.

575 MONETARY ECONOMICS 3 credits
Interest rate study of smooth economic models. Emphasis on integration of theory and policy.

597, 697 READING IN ADVANCED ECONOMICS 1-3 credits
May be repeated for a total of six credits.

606 STATISTICS FOR ECONOMETRIC 3 credits
Prerequisite: courses in elementary differential and integral calculus, 6500:321, 322 or equivalent. Review of statistical theory and its application to research in economics. Emphasis is on estimation and hypothesis testing as a prelude to econometrics.

627 ECONOMETRICS 625 or equivalent. Formulation of functional relations among economic variables suitable for statistical estimation from observational data and construction of multivariate macroeconomic models and methods of estimation.

628 SEMINAR IN RESEARCH METHODS 3 credits
Prerequisites: permission of instructor. A seminar in the research use of applied mathematical economics or econometrics. Emphasis is on individual development of a theoretical or research statement, its empirical examination and policy implications.

633 TRADITION OF ARTHURIAN LEGEND 3 credits
Intensive study of Arthurian materials from 540 to 1500 and beyond, with emphasis on characters, themes, events and treatments.

634 T. S. ELIOT 3 credits
Prerequisites: 111 and 112 or their equivalents, or permission of the instructor. Traces evolution of Arthurian materials from 540 to 1500 and beyond, with emphasis on characters, themes, events and treatments.

635, 695 MASTERS' THESIS (May be repeated for a total of six credits)

ENGLISH

500 ANGLO SAXON 3 credits
Prerequisites: 111 and 112 or their equivalents, or permission of the instructor. Studies in Old English language and Old English prose and poetry, including Beowulf.

503 DEVELOPMENT OF THE ARTHURIAN LEGEND 3 credits
Prerequisites: 111 and 112 or their equivalents, or permission of the instructor. Traces development of Arthurian materials from 540 to 1500 and beyond, with emphasis on characters, themes, events and treatments.

505, 695 MASTERS' THESIS 3 credits
May be repeated for a total of six credits.

521 SHIFT AND POPE 3 credits
Prerequisites: 111 and 112 or their equivalents, or permission of the instructor. An intensive study of the major works of Swift and Pope. Concentration on the rhetorical strategies of each writer 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
Prerequisite: course in the major works of T. S. Eliot and R. Crane.

535 20TH CENTURY BRITISH POETRY 3 credits
Concentrated study of major poets of Yeats, Eliot, and W. Auden with attention also to Hardy, Housman, Spender, D. H. Lawrence, and Thomas.

542 BRITISH FICTION: 1900-1925 3 credits
Study of Conrad, Joyce, O. H. Lawrence, and Virginia Woolf with attention to their innovations in narrative and style, their psychological realism and symbolism.

543 BRITISH FICTION SINCE 1925 3 credits
Study of important British novelists since 1925, including Lawrence, Joyce, and Woolf. Attention to development of British writing from 1925 to present.

546 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.

548 AMERICAN FICTION: REALISM AND NATURALISM 3 credits
Examination of American writers of realistic and naturalistic fiction. Works of Howells, James, Crane, Dreiser, and Dos Passos.

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
Prerequisites: 111 and 112. Study of modern poets and their revisions of traditional themes, relationships, conventions of art and of the artist-as-seer, and the debate between "public" and "private" poetry.

557 MODERN EUROPEAN LITERATURE 3 credits
Representative European writers from about 1850 to present. Translation. Focus on fiction of writers such as Zola, Turgenev, Dostoevsky, Mann, Proust, Kafka and Salzmann.

559 EMERGENCE OF MODERN LIERATURE 3 credits
An analysis of sex and love in the western literature from Greek-Roman times to 1800. Emphasizes allegorical, satanic, tragicomic or realistic usages of sexuality and "romantic" love.
669 MASTER'S THESIS  16 credits
Original work in the field of literature and language and completion of graduate student's required thesis.

GEOGRAPHY AND PLANNING 3350:

505 GEOGRAPHIC INFORMATION SYSTEMS 3 credits
Prerequisites: 540 or permission. Introduction to the principles and concepts underlying geographic information systems (GIS) and their application in professional practice and academic research. Laboratory.

507 ADVANCED GEOGRAPHIC INFORMATION SYSTEMS 3 credits
Prerequisite: 505. Advanced instruction in the theory and application of geographic information systems (GIS) including hands-on experience with both raster and vector GIS. Laboratory.

515 ENVIRONMENTAL PLANNING 3 credits
Seminar and individual research project for decision-making in planning, with emphasis on soils, land, water, and quality issues. Data sources and methods of site evaluation.

520 URBAN GEOGRAPHY 3 credits
Prerequisites: 340 or 3850 100 or 3250 100 or permission of instructor. Spatial structure of urban systems; interaction between cities, internal structure of cities. Perspectives on urban change: contemporary urban geography, urban and regional planning issues.

522 TRANSPORTATION SYSTEMS PLANNING 3 credits
Prerequisite: 350 or permission. Transportation planning from a geographic perspective. Emphasis on transportation problems and issues, elements of transportation planning.

529 INDUSTRIAL AND COMMERCIAL SITE LOCATION 3 credits
Prerequisite: 320 or permission. Relationship between land, resources, population, transportation and industrial and commercial location process.

532 LAND USE PLANNING LAW 3 credits
Prerequisite: permission. Acquaint student with past and present approaches to land use control within the United States and examine the political, economic, social and legal forces which have shaped existing land-use legislation.

533 PRACTICAL APPROACHES TO PLANNING 3 credits
Prerequisite: 330 or permission. Role of geographic investigation in city, regional and resource planning.

534 URBAN LAND USE ANALYSIS 3 credits
Prerequisite: 330 or permission. Land use classification systems and their focal variation in urban areas. Land use data are collected by student for field work and analyzed to identify the interactions and structure of subregions.

537 PLANNING ANALYSIS AND PROJECTION METHODS 3 credits
Introduction to the primary analytic techniques for smallscale demographic and economic analysis and projection.

538 LAND USE PLANNING METHODS 3 credits
Application of GIS and other computer-based tools to the preparation, implementation, and evaluation of comprehensive land use plans.

539 HISTORY OF URBAN DESIGN AND PLANNING 3 credits
Origins of human settlements and planning from the perspective of urban design and related sociocultural trends. Comparison of world regional and historical urban forms. Experience in "reading" settlements as visual landscapes.

540 PRINCIPLES OF CARTOGRAPHY 3 credits
Theoretical and practical applications of cartographic principles used to design and produce maps for research reports, public presentations, publication, and other professional uses.

545 THEMATIC CARTOGRAPHY 3 credits
Prerequisite: 340 or permission. Principles and techniques of thematic mapping. Stresses maps as communication tools. Examines principial thematic mapping techniques and means of presenting quantitative and qualitative data. Laboratory.

547 APPLIED CARTOGRAPHY AND GEOGRAPHIC INFORMATION SYSTEMS 3 credits
Prerequisites: 340 or 345 and 450 or 550 or permission. Application of analytic and presentational techniques from cartographic and geographic information systems to practical problems in geography and planning. Laboratory.

548 REMOTE SENSING 3 credits
Prerequisites 365 or permission. Concepts, systems, and methods of applying aerial and satellite photography, satellite imagery, and other remote-sensing data for analyzing geographic, geological, and other earth phenomena.

549 ADVANCED REMOTE SENSING 3 credits
Prerequisite: 475/547 or permission. Current research in remote sensing. Applications in study of human cultural and biophysical environment. Practices in planning, design, execution and interpretation of remote sensing studies. Laboratory.

550 DEVELOPMENT PLANNING 3 credits
A study of planning concepts and techniques for developing countries, including growth and development planning, urban and regional inequalities and alternatives approaches.

551 MEDICAL GEOGRAPHY AND HEALTH PLANNING 3 credits
Spatial analysis of diseases; their socioeconomic correlates; diffusion patterns of infectious diseases with particular reference to the US, North America; health-planning processes and spatial analysis of healthcare delivery systems.

558 RESEARCH METHODS IN GEOGRAPHY AND PLANNING 3 credits
Prerequisites: 12 credits in geography and planning. Investigation of library and archive resources. Emphasis on development of professional research skills.

554 SPATIAL ANALYSIS 3 credits
Prerequisite: 451/551 or permission. Analysis of mapped statistical surfaces. Principles for use of maps as model for statistical significance; prediction; Hypothesis testing.

555 SPECIAL TOPICS IN GEOGRAPHY 3 credits
(May be repeated: Selected topics of interest in geography.

560 WORKSHOP IN GEOGRAPHY 3 credits
May be repeated for a total of six credits. Group studies of special topics in geography.

569 SOIL AND WATER RESOURCES 3 credits
Prerequisite: 330 or permission. Properties, origins and uses of major soil and water resources. Stresses relationships between soil and the hydrological cycle, urbanization, subsurface urbanization and agriculture. Field trips required.
568 FIELD RESEARCH METHODS 3 credits

569 SEMINAR 68/695 3 credits (May be repeated for a maximum of six credits each) Prerequisite: permission. Investigation and analysis of selected topics in particular fields of geography. Specialization indicated by second portion of title.

630 PLANNING THEORY 3 credits

631 FACILITIES PLANNING 3 credits

632 COMPARATIVE PLANNING 3 credits A survey of regional, national, 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: 205/305, 210. Advanced concepts and methodologies in geographic research. Emphasis on qualitative revolution in geographical analysis including multivariate techniques, exploratory factor, discriminant and econometric analysis, and multidimensional scaling.

685 PLANNING INTERNSHIP 3 credits Prerequisite: permission. Individual experience in selected planning agencies for supervised performance. Professional planning work may be applied to total credit hours needed for degree requirements. Credit/Non-Credit.

687 HISTORY OF GEOGRAPHIC THOUGHT 3 credits Prerequisite: 685/695 or permission. Critical review of major developments in geographic concepts from ancient times to present.

695 GRADUATE COLLOQUIUM 1 credit (May be repeated for a maximum of four credits.) Lecture series on topics of interest in geography and planning. May be repeated for a maximum of four credits. Credit/Non-Credit.

698 INDEPENDENT READING AND RESEARCH 3 credits (May be repeated for a total of six credits) Prerequisite: permission of instructor. Intensive investigation of selected topics under guidance of faculty member.

699 THESIS RESEARCH 3 credits Independent and original work toward a thesis.

GEOLoGY 3370:

546 ARCHAEOLOGICAL GEOLOGY 3 credits includes lab Prerequisite: 101, or by permission of instructor. Provides background in geologic principles and techniques relevant to archaeologists. Topics include stratigraphy, absolute dating, local fauna, assessment, zooarchaeology, typology, and remote sensing. Required lab.

510 REGIONAL GEOLOGY OF NORTH AMERICA 3 credits Prerequisites: 101, 102, 210 or permission, recommended: 352. Examination of physiographic provinces of North America emphasizing structure, tectonic setting, stratigraphy, and processes responsible for landforms in each province. Laboratory.

511 GLACIAL GEOLOGY 3 credits Prerequisites: 210, or permission. Causes and effects of Pleistocene expansion of polar ice masses with emphasis on glacial deposits and world climate changes.

521 COASTAL GEOLOGY 3 credits Prerequisites: 108, 324 or permission of instructor. 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.

525 PRINCIPLES OF SEDIMENTARY BASIN ANALYSIS 3 credits Prerequisites: 101, 102, 210, or permission. Primary study of depositional systems, regional and global stratigraphic cycles, and sedimentation and plate tectonics.

532 OPTICAL MINERALOGY—INTRODUCTORY PETROGRAPHY 3 credits Prerequisites: 230 and 231. Optical techniques for identification, characterization, and classification of minerals and rocks using the petrographic microscope. Laboratory.

533 ADVANCED PETROGRAPHY 3 credits Prerequisite: 532. Petrography of igneous, metamorphic, and sedimentary rocks as observed in thin sections by microscopic studies of textures and mineral assemblages using thin section. Laboratory.

535 PETROLEUM GEOLOGY 3 credits Prerequisite: 650, or permission. Recommended: 324. Natural occurrences of petroleum. Characteristics, origin, entrapment and exploration methods. Laboratory.

536 COAL GEOLOGY 3 credits Prerequisites: 107, or permission. Origin, composition and occurrence of coals with emphasis on depositional environments, coalyfication processes, evolution, evaluation, and exploitation.

537 ECONOMIC GEOLOGY 3 credits Prerequisites: 205/305 and 350. Study of metallic and nonmetallic mineral deposits emphasizing paragenesis and exploration. Laboratory.

541 FUNDAMENTALS OF GEOPHYSICS 3 credits Prerequisites: 3450/4450 and 3650/4929. Fundamental concepts in applied earth geophysics, planetary physics, geodesy, and geomagnetism. Contributions of geophysics to recent developments in geology and geophysics.

545 ENVIRONMENTAL MAGNETISM 3 credits Prerequisite: 101, or permission of instructor. Introduction to the theory and methods of environmental magnetism and the application of environmental magnetism to interpreting sedimentary deposits.

549 EXPLORATION GEOPHYSICS 3 credits Prerequisites: 3450/4450, 3692/4929 or permission. Basic principles and techniques of geophysical exploration with emphasis on geophysical, magnetic, seismic, and electrical methods and application to geopysical problems. Laboratory.

BMeORHEOLOGY 3 credits

590 ADVANCED STRUCTURAL GEOLOGY 3 credits Prerequisite: 350 or permission. Fundamental and advanced concepts of structural geology with emphasis on current and developing concepts. Laboratory.

591 ADVANCED PALEOCLIMATOLOGY 3 credits Prerequisite: 360 and 380 lab. Provides advanced training in paleontological subjects. Topics will include palaeoceanographical analysis, biostatigraphic correlation, fossil preservation, differentiation and extinction patterns and geohematic signals of fossils.

593 MICROPALeONTOLOGY 3 credits Prerequisite: 360 or permission. Introduction to techniques of micropaleontology evolution and paleoecology of selected microfossil groups. Laboratory.

597 GEOCHEMISTRY 3 credits Prerequisites: 101, 230, 231, 350/351, 152, 153, or permission. Application of chemical principles to the study of geologic processes. Laboratory.

598 STABLE ISOToPE GEOCHEMISTRY 3 credits Prerequisites: 3150/101, 152, 153, 3450/221, 3730/101, 102. Application of stable isotope geochemistry to the study of the hydrologic and carbon cycles, modern sedimentary environments, and the interpretation of sedimentary rocks.

574 GROUNDWATER HYDROLOGY 3 credits Prerequisite: 101. Origin, occurrence, regime and utilization of groundwater. Qualitative and quantitative presentation of geologic and geochanical aspects of groundwater hydrology. Laboratory.

581 ANALYTICAL METHODS IN GEOLOGY 2 credits Prerequisites: 230 and 231. A survey of analytical methods used to solve geologic problems with emphasis on method selection, proper sample collection, analysis of data quality and data presentation.

584 GEOSCIENCE INFORMATION ACQUISITION AND MANAGEMENT 2 credits Prerequisite: permission of instructor. Methods must be used in student's research in a geologic subject for which permission of instructor is required. Methods for finding, gathering, managing, and evaluating geoscientific information. Emphasis on finding data sources including electronic, creating valid data sets, visualizing data.

585 INDIVIDUAL READINGS IN GEOLOGY 3 credits Prerequisite: permission of graduate advisor required. May be repeated for a total of 8 credits. May not be used to meet degree requirements. Directed reading to fit individual student programs. Credit/Noncredit.

590 WORKSHOP 3 credits Prerequisite: Group studies of special topics in geology. May not be used to meet graduate or major requirements in geology. May be used for elective credit only.

593 GEOLOGY FIELD CAMP I 3 credits Prerequisites: 101 and 102 and permission of instructor. Introduction to collection and interpretation of field data and construction of geological maps.

594 GEOLOGY FIELD CAMP II 3 credits Prerequisites: 231, 350, 400/500 or permission of instructor. Advanced techniques and methods of field geology necessary for detailed geological maps and interpretation.

631 ROCKS AND MINERALS 4 credits Prerequisites: 101 and permission. Intensive course integrating crystallography, mineralogy and petrology for the science teacher and graduate student from disciplines other than geology. Laboratory.

693 NUCLEAR GEOLOGY 3 credits Prerequisites: 101, 102, three hour laboratory, and permission. Prerequisite: minimal of seven credits in chemistry, eight credits in physics, eight credits in calculus and eight credits in geology or permission. Emphasis on properties, nature of radioactive and stable isotopes, their applications in geology, radioactive minerals, radioactive background and disposal of radioactive wastes. Nuclear analytical techniques will also be discussed; lecture, laboratory and field study.

694 GEOSTATISTICS 3 credits Prerequisites: 101, 3470/4470/561 or an equivalent course in statistics. Application of statistical methods to geology and geophysics including tests of hypotheses, trend surface analysis, analysis of variance, nonparametric statistics and time series analysis.

695 GROUND TECTONICS 3 credits Prerequisites: 350, 441/541 or permission. Theoretical study of physical forces involved in formation and deformation of earth's crust with emphasis on plate tectonics and associated tectonic features.

696 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 geochalcmical, paleontological, sedimentological and other geologic evidence.

697 ADVANCED GROUNDWATER HYDROLOGY 3 credits Prerequisites: 101, 3470/4470/574. Study of water table and artesian aquifers under steady and nonsteady state conditions. Collection and evaluation of field data with regard to theory. Water well and well field design. Laboratory and field work.

698 SEMINAR IN GEOLOGY 2 credits (May be repeated for a total of six credits) Selected topics with reference material from original sources.

699 SELECTED TOPICS IN GEOLOGY 3 credits (May be repeated for a total of eight credits) Prerequisite: permission. Topics not regularly offered as formal courses, generally of classic current importance. Emphasizes lectures, readings, data and/or guided laboratory work.

700 GEOLOGY TEACHING PRACTICUM 2 credits Prerequisites: graduate assistantship, Training and experience in college teaching of geology under supervision of experienced faculty. May be repeated for a maximum of 8 credits. Credit/Noncredit.

770 ADVANCED FIELD STUDIES 3 credits Prerequisite: permission of instructor. Field trip emphasizing phases of geology not readily studied in Ohio. Includes pre-trip preparation; field observations and data gathering, post-trip examination and/or written report. Student will bear trip expenses.

780 GEOLOGY COLLOQUIUM 1 credit Lecture on current topics in geological sciences and thesis proposals and defenses by graduate students. May be repeated. Does not satisfy degree requirements.

790 GRADUATE RESEARCH PROBLEMS 3 credits Prerequisite: permission. Directed reading and research in an aspect of geology chosen by student in consultation with an instructor. May be repeated. Does not satisfy degree requirements.

791 MASTER'S THESIS 14 credits Independent and original investigation. Must be successfully completed, report written and defended before a committee.

3400:

500 WOMEN IN REVOLUTIONARY CHINA 3 credits Prerequisites: 3400/300, 310, or 1100/330 or permission of instructor. A study of the changes brought about by the People's Republic of China and its role in the Pacific War, 1895-1945.

504 STUDIES IN ROMAN HISTORY 3 credits
Prerequisite: completion of 8 hours of History courses at the 200 or 300 level. Concentrated investigation of selected topics such as imperialism in middle and late Republic, the age of Augustus, or the fall of western Empire.

516 MODERN INDIA 3 credits
History of the Indian subcontinent from c.500 BC with emphasis on Indian society and culture, British imperialism, and the emergence of Indian nationalism.

524 THE RENAISSANCE 3 credits
The age of transition from the Middle Ages to modern times (1450-1600). Special emphasis on intellectual trends, the development of humanism, and the fine arts.

529 THE REFORMATION 3 credits
Europe in 16th C, its religious, cultural, political and diplomatic development, with special emphasis on Protestant, Anglican and Catholic reformations.

529 EUROPE IN THE FRENCH REVOLUTIONARY ERA 1789-1815 3 credits
Development of Revolution; Napoleon's regime and satellites.

534 NAZI GERMANY 3 credits
This course covers the social, economic, and political history of Germany from World War I to '45 with emphasis on the Third Reich.

540 TUDOR AND STUART BRITAIN, 1485-1714 3 credits
An examination of the development of, and increasing links between the British kingdoms in the early modern period, with emphasis on culture, politics, religion.

543 CHURCHILL'S ENGLAND 3 credits
An examination of the changes that Britain experienced during the life of Winston Churchill, 1874-1963. Emphasis is on cultural, social, and political developments.

551 THE 19TH CENTURY COLONIES AND FOUNDING OF THE UNITED STATES, 1713-1815 3 credits
Special emphasis on the Great Revolution to the founding of the United States. Major movements (Wars, religious revolts, economic growth and political controversies.

552 THE AMERICAN REVOLUTIONARY ERA: POLITICAL, MILITARY, AND SOCIAL INSTITUTIONS 3 credits
The leading political and military figures of the Revolutionary War and the early years of the nation.

553 AGE OF JEFFERSON AND JACKSON, 1800-1835 2 credits
The events that led to the development of the Jeffersonian Democratic-Republican movement and the expansion of Jacksonian democracy.

563 THE CIVIL WAR AND RECONSTRUCTION, 1862-1877 4 credits
Sectional division and three decades of the Civil War, wartime activities of the Union and Confederacy, leading personalities, problems of reconstruction and the new Union.

565 THE ORIGINS OF MODERN AMERICA, 1277-1917 3 credits
United States from Reconquest Era to World War I (1277-1920): emphasis on political responses to rise of an industrialized-urbanized society, the populist and progressive movements.

566 AMERICA IN WORLD WARS AND EXPERIENCES, 1917-1945 3 credits
World War I and Versailles; the 1930's, The Great Depression and the New Deal; World War II.

575 REGENT AMERICA: THE UNITED STATES SINCE 1945 3 credits
Nuclear age, cold war, foreign policy and social affairs to present. Social, political, constitutional, diplomatic, cultural and economic changes since 1945.

576 UNITED STATES DIPLOMACY SINCE 1898 3 credits
Responses of government and public to challenges of war, peace making and power politics.

577 U.S. CONSTITUTIONAL HISTORY SINCE 1789 3 credits
This course will examine the evolution of constitutional government as well as civil liberties and individual rights from the Civil War to the present.

585 AMERICAN ECONOMY SINCE 1900 3 credits
Survey of economic developments since 1900: topics include agriculture, business and labor. Special emphasis on role of big business and evolution of monetary and fiscal policy.

587 UNITED STATES SOCIAL-CULTURAL HISTORY SINCE 1877 3 credits
Concepts and attitudes: emphasis on business, agrarianism, self-made individuals, progressive period, reality of urbanization, social-economic planning, trends in literature and art, social status and change, black Americans, women's movements.

590 OHIO HISTORY 3 credits
Politics, culture, economic and intellectual history of Ohio, with special emphasis on Ohio's relationship to Old Northwest and to the nation.

591 AMERICAN ENVIRONMENTAL HISTORY 3 credits
Utilization, conservation of natural resources from beginnings of American society to present. Comparative analysis of economic, technological and historical development of European and American physical environment.

592 LATIN AMERICA: ORIGINS OF NATIONALITY 3 credits
Pre-Columbian civilization, discovery and conquests, colonialism, struggle for independence and formation of new societies.

593 LATIN AMERICA: THE TWENTIETH CENTURY 3 credits
Social revolution, political ideology and contemporary problems.

595 MEXICO 3 credits
History of Mexico from Indian civilizations to present with emphasis on relations with United States, Mexico's social and political innovations of the 20th Century Mexican revolution.

596 CENTRAL AMERICA AND THE CARIBBEAN 3 credits
Selected aspects of the history of Central American and Caribbean countries with emphasis on peasant and peasant movements, political reform, social revolution, economic and urban development, and relations with the United States.

598 WAR AND WESTERN CIVILIZATION 3 credits
War and society in Europe, America and beyond from ancient world to present. Special emphasis on period since 1740.

600 HISTORICAL ADMINISTRATION 3 credits
Organization and administration of non-academic historical agencies (e.g. societies, museums, etc.). Selection and interpretation of research, planning, budgetary, and fund development.

601 FUNCTIONS OF HISTORICAL AGENCIES 3 credits
Prerequisite: 41010 or permission. Study of functions and programs of historical agencies. Study of types of agencies and their operation: planner, director, etc.

607 WESTERN SCIENCE SINCE 1800 3 credits
Continuing development of physical, medical, biological sciences in European and American societies. Atomic physics and particles, evolution, genetics, modern medicine.

597 SPECIAL STUDIES IN HISTORY 3 credits
Includes experimental and interdisciplinary studies, as well as those subjects that are not listed in the Graduate Bulletin. See departmental office for information on particular offerings.

598 WORKS-IN-PROGRESS 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.

610 GRADUATE READING SEMINAR 3 credits

611 GRADUATE WRITING SEMINAR 3 credits
Comparative study of law, political, and social theories in ancient, medieval, and modern times.

622 READING SEMINAR IN ANCIENT HISTORY 4 credits
Study of historical literature, sources of materials and major interpretations of ancient history, especially Greek and Roman periods.

623 READING SEMINAR IN ANCIENT HISTORY 4 credits
Prerequisite: 622. Research and writing in selected topics of ancient history, particularly Greek and Roman eras.

625 READING SEMINAR IN MEDIEVAL HISTORY 4 credits
Study of historical literature, sources of materials and major interpretations of medieval European history.

626 WRITING SEMINAR IN MEDIEVAL HISTORY 4 credits
Prerequisite since 1625. Written essay in selected topics of medieval history from barbarian invasions through late Middle Ages.

631 READING SEMINAR IN MODERN EUROPEAN HISTORY TO 1715 4 credits
Study of historical literature, sources of materials, major interpretations of early modern European history to Napoleonic era.

632 READING SEMINAR IN MODERN EUROPEAN HISTORY TO 1715 4 credits
Prerequisite: 630. Research and writing in selected topics of modern European history, occassionally including social, economic and intellectual subjects.

634 READING SEMINAR IN MODERN EUROPEAN HISTORY SINCE 1715 4 credits
Study of historical literature, sources of materials and major interpretations of modern European history since 1615. Emphasis on 19th C.

635 READING SEMINAR IN MODERN EUROPEAN HISTORY SINCE 1715 4 credits
Prerequisite: 634. Research and writing in selected topics of modern European history, occasionally including social, economic and intellectual subjects.

651 READING SEMINAR IN THE HISTORY OF ENGLAND AND THE EMPIRE 4 credits
Study of historical literature, sources of materials and major interpretations of English and British imperial history.

652 READING SEMINAR IN THE HISTORY OF ENGLAND AND THE EMPIRE 4 credits
Prerequisite: 651. Research and writing in selected topics of English and British imperial history.

685 READING SEMINAR IN AMERICAN HISTORY TO 1777 4 credits
Study of historical literature, sources of materials and major interpretations of American colonial and United States history to Civil War.

687 READING SEMINAR IN AMERICAN HISTORY TO 1815 4 credits
Prerequisite: 686. Research and writing in selected topics of American history from colonial period to Civil War.

689 READING SEMINAR IN AMERICAN HISTORY SINCE 1777 4 credits
Study of historical literature, sources of materials and major interpretations of United States history since Civil War.

670 READING SEMINAR IN AMERICAN HISTORY SINCE 1815 4 credits
Prerequisite: 689. Research and writing in selected topics of United States history since Civil War.

677 READING SEMINAR IN LATIN AMERICAN HISTORY 4 credits
Prerequisite: two courses in Latin American studies or permission of instructor. Study of literature, sources of materials and major interpretations of Latin American history.

678 READING SEMINAR IN LATIN AMERICAN HISTORY 4 credits
Prerequisite: 677. Research and writing in selected topics of social, cultural, intellectual and political history of Latin America.

680 READING SEMINAR: CHINA 3 credits
Study of Chinese texts, secondary literature, and major interpretations on the history of China.

681 WRITING SEMINA-CNAIN 4 credits
Preparation of research paper, including a bibliographic essay surveying scholarship on the topic and critical review of primary sources, and writing.

689 HISTORIOGRAPHY 3 credits
Study of historians, historical writings and interpretations through the ages. Required for mas­ ter's degree if candidate has not had equivalent undergraduate or graduate course elsewhere.

990 HISTORY TEACHING PRACTICUM 3 credits
Prerequisite: graduate assistantship. Required of all graduate assistants each fall semester. Training and experience in college teaching of history under the supervision of an experienced faculty member. Credits may not be used to meet degree requirements.

994 THESIS RESEARCH 3 credits

891,8 INDIVIDUAL READING FOR M.A. STUDENT 14 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.

999 MASTER'S THESIS 3 credits
Prerequisite: 694. Writing of Master of Arts degree thesis.

798,7,8 INDIVIDUAL READING FOR PH.D. STUDENT 16 credits each
May be repeated, but no more than 12 credits may apply toward the Ph.D. in historical history. Direct­ ed reading to fit individual student programs. Written permission of the instructor required.

988 DISSERTATION RESEARCH 12 credits
Research for Doctor of Philosophy degree dissertation.

999 DOCTORAL DISSERTATION 12 credits
Prerequisite: 898. Writing of Doctor of Philosophy degree dissertation.

MATHEMATICS 3450:

501 HISTORY OF MATHEMATICS 3 credits
Prerequisite: 222. Origin and development of mathematical ideas. Course does not meet degree requirements in the department.
516 ADVANCED LINEAR ALGEBRA 3 credits
Prerequisites: 317. Study of vector spaces, linear transformation, canonical and quadratic forms, inner product spaces.

517 ABSTRACT ALGEBRA I 3 credits
Prerequisites: 307 or permission. Study of groups, rings, fields, integral domains, vector spaces, field extensions, Galois theory.

518 ABSTRACT ALGEBRA II 3 credits
Prerequisites: 418/518 or permission of instructor. Study of groups, rings, fields, integral domains, vector spaces, field extensions, Galois theory.

519 THEORY OF NUMBERS 3 credits
Prerequisites: 222 or permission. Euclidean algorithm, unique factorization theorem, congruences, primitive roots, indices, quadratic residues, number-theoretic functions, Gaussian integers and continued fractions.

520 COMBINATORICS AND GRAPH THEORY 3 credits
Prerequisites: 222 or permission. Introduction to basic ideas and techniques of mathematical counting; properties of structures of systems.

522 ADVANCED CALCULUS I AND II 3 credits each
Sequential. Prerequisite: 223, 307 is highly recommended. Real number system, sequences, series, set theory, continuity, differentiation, integration, partial derivatives, multiple integrals, maxima and minima, convergence and uniform convergence, power series, improper integrals, transformations, line and surface integrals.

525 COMPLEX VARIABLES 3 credits
Prerequisites: 223. Complex variables, elementary functions, differentiation and analytic functions; integration and Cauchy's theorem; power series and Laurent series; residue theory; conformal mapping, inversion of integral transforms.

527 APPLIED NUMERICAL METHODS I 3 credits
Prerequisites: 418/518 and 346/348 or permission of instructor. Numerical methods in polynomial interpolation, curve fitting, matrix operations, and numerical linear algebra.

528 APPLIED NUMERICAL METHODS II 3 credits
Prerequisites: 418/518 and 427/527 or permission of instructor. Numerical methods in the solution of systems of linear and nonlinear equations, numerical differentiation, Runge-Kutta methods, and iterative methods for ODEs, finite differences for PDEs.

529 NUMERICAL SOLUTIONS FOR ORDINARY DIFFERENTIAL EQUATIONS 3 credits

530 NUMERICAL SOLUTIONS FOR PARTIAL DIFFERENTIAL EQUATIONS 3 credits
Prerequisite: 427/527. Special topics in numerical solutions for partial differential equations.

532 PARTIAL DIFFERENTIAL EQUATIONS 3 credits
Prerequisites: 222. The classical initial value and boundary value problems of mathematical physics developed and solved using Fourier series and integral transforms.

533 SYSTEMS OF ORDINARY DIFFERENTIAL EQUATIONS 3 credits
Prerequisites: 318 and either 312 or 428 or permission. Analysis of solutions of systems of equations, linear, nonlinear. Topics: stability theory, perturbation methods, asymptotic methods, applications from physics and sciences.

534 ADVANCED ENGINEERING MATHEMATICS I 3 credits
Prerequisites: 335 and six-hour sequence in an approved area of engineering. Formulation and analysis of mathematical models in applied areas.

535 ADVANCED ENGINEERING MATHEMATICS II 3 credits
Prerequisites: 355 and 312 or permission. Special functions, fourier series and transforms, PDEs.

541 INTRODUCTION TO TOPOLOGY 3 credits
Prerequisites: 307 or permission of instructor. Introduction to topological spaces and topologies, mapping, cardinality, homogeneity, connected spaces, metric spaces.

589 TOPICS IN MATHEMATICS 1-3 credits (May be repeated for a total of six credits)
Prerequisite: Permission of instructor. Selected topics in mathematics and applied mathematics at an advanced level.

591 WORKSHOP IN MATHEMATICS I (May be repeated)
Graduate students of special topics in mathematics and statistics. May not be used to meet undergraduate or graduate major requirements in mathematics and statistics. May be used for elective credit only.

611 TOPICS IN ALGEBRA 3 credits
Prerequisite: 412/512. Advanced study of selected topics in one of the following areas: semigroups, groups, rings, fields and modules.

612 REAL ANALYSIS 3 credits
Prerequisites: 222/522 or permission. In-depth study of real analysis – metric spaces, normed vector spaces, integration theory, Hilbert spaces.

622 MEASURE THEORY 3 credits
Prerequisites: 421, Measure, measurable function, Lebesgue integral, convergence theorem, Lipschitz, Radon-Nikodym theorem.

625 ANALYSIS IN FUNCTION THEORY 3 credits
Prerequisite: 422/522. Complex variable system, holomorphic functions, continuity, differentiability, power series, complex integral, residue theory, singularity, analytic continuation.

627 ADVANCED NUMERICAL ANALYSIS I AND II 3 credits each

631 CALCUUS OF VARIATIONS 3 credits
Prerequisite: 305. Problems with fixed and movable endpoints, problems with constraints, generalization to several variables, the minimax principle, linear variational problems, the connection between classical theory and the variational calculus.

632 ADVANCED PARTIAL DIFFERENTIAL EQUATIONS 3 credits
Prerequisite: 432/532 or permission. Existence, uniqueness and stability of solutions to general classes of partial differential equations. Methods for solving these equations introduced, numerical techniques.

633 METHODS OF APPLIED MATHEMATICS I AND II 3 credits each
Prerequisites: 421/521 or 438/538, 439/539 or permission. Methods of applied mathematics concerning one or more techniques for analysis of differential and integral equations – applied complex analysis, integral transforms, partial differential equations, and integral equations.

635 OPTIMIZATION 3 credits
Prerequisites: 428/528 or permission. Unconstrained and constrained optimization theory and methods in applied problems.

636 ADVANCED COMBINATORICS AND GRAPH THEORY 3 credits
Prerequisites: 335. Theory and techniques of combinatorics as applied to network problems and graph theoretic problems.

637 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 banks, discrete and continuous wavelet transforms, wavelet packets, and applications.

639 ADVANCED TOPICS IN MATHEMATICS 3 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.

640 SEMINAR IN MATHEMATICS 1-3 credits
(May be repeated) 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.

697 PRACTICUM IN MATHEMATICS AND STATISTICS 1-12 credits (May be repeated) Prerequisite: graduate teaching assistant or permission. Training and experience in college teaching of mathematical sciences. May not be used to meet degree requirements. Credit/No credit.

698 INDIVIDUAL READING 1-12 credits (May be repeated) Prerequisite: permission of advisor. Directed studies in mathematics at graduate level under guidance of selected faculty member.

699 MASTERS' RESEARCH 16 credits
(May be repeated) Prerequisite: permission of advisor. Research in suitable topics in mathematics and related sciences culminating in a research paper. No more than 2 credits applicable to major requirements.

701 MASTERS' THESIS 3 credits
(May be repeated) Prerequisite: permission of advisor. Thesis required for a total of four credits. Prerequisite: permission. Properly qualified qualified graduate may obtain four credits for research experience which culminates in satisfaction of thesis requirement.

712 FUNCTIONAL ANALYSIS I AND II 3 credits each
Prerequisites: 410/510 and 621. These courses are sequential. Study of normed linear spaces and transformations between them with an emphasis on the formulation and analysis of differential and integral equations as operator equations on these spaces.

720 MATRIX ITERATIVE ANALYSIS 3 credits
Prerequisite: 312 or permission of the instructor. Basic iterative methods. Matrix Properties and Graphs. Linear and Nonlinear equation solver. Semi-iterative and conjugate-gradient methods.

723 ADVANCED NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS 3 credits
Prerequisites: 422/522 and 439/539. Advanced Methods and Numerical methods in applied mathematics culminating in a research paper.

726 PARTIAL DIFFERENTIAL EQUATIONS II 3 credits

733 ASYMPTOTIC METHODS AND NONLINEAR ANALYSIS I AND II 3 credits each
Prerequisite: 633/634 or equivalent. Survey of asymptotic and perturbation methods as applied to integrals and differential equations. Topics: bifurcation and stability with applications from the physical sciences and engineering.

794 DYNAMICAL SYSTEMS 3 credits
Prerequisites: 422/522 or equivalent. The study of mathematical models of systems that evolve over time. An introduction to maps and applications to ordinary differential equations.

888 COMPUTER SCIENCE 3-4 credits

501 FUNDAMENTALS OF DATA STRUCTURES 3 credits
Seminar. Study of data structures such as stacks, queues, linked lists, files, hash tables, and graphs; sorting and searching algorithms. Introduction to data abstraction and algorithm analysis. (Not an approved major, minor, or certificate elective in computer science.)

505 INTRODUCTION TO C AND UNIX 3 credits
Prerequisite: Programming experience. C language programming. UNIX shell programming, file structure system and calls, process system communication. (Not an approved mathematical sciences major, minor, or certificate elective.)

506 WINDOWS PROGRAMMING 3 credits
Prerequisites: 210 or 210 or 408 or 506 or permission. Windows operating system, integrated development environment, event-driven programming, graphical user interface design, using object libraries, component object model, object linking and embedding, client-server design.

510 INTRODUCTION TO DISCRETE STRUCTURES 3 credits
Prerequisite: 221 or permission. Introduction to a number of structures in algebra of particular use to students in computer science. Topics include algorithms and flow chart language, graphs and digraphs, trees, lattices, codes.

511 INTRODUCTION TO OBJECT-ORIENTED PROGRAMMING 3 credits
Prerequisites: 316. Object oriented programming and programming using different development models. Comparison with other programming paradigms.

520 OPERATING SYSTEMS 3 credits
Prerequisites: 336 and 316, or 501 prerequisite. Introduction to various types of operating systems: batch processing systems, multiprogramming systems and interactive processing; storage management, process and resource control, deadlock problem. Course is independent of any particular operating system.

524 UNIX SYSTEM PROGRAMMING 3 credits
Prerequisites: 316 and knowledge of C. An overview of the UNIX operating system. Shell programming, process management, interrupt process, storage management, scheduling algorithms, resource protection, and system programming.
530 THEORY OF PROGRAMMING LANGUAGES 3 credits
Prerequisite: 316. Advanced concepts underlying programming languages and their applications, foundations of programming languages, Backus Normal Form, semantics. Alternative programming paradigms including functional programming.

535 ANALYSIS OF ALGORITHMS 3 credits
Prerequisites: 316 and 495/595. Design and analysis of efficient algorithms for random access machines, derivation of pattern classification algorithms.

540 COMPILER DESIGN 3 credits
Prerequisites: 307 and 316. Techniques used in writing and modifying compilers including translation, loading, execution, symbol tables and storage allocation, compilation of simple expressions and statements. Organization of a compiler for handling lexical scan, syntax graph, object code generation, error diagnostics and code optimization. Use of common languages and bootstrapping. The course requires a project involving compiler writing.

555 DATA COMMUNICATIONS AND COMPUTER NETWORKS 3 credits

560 COMPUTER GRAPHICS 3 credits
Prerequisites: 316 and knowledge of C. Topics in vector graphics, scan line graphics, representations and languages for graphics.

565 ARTIFICIAL INTELLIGENCE AND HEURISTIC PROGRAMMING 3 credits
Prerequisite: 316. Study of various programs which have displayed some intelligent behavior. Exploration of level at which computers can display intelligence.

566 COMPUTER ORGANIZATION 3 credits
Prerequisites: 216, 305, 495/595. An introduction to the hardware organization of the computer at the register, processor and system level. An in-depth study of the architecture of a particular computer system family.

567 MICROPROCESSOR PROGRAMMING AND INTERFACING 3 credits

570 ADVANCED COMPUTER AND FORMAL LANGUAGES 3 credits
Prerequisite: 416/516. Presentation of theory of formal languages and their relation to automata. Topics include description of languages, regular context free and context-sensitive grammar, finite state, pushdown and multi-taped automata, regular and context free grammars, computational complexity, stack automata and decidability.

575 DATA BASE MANAGEMENT 3 credits
Prerequisites: 316 and knowledge of C. Topics in database organization, data manipulations and representation, data integrity, privacy.

577 INTRODUCTION TO PARALLEL PROCESSING 3 credits
Prerequisite: 316 and knowledge of C. Parallel processors: past and present. Parallel languages, models of parallel computation. Emphasis on parallel algorithm design and performance evaluation. A broad study of parallel paradigms with relation to real world applications.

580 INTRODUCTION TO SOFTWARE ENGINEERING AND FORMAL METHODS 3 credits
Prerequisite: 316. Introduction to formal software specification and validation. Introduction to methodologies and tools of design, development, validation, and maintenance.

586 TOPICS IN COMPUTER SCIENCE 1-3 credits
(May be repeated for a total of six credits) Prerequisite: permission of instructor. Selected topics in computer science at an advanced level.

595 WORKSHOP IN COMPUTER SCIENCE 1-3 credits
Group study of specific problems in computer science. May not be used to meet graduate or undergraduate requirements in mathematics, statistics or computer science.

597 INDIVIDUAL READING IN COMPUTER SCIENCE 1-3 credits
(May be repeated) Prerequisite: permission. Computer science major only. Directed studies designed as introduction to research problems, under guidance of designated faculty members.

626 ADVANCED OPERATING SYSTEMS 3 credits
Prerequisite: 426/526 or equivalent. Advanced topics in operating system design. Synchronization mechanisms, performance evaluation, security, distributed operating systems.

629 ADVANCED THEORY OF PROGRAMMING LANGUAGES 3 credits
Prerequisites: 430/530 and 418/518, or equivalent. Indepth study of various issues in the design and implementation of programming languages, such as formal systems, operational and other semantic theories, and verification.

635 ADVANCED ALGORITHMS AND COMPLEXITY THEORY 3 credits
Prerequisite: 426/526 or equivalent. Advanced graph algorithms, matrix multiplication, Fourier transforms, lower bound theory, complexity hierarchies, NP-complete and intractable problems, approximation techniques.

640 ADVANCED COMPUTER DESIGN AND CONSTRUCTION 3 credits
Prerequisite: 440/540 or equivalent. Continuation of 440/540. Theory of LRU and LRFI paging, compiler writing tools and environments, code optimization, implementation of advanced language features. Major programming project required.

655 COMPUTER NETWORKS AND DISTRIBUTED PROCESSING 3 credits
Prerequisites: 465/565 and 455/555. Interconnection technologies, protocol layering models, data and stream transport services, client-server paradigm, principles and protocols of interconnected networks operating as unified systems, TCP/IP technology.

657 ADVANCED COMPUTER GRAPHICS 3 credits
Prerequisite: 457/557, knowledge of C and UNIX. Topics include 3D viewing and projection, image manipulation, 3D transformations, color shading, clipping and animation via raster files, fractal mapping, surface rendering, and solid mapping.

568 VISUALIZATION 3 credits
Prerequisite: 455 or 557 or permission of instructor. Visualization pipeline, data representation in visualization, visualization algorithms, object-oriented visualization, scientific visualization, volume visualization, visualization applications and research topics.

660 EXPERT SYSTEMS 3 credits
Prerequisite: 490/590 or maturity in mathematics. Architecture of expert systems, knowledge representation and acquisition, machine learning, expert systems uncertainty management, expert system tools and applications.

665 ADVANCED COMPUTER ARCHITECTURE 3 credits
Prerequisite: 490/590 or equivalent. Fundamentals of computer architecture and design. Emphasis on computer systems and software design. Studies of pipelined, vector, RISC, and multi-processor architectures.

670 ADVANCED AUTOMATA AND COMPUTABILITY 3 credits
Prerequisite: 470/570 or equivalent. An in-depth study of concepts related to computability. Topics include nondeterministic automata, recursive function theory, the Chomsky hierarchy, Turing machines and undecidability.

675 ADVANCED DATABASE MANAGEMENT 3 credits
Prerequisite: 475/575 or equivalent. Relational database theory, including formal query language, query processing issues, optimization techniques, reliability techniques, including recovery, concurrency, security, and integrity; current trends in database technology.

677 PARALLEL PROCESSING 3 credits
Prerequisite: 477/577. Parallel computer architectures, theories of parallel computing, system resources optimization, efficient programming languages and application requirements of cost-effective computer systems. Classical results and practical insights into implementing parallel algorithms on actual parallel machines.

680 SOFTWARE ENGINEERING 3 credits
Prerequisites: 307 and 316. Introduction to current methodologies and tools used for software design, development, and maintenance.

685 ADVANCED TOPICS IN COMPUTER SCIENCE 1-3 credits
(May be repeated) Prerequisite: permission of instructor. At most, six credits may be applied to major requirements. Selected topics in computer science are at an advanced level.

689 SEMINAR IN COMPUTER SCIENCE 1-3 credits
(May be repeated) Prerequisite: permission of advisor. Seminar-type discussions on topics in computer science. No more than two credits apply to major requirements.

695 PRAXIoTIC 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.

698 MASTER’S RESEARCH 1-6 credits
(May be repeated) Prerequisite: permission of advisor. Research in suitable topics in computer science culminating in a research paper. No more than two credits applicable to major requirements.

699 MASTER’S THESIS 1-6 credits
Prerequisite: 475/575 or equivalent. May be repeated for a total of six credits. A properly qualified candidate for a master’s degree may obtain 2-4 credits for research experience which culminates in a presentation of a faculty-supervised thesis.

STATISTICS 3470:

550 PROBABILITY 3 credits
Prerequisite: 3450/221. Introduction to probability, random variables and probability distributions, expected value, sums of random variables, Markov processes.

551 ADVANCED THEORETICAL STATISTICS I and II 3 credits each Sequences. Prerequisite: 3450/222. 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.

550 STATISTICAL METHODS 3 credits
Applications of statistical methods to the social sciences including description statistics, probability distributions, statistical inference, correlation, categorical data analysis, linear regression, correlation, computer applications. May not be used to meet Mathematical Sciences degree requirements.

551 APPLIED STATISTICS I 4 credits
Prerequisite: 3450/222 or 216 or equivalent. Applications of statistical theory to natural and physical sciences and engineering, including probability distributions, interval estimation, hypothesis testing (parametric and nonparametric), and simple linear regression and correlation.

552 APPLIED STATISTICS II 3 credits
Prerequisite: 457/557 or equivalent. Applications of the techniques of regression and multivariate analysis for variance.

555 DESIGN OF SAMPLE SURVEYS 3 credits
Prerequisite: 465/565 or equivalent. Design and analysis of frequently used sample survey techniques.

559 RELIABILITY MODELS 3 credits
Prerequisite: 465/565. Selected topics in reliability modeling including parametric and nonparametric models, competing modes of failure, censored data and accelerated life models.

571 ACTUARIAL SCIENCE I 3 credits
Prerequisite: 351 or 551 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: 477/577. 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 annuities.

574 FOUNDATIONS OF STATISTICAL QUALITY CONTROL 3 credits
Prerequisite: 465/565 or equivalent. Course provides a solid foundation in the theory and applications of statistical techniques widely used in industry.

580 STATISTICAL DATA MANAGEMENT 3 credits
Prerequisites: 351 or 551 or equivalent. Students learn data organization and structures, design of statistical databases, statistical software analysis, importing and exporting of data between databases, and missing data analysis.

585 TOPICS IN STATISTICS 1-3 credits
(May be repeated for a total of six credits) Prerequisite permission. Selected topics in advanced statistics, including functional data analysis, sampling theory, naive Bayes, artificial intelligence, inference and stochastic processes.

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: 465/565 or permission. Students will be assigned to work with an instructor on current projects in the Center for Statistical Consulting. May be repeated for a total of 4 credits. However, only 2 credits will count toward major requirements. Does not count for elective credit for math science department majors.

596 ADVANCED PROBABILITY AND STOCHASTIC PROCESSES 3 credits
Prerequisite: 465/565. Random walk, distributions, limit theorems, renewal theory, Markov chains, time-dependent stochastic processes.

597 PROBABILITY AND STATISTICS 4 credits
Prerequisite: 3450/223 or equivalent. Probability, random variables, moments and generating functions, random vectors, special distributions, limit theorems, sampling, point estimation, hypothesis testing, confidence estimation.
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692 ADVANCED MATHEMATICAL STATISTICS 3 credits
Prerequisite: 651. Convergence of random variables, the Central Limit Theorem; theory of estimation; hypothesis testing; the multivariate normal density; introduction to linear models; Bayesian statistics.

695 LINEAR MODELS 3 credits
Prerequisites: 3452/392 and 651 or equivalent. General linear model in matrix notation, general linear hypothesis, regression models, experimental design models, analysis of variance and covariance, variance components.

698 ADVANCED STATISTICAL METHODS 4 credits
Prerequisite: 59280/60/561 or 564 or equivalent or permission. Theory and applications of the techniques of regression and multivariate analysis of variance.

663 EXPERIMENTAL DESIGN 3 credits
Prerequisite: 651/651 or equivalent or permission. Selected topics in experimental design including random and fixed effects, nested designs, split plot designs, confounding, fractional factors, Latin squares, and analysis of covariance.

664 STATISTICS FOR THE HEALTH SCIENCES 4 credits
(May not be used to meet degree requirements for mathematical sciences majors.) Prerequisite: college-level algebra or equivalent. Descriptive statistics, probability and probability distributions, tests of hypotheses and confidence intervals, nonparametric statistics, regression and correlation.

665 REGRESSION ANALYSIS 3 credits
Prerequisite: 651/651 or equivalent or permission. Correlation, simple and multiple linear regression: least squares, matrix notation, model building and checking estimation, hypothesis testing, outliers, influence, multicollinearity, transformations, categorical regressions; logistic regression.

666 NONPARAMETRIC STATISTICS-METHODS 3 credits
Prerequisite: 400/461/461 or 651 or equivalent or permission. Theory and practice using techniques requiring less restrictive assumptions. Nonparametric analogs to t- and F-tests, ANOVA, regression and correlation. Computer applications.

679 FACTOR ANALYSIS 3 credits
Prerequisite: 462/651 or 651 or 664 or equivalent or permission. Theory and techniques for identifying variables through use of principal components and factor analysis. Identification of groups and cluster analysis. Computer applications.

669 MULTIVARIATE STATISTICAL METHODS 2 credits
Prerequisite: 652/652 or 651 or 655 or equivalent or permission. Multivariate techniques including discriminant function, hostelling t2, multivariate ANOVA, regression, correlation, linear contracts, factor analysis, principal component analysis, nested and repeat measure designs, Bonferroni VI tests, linear discrimination analysis, canonical correlations, application.

670 BIOSTATISTICS 3 credits
Prerequisite: 652/651 or 651 or 655 or equivalent or permission. Statistical issues and methods for biological, medical and health sciences including clinical trials, sample size, power, log-linear models, survival analysis, and hypothesis. Computer applications.

679 RESPONSE SURFACE METHODOLOGY 3 credits
Prerequisite: 652/651 or 651 or 655 or equivalent or permission. Statistical issues and methods for biological, medical and health sciences including clinical trials, sample size, power, log-linear models, survival analysis, and hypothesis. Computer applications.

689 ADVANCED TOPICS IN STATISTICS 3-4 credits
 MAY be repeated for a total of 4 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 SEMINAR IN STATISTICS 3 credits
(May be repeated.) Prerequisite: permission of advisor. Seminar-type discussion of topics in statistics leading to supervised research project. No more than 2 credits apply to major requirements.

699 PRACTICUM IN STATISTICS AND MATHEMATICS 3 credits
Prerequisite: Graduate teaching assistant or permission. Training and experience in college teaching of statistics. May not be used to meet degree requirements. Credit/noncredit.

697 INDIVIDUAL READING 1-4 credits
(May be repeated for a total of four credits.) Prerequisite: Graduate standing. Directed studies in statistics under guidance of selected faculty member.

698 MASTER'S RESEARCH 1-8 credits
(May be repeated.) Prerequisite: permission of advisor. Research in suitable topics in statistics culminating in a research paper. No more than 2 credits applicable to major requirements.

699 MASTER'S THESIS 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:

790 ADVANCED SEMINAR IN APPLIED MATHEMATICS 1-3 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.

899 PRELIMINARY RESEARCH 1-15 credits
Prerequisite: Permission. (May be repeated.) Completion of qualifying examination and approval of Student Advisory Committee; Pre-requisite 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:

501 WORKSHOP 1-4 credits
Prerequisite: permission of instructor. (May be repeated for a maximum of eight credits.) Group studies of special topics in modern languages.

FRENCH 3520:

502 ADVANCED FRENCH GRAMMAR 3 credits
Prerequisite: 302 or equivalent. Advanced study of normative French grammar with emphasis on syntax, morphology, grammatical structure and stylistic principles.

5074 FRENCH LITERATURE OF THE MIDDLE AGES AND THE RENAISSANCE 4 credits
Prerequisite: 305 or 308 or equivalent. Reading and discussion of selected Medieval and Renaissance literary works. Conducted in French.

511 17TH CENTURY FRENCH LITERATURE 4 credits
Prerequisite: 305 or 306 or equivalent. Reading and discussion of selected works in poetry, prose, and novels. Conducted in French.

513 FRENCH CINEMA 3 credits
Prerequisite: 301 or 302 or 202 with permission of instructor. Study and discussion of various aspects of French culture as illustrated in movies.

515 18TH CENTURY FRENCH LITERATURE 4 credits
Prerequisite: 305 or 306 or equivalent. Reading and discussion of selected authors: emphasis on the Philosophes. Conducted in French.

517 19TH CENTURY FRENCH LITERATURE 4 credits
Prerequisite: 305 or 306 or equivalent. Reading and discussion of selected works pertaining to romantic, realistic and naturalistic movements. Conducted in French.

522 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS OR CULTURE OR LITERATURE 1-4 credits
Prerequisite: 302 or equivalent. (May be repeated.) Development of specialized language skills or study of significant works of literature or culture not studied in other courses.

527 20TH CENTURY FRENCH LITERATURE 4 credits
Prerequisite: 305 or 306 or equivalent. Reading and discussion of the most representative works of the period. Conducted in French.

560 SELECTED THEMES IN FRENCH LITERATURE 3 credits
(May be repeated.) Conducted in French. Prerequisite: 305 and 306 or equivalent. Reading and discussion of literary works selected according to an important theme.

597 INDIVIDUAL READING IN FRENCH 1-4 credits
Prerequisite: 302 and permission of the French section. Individual reading in French offered at the graduate level. (May be repeated for a total of eight credits.)

597 INDIVIDUAL READING IN GERMAN 1-4 credits each
Prerequisites: 202 and permission of Department Chair. Independent study and research in specific areas. Considerable reading and writing required.

GERMAN 3530:

522 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS, CULTURE, AND LITERATURE 1-4 credits
Prerequisites: 301 and graduate standing. Development of specialized language skills; advanced readings in German literature or culture. (May be repeated for a total of eight credits.)

597 INDIVIDUAL READING IN GERMAN 1-4 credits
Prerequisite: 301 and graduate standing. Individual reading in German, offered at the graduate level. (May be repeated for a total of eight credits.)

ITALIAN 3530:

597 INDIVIDUAL READING IN ITALIAN 1-4 credits
Prerequisites: graduate standing and permission of instructor and department chair. Individual study under guidance of professor who directs and coordinates student's reading and research.

SPANISH 3580:

506 SPANISH LINGUISTICS: PHONOLOGY 4 credits
Prerequisites: 202 or instructor permission. Descriptive study of Spanish phonetics and morphology, comparison of Spanish and English sounds, historical aspects, regional accents and sociolinguistic variation. Conducted in Spanish.

506 SPANISH LINGUISTICS: SYNTAX 4 credits
Prerequisite: 302 or instructor's permission. Descriptive study of Spanish syntax; introduction to topics of grammar, overview of Spanish semantics and pragmatics. Conducted in Spanish.

609 CULTURAL MANIFESTATION IN MEDIEVAL AND RENAISSANCE SPAIN 4 credits
Prerequisite: 407 or 408 or permission of instructor. Comparative study of representative artistic and literary works of the Medieval and Renaissance periods. Conducted in Spanish.

511 SPAIN DURING THE BAROQUE PERIOD 4 credits
Prerequisite: 407 or 408 or instructor's permission. A comparative study of the different cultural manifestations during the 17th century in Spain. Conducted in Spanish.

512 CERVANTES: DON QUIJOTE 4 credits
Prerequisite: 407 or 408 or permission of instructor. Reading and analysis of Don Quixote as the first modern novel in the historical context of Renaissance and Baroque aesthetics. Conducted in Spanish.

513 THE DON JUAN MYTH IN SPANISH CULTURE 4 credits
Prerequisite: 407 and 408 or permission of instructor. Study of the evolution of the Don Juan myth from its origins to its latest versions in the 20th century.

514 CULTURAL POLITICS IN THE RIVER PLATE 4 credits
Prerequisite: 407 and 408 or permission of instructor. Course will examine the military dictatorship of the seventies and eighties in Argentina and Uruguay by looking at how these regimes affect culture.

515 THE AGE OF REASON AND THE ROMANTIC REBELLION IN SPAIN 4 credits
Prerequisite: 407 or 408 or permission of instructor. Study of the Enlightenment and the Romantic movement as reflected in the works of the major artists and writers of these periods. Conducted in Spanish.

516 REPRESENTING REALITY IN 17TH CENTURY SPAIN 4 credits
Prerequisite: 407 or 408 or permission of instructor. A comparative study of the major literary and artistic movements in Spain from realism to Modernism. Conducted in Spanish.

517 18TH CENTURY SPAIN: THE ADVANTAGE IN LITERATURE AND ART 4 credits
Prerequisite: 407 or 408 or permission of instructor. A comparative study of the major literary and artistic movements in Spain which illustrate the primary cultural changes of the century. Conducted in Spanish.

519 THE SPANISH CIVIL WAR AND ITS CULTURAL IMPACT 4 credits
Prerequisite: 305 or permission of instructor. Study of the impact of the Civil War on Spanish culture.

522 SPECIAL TOPICS IN SPECIALIZED LANGUAGE SKILLS OR CULTURE OR LITERATURE 1-4 credits
Prerequisite: 302 or equivalent. (May be repeated.) Development of specialized language skills or reading of significant works of literature or culture not studied in other courses.

523 SPANISH-AMERICAN LITERATURE BEFORE 1900 4 credits
Prerequisite: 407 or 408 or permission. Reading of representative Spanish-American literature from the discovery to 1900. Oral and written reports. Conducted in Spanish.
<table>
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<tbody>
<tr>
<td>524</td>
<td>RACE AND ETHNICITY: INDIGENOUS CULTURES IN 20TH CENTURY SPANISH-AMERICA</td>
<td>4</td>
<td>Prerequisite: 407 or 408 or permission. Traces the diverse representations of indigenous cultures in literature. Takes into account the interactive forces of class, gender, race, and ethnicity. Conducted in Spanish.</td>
</tr>
<tr>
<td>525</td>
<td>20TH CENTURY SPANISH-AMERICAN NOVEL</td>
<td>4</td>
<td>Prerequisite: 407 or 408 or permission of instructor. Reading and discussion of representative contemporary Latin American fiction. Conducted in Spanish.</td>
</tr>
<tr>
<td>527</td>
<td>LATINO CULTURES IN THE USA</td>
<td>4</td>
<td>Prerequisites: 407 and 408 or permission of instructor. Inquiry into the Latino experience of displacement and marginality through the analysis of cultural manifestations in the USA. Conducted in Spanish.</td>
</tr>
<tr>
<td>530</td>
<td>WOMEN IN 20TH CENTURY HISPANIC LITERATURE</td>
<td>4</td>
<td>Prerequisite: 407 or 408 or permission. Reading and analysis of selected works from the 20th Century that depict women in Hispanic countries. Methodologies of feminist criticism will be studied. Conducted in Spanish.</td>
</tr>
<tr>
<td>531</td>
<td>HISPANIC CULTURE: SPAIN</td>
<td>4</td>
<td>Prerequisites: 302 or permission of instructor. Study of society, customs, history, art, music, etc. of Spain from a Hispanic perspective. Conducted in Spanish.</td>
</tr>
<tr>
<td>532</td>
<td>HISPANIC CULTURE: SOUTH AMERICA</td>
<td>4</td>
<td>Prerequisites: 302 or permission of instructor. Study of society, customs, history, art, music, etc. of South America, from a Hispanic perspective. Conducted in Spanish.</td>
</tr>
<tr>
<td>533</td>
<td>HISPANIC CULTURE: MEXICO AND CENTRAL AMERICA</td>
<td>4</td>
<td>Prerequisites: 302 or equivalent. Study of society, history, and culture of Mexico, Central America, and the Hispanic Caribbean, from a Hispanic perspective. Conducted in Spanish.</td>
</tr>
<tr>
<td>661</td>
<td>SPANISH TEACHING PRACTICUM</td>
<td>2</td>
<td>Prerequisite: teaching, assistantship or permission. 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.</td>
</tr>
<tr>
<td>667</td>
<td>997 INDEPENDENT READING IN SPANISH</td>
<td>1-4</td>
<td>Credits each Content of given individual reading program taken from course contests approved for graduate work in Spanish.</td>
</tr>
</tbody>
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**PHILOSOPHY**

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<tbody>
<tr>
<td>511</td>
<td>PLATO</td>
<td>3</td>
<td>Prerequisite: 211 or permission of instructor. Detailed study of the origin and development of Plato's Theory of Forms and the related theories of knowledge, ethics, and politics.</td>
</tr>
<tr>
<td>514</td>
<td>AQUNIAS</td>
<td>3</td>
<td>Prerequisite: one course in philosophy or permission of instructor. In an in-depth examination of the philosophy of St. Thomas Aquinas covering his contributions in metaphysics, epistemology, ethics, political theory, and philosophical theology.</td>
</tr>
<tr>
<td>515</td>
<td>AUGUSTINE</td>
<td>3</td>
<td>Prerequisite: one course in philosophy or permission of instructor. In an in-depth examination of the philosophy of St. Augustine covering his contributions in metaphysics, epistemology, ethics, political theory, and philosophical theology.</td>
</tr>
<tr>
<td>518</td>
<td>ANALYTIC PHILOSOPHY</td>
<td>3</td>
<td>Prerequisite: one course in philosophy or permission. Study of the work of contemporary analytical philosophers.</td>
</tr>
<tr>
<td>519</td>
<td>BRITISH EMPIRICISM</td>
<td>3</td>
<td>Prerequisites: one introductory course and 313 or permission of instructor. Introductory analysis of selected major writings of Locke, Berkeley, and Hume.</td>
</tr>
<tr>
<td>522</td>
<td>CONTINENTAL FAMILIARION</td>
<td>3</td>
<td>Prerequisites: one introductory course and 313, or permission of instructor. Introductory analysis of selected major writings of Descartes, Spinoza and Leibniz.</td>
</tr>
<tr>
<td>524</td>
<td>EXISTENTIALIST</td>
<td>3</td>
<td>Prerequisite: one introductory course in philosophy, 313, or permission of instructor. In-depth analysis of selected major writings of Dostoevsky, Sartre, and Camus.</td>
</tr>
<tr>
<td>526</td>
<td>PHENOMENOLOGY</td>
<td>3</td>
<td>Prerequisite: one introductory course in philosophy, 313, or permission of instructor. In-depth analysis of selected major writings of Husserl and Heidegger and their influence upon European and American thought.</td>
</tr>
<tr>
<td>532</td>
<td>ARISTOTLE</td>
<td>3</td>
<td>Prerequisite: 211 or permission of instructor. Detailed study of Aristotle's metaphysics, including the nature of knowledge, ethics.</td>
</tr>
<tr>
<td>534</td>
<td>KANT</td>
<td>3</td>
<td>Prerequisite: 313 or permission of instructor. Study of Kant's system of thought and its relation to history of philosophy. Includes thorough investigation of one or more of Kant's philosophical works.</td>
</tr>
<tr>
<td>542</td>
<td>THEORY OF KNOWLEDGE</td>
<td>2</td>
<td>Prerequisite: one course in philosophy or permission of instructor. Examination of nature of knowledge, theories of perception, conception and truth, problem of induction and relation of language to knowledge.</td>
</tr>
<tr>
<td>546</td>
<td>PHILOSOPHY OF SCIENCE</td>
<td>2</td>
<td>Prerequisites: 101, 170 or permission of instructor. Nature of scientific inquiry, types of explanations, laws and causality, theoretical concepts and reality. Also considers cri ses of hypothetico-deductive view of science, e.g., Hanson and Kuhn.</td>
</tr>
<tr>
<td>571</td>
<td>METAPHYSICS</td>
<td>3</td>
<td>Prerequisite: one course in philosophy or permission of instructor. Theories about ultimate nature and ultimate explanation of reality. Uses readings from classical and contemporary metaphysics.</td>
</tr>
<tr>
<td>580</td>
<td>SEMINAR</td>
<td>3</td>
<td>May be repeated Prerequisite: permission of instructor.</td>
</tr>
<tr>
<td>581</td>
<td>PHILOSOPHY OF LANGUAGE</td>
<td>3</td>
<td>Prerequisites: 101 and 170 or permission of instructor. Contemporary philosophical issues about nature of language and its relation to reality and human thinking. Includes discussion of views of linguists such as Chomsky.</td>
</tr>
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</table>

**PHYSICS**

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<tr>
<td>500</td>
<td>HISTORY OF PHYSICS</td>
<td>3</td>
<td>Prerequisite: 262 or 292. Study of origin and evolution of major principles and concepts characterizing contemporary physics.</td>
</tr>
</tbody>
</table>
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572 CAMPAIGN FINANCE
Prerequisite: permission. Reading and research in financial decision making in political campaigns.

573 VOTER CONTACT AND ELECTIONS
Prerequisite: permission. Theoretical and practical approaches to winning votes in all types of political campaigns.

574 POLITICAL OPINION, BEHAVIOR AND ELECTORAL POLITICS
Prerequisite: 100 or 201 or permission. Advanced analysis of psychological, cultural and group processes of opinion formation and change. Attention given to the effect of opinion change on current electoral outcomes.

575 AMERICAN INTEREST GROUPS
Prerequisite: six credits of political science or permission. Reading and research on the development, structure and function of interest groups in the United States.

576 AMERICAN POLITICAL PARTIES
Prerequisite: six credits of political science or permission. Reading and research on the development, structure and function of parties in the United States.

580 POLICY PROBLEMS
(May be repeated for a total of six credits) Prerequisite: 201 or permission. Intensive study of selected problems in political policy-making.

581 TECHNIQUES OF POLICING
Prerequisite: 100. 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 (CU TOPIC)
Prerequisite: 100. Study and critical analysis of current issues, programs, and policies relating to political science and criminal justice at the federal or state level.

583 CONSTITUTIONAL PROBLEMS IN CRIMINAL JUSTICE
Prerequisite: 100. Analysis of Supreme Court policy-making regarding problems of constitutional justice, including search and seizure, self-incrimination, right to counsel, jury selection, and post-conviction prisoner rights.

585 WORKSHOP IN POLITICAL SCIENCE
(May be repeated for a total of nine credits) Prerequisite: six credits of political science. Time-limited workshops on varying subjects to meet the needs of political science majors.

586 SCOPE AND THEORIES OF POLITICAL SCIENCE
Prerequisite: six credits of political science or permission. Introduction to the scope and content of political theory; theory construction and validation in political science.

610 RESEARCH METHODS IN POLITICAL SCIENCE
Prerequisite: six credits of political science or permission. Examination of methodological, conceptual, and critical analysis of current research in political science.

611 SEMINAR IN INTERNATIONAL POLITICS
Prerequisite: six credits of political science or permission. Analysis of current problems in the theory and practice of diplomacy and organization.

612 SEMINAR IN COMPARATIVE POLITICS
Prerequisite: six credits of political science or permission. Research selected topics in comparative politics. Comparative method.

622 SEMINAR IN ALTERNATIVES TO VIOLENCE AT HOME AND ABROAD
Prerequisite: six credits of political science or permission. Examination of how civilians can contribute to reducing violence and other threats to liberty.

623 SEMINAR IN POLITICS OF DEVELOPING NATIONS
Prerequisite: six credits of political science or permission. Selected topics investigated.

624 SEMINAR IN NATIONAL POLITICS
Prerequisite: six credits of political science or permission. Reading and research on the development, structure and function of national policy in one or more areas of contemporary significance.

625 SEMINAR ON LAW, PUNISHMENT, AND POLITICS: U.S. AND THE WORLD
Prerequisite: six credits of political science or permission. Reading and research on the study of the legal and political systems, legal and political processes, and their interaction in the world system.

626 SEMINAR IN PUBLIC POLICY AGENDAS AND DECISIONS
Prerequisite: six credits of political science or permission. Reading and research on the development of public policy issues and models of decision making used by policy-makers.

627 SEMINAR: POLITICAL INFLUENCE AND ORGANIZATIONS
Prerequisite: six credits of political science or permission. Examination of how public servants and demands are resolved or diffused. A theoretical and applied look at parties, interest groups, public opinion media, and protest.

629 SPECIAL TOPICS IN POLITICAL SCIENCE
Prerequisite: six credits of political science or permission. Graduate-level examination of selected topics in American politics, comparative politics, international politics, or political theory.

630 INTERNSHIP IN GOVERNMENT AND POLITICS
(May be repeated for a total of six credits) Prerequisite: Permission of advisor. Supervised individual placement with political office holders, party groups, governmental agencies, law firms and other organizations providing professional level work.

690 TOPICS IN MASTER'S RESEARCH
Prerequisite: permission. A topic selected by the student (May be repeated for a total of nine credits). No more than six credits may be applied to degree requirements.

691 INDEPENDENT RESEARCH AND READINGS
Prerequisite: permission. (May be repeated, but no more than six credits toward the master's degree in political science)

692 MASTER'S THESIS
2-6 credits

511 POLITICAL SCIENCE 3700:

902 POLITICS AND THE MEDIA
Examining the relationship between the press, the news media and political decision makers.

905 POLITICS IN THE MIDDLE EAST
The role of the state in the Middle East after World War II; an analysis of the social-cultural, ideological forces influencing the political behavior of the people of the Middle East.

910 INTERNATIONAL SECURITY POLICY
Prerequisite: At least one of the following: 220, 330, 340, 340A, 350, 407, 408, or permission. Introduction to the study of selected topics in international politics.

916 GLOBAL ENVIRONMENTAL POLITICS
Prerequisite: 310, 310, or permission of instructor. Examination of the global environmental challenge, including the roles played by technology and the structure of the world system.

917 COMPARATIVE FOREIGN POLICY
Prerequisite: 310 or permission of instructor. Study of foreign policies of selected nations, with special attention to theories and instruments of decision making of the major powers.

940 SURVEY RESEARCH METHODS
Prerequisite: 100 or permission of instructor. Study of the survey research methods as applied to the analysis of public opinion, political behavior and public policy formation.

941 THE POLICY PROCESS
Prerequisite: 100 or permission of instructor. Examination of the policy-making processes emphasizing various individuals and groups.

942 METHODS OF POLICY ANALYSIS
Prerequisite: 201. Examination of the various methods available for analyzing public policy and their techniques. Theoretical models and policy analysis techniques.

943 POLITICAL SCANDALS AND CORRUPTION
This course will provide information on major political scandals, including media coverage, public opinion, the role of special prosecutors, and the impact of scandals.

950 POLITICS OF CORRECTIONS
Prerequisite: 100. The course examines the political dynamics of correctional institutions, governance and internal power relations, electoral politics and correctional policies, and political power and control.

961 THE SUPREME COURT AND CONSTITUTIONAL LAW
Prerequisite: 100 or permission of instructor. The Constitution of the United States of America as interpreted by the United States Supreme Court and its implications for governmental power.

962 THE SUPREME COURT AND CIVIL LIBERTIES
Prerequisite: 100 or permission of instructor. The Constitution of the United States of America as interpreted by the Supreme Court and its implications for freedom of speech and press, freedom of religion, criminal rights and the right to privacy.

970 CAMPAIGN MANAGEMENT I
Prerequisite: permission. Theoretical and practical approaches to campaign management.

971 CAMPAIGN MANAGEMENT II
Prerequisite: 4705/70. The second course in campaign management. Focus is on tactics for Winning elections, skill development, internal organization, and external organizations of campaign strategy.

972 CAMPAIGN FINANCE
Prerequisite: permission. Reading and research in financial decision making in political campaigns.

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Prerequisite: 100 or 201. Financial decision making in political campaigns.

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Prerequisite: six credits of political science or permission. Introduction to the scope and content of political theory; theory construction and validation in political science.

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Prerequisite: six credits of political science or permission. Analysis of current problems in the theory and practice of diplomacy and organization.

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Prerequisite: six credits of political science or permission. Examination of how civilians can contribute to reducing violence and other threats to liberty.

993 SEMINAR IN POLITICS OF DEVELOPING NATIONS
Prerequisite: six credits of political science or permission. Selected topics investigated.

994 SEMINAR IN NATIONAL POLITICS
Prerequisite: six credits of political science or permission. Reading and research on the development, structure and function of national policy in one or more areas of contemporary significance.

995 SEMINAR ON LAW, PUNISHMENT, AND POLITICS: U.S. AND THE WORLD
Prerequisite: six credits of political science or permission. Reading and research on the multiple and contingent interconnections between law, punishment, politics, and power.

996 SEMINAR IN PUBLIC POLICY AGENDAS AND DECISIONS
Prerequisite: six credits of political science or permission. Reading and research on the development of public policy issues and models of decision making used by policy-makers.

997 SEMINAR: POLITICAL INFLUENCE AND ORGANIZATIONS
Prerequisite: six credits of political science or permission. Examination of how public servants and demands are resolved or diffused. A theoretical and applied look at parties, interest groups, public opinion media, and protest.

999 SPECIAL TOPICS IN POLITICAL SCIENCE
Prerequisite: six credits of political science or permission. Graduate-level examination of selected topics in American politics, comparative politics, international politics or political theory.

510 PSYCHOLOGY 3750:

500 PERSONALITY
Prerequisite: admission to the Graduate School. Consideration of current conceptualizations of the normal personality with emphasis on methods of measurement and experimental findings.

510 PSYCHOLOGICAL TESTS AND MEASUREMENTS
Prerequisite: admission to the Graduate School. Consideration of the nature, construction and use of tests and measurements in industry, government and education. Includes aptitude and achievement tests, rating 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 arising from transient maladjustments to psychoses.

530 PSYCHOLOGICAL DISORDERS OF CHILDREN 4 credits
Prerequisite: admission to the Graduate School. Survey of syndromes, etiological determinants 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. The 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. The application of psychological theory to major processes in organizations, including leadership, motivation, team performance, organizational theories and development.

545 PSYCHOLOGY OF SMALL GROUP BEHAVIOR 4 credits
Prerequisite: admission to the Graduate School. Intensive investigation of factors influencing group behavior and performance in small groups including effects of personality, social structures, task situations and social-cognitive variables.

590 WORKSHOP IN PSYCHOLOGY 1-4 credits
Prerequisite: admission to the Graduate School. May be repeated. May not be used to meet undergraduate or graduate major requirements in psychology. Group studies of special topics in psychology.

601/PSYCHOLOGICAL RESEARCH USING QUANTITATIVE AND COMPUTER METHODS I AND II 4 credits each
Prerequisite: graduate standing in psychology. Sequential course. Prerequisite: graduate standing in psychology or the collaborative doctoral program in counseling psychology or special graduate students with permission. Psychological research. Problem solving, computer and measurement methods. Topics include scale design, sampling, controls, threats to validity, hypothesis testing, psychological measurement, error, and data analysis.

610 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 theory on the psychological processes related to interpersonal behavior, focusing on topics like attitude change, social influence, and behavior pattern.

620 CORE II: COGNITIVE PSYCHOLOGY 2 credits
Prerequisite: graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Survey of theories, concepts, empirical phenomena, and methodological issues in human cognitive psychology. Topics include sensation, perception, memory, learning, reasoning, categorization, skill acquisition, expertise, and training effectiveness.

630 INDIVIDUAL DIFFERENCES 2 credits
Prerequisite: graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Survey of theoretical perspectives on individual differences in personality and behavior and of literature on between- and within-group cultural variables influencing personality development and assessment.

640 CORE IV: BIOPSYCHOLOGY 2 credits
Prerequisite: graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Survey of nervous system structure/function including neuroanatomy, neuron function, and synaptic transmission. Also: overview of biological topics of learning, memory, consciousness, intelligence, psychopharmacology: behavior genetics.

650 CORE V: SOCIAL-COGNITIVE PSYCHOLOGY 2 credits
Prerequisite: graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Social and cognitive theory/research applied to the issues of how people perceive, think about, and interact with social environments. Topics include person perception, attribution, social cognition, and social influence.

660 ADVANCED INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY 4 credits
Prerequisite: graduate standing in psychology or permission of instructor. An advanced survey of industrial and organizational psychology which involves the application of psychological principles to the work place.

672 COUNSELING PRACTICUM 2 credits
Prerequisites: graduate standing in psychology and permission of instructor. Introduction to and development of therapeutic skills and intervention techniques via instruction, role-play exercises, and case conference evaluations of actual clinical work samples. (May be repeated for a total of 6 credits.) Credit/No Credit.

673 COUNSELING PRACTICUM II 2 credits
Prerequisite: 672. Graduate standing in psychology and "Instructor's permission.

674 COUNSELING PRACTICUM III 2 credits
Prerequisite: 673. Application of therapeutic skills and intervention techniques to work with clients at the Psychology Department Counseling Clinic, including small group supervision of practice. (May be repeated for a total of 4 credits.) Credit/No Credit.

701 PERSONNEL PRACTICUM 1-4 credits
(May be repeated.) Prerequisites: 660, graduate standing in psychology, 14 credits of graduate 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/No Credit.

702 APPLIED COGNITIVE AGING PRACTICUM 1-4 credits
May be repeated. Prerequisites: 727, graduate standing in psychology, 14 credits of graduate psychology, and permission of the instructor. Supervised field experience in the application of cognitive aging psychology to provide the student with the opportunity to apply skills and knowledge acquired in the classroom to actual community psychology programs and agencies which focus on developmental processes. Credit/No Credit.

703 EXTERNAL SPECIAL TOPICS 1-18 credits
May be repeated for a maximum of 18 credits. Prerequisite: permission of area chair. Graduate coursework taken at Kent State, Youngstown State, and/or Cleveland State universities to apply toward a 72 credit degree either as a required or an elective course.

704 MASTER'S DISSERTATION 1-4 credits
(May be repeated.) Prerequisite: permission of the instructor. Research analysis of data and preparation of thesis for master's degree.

705 SURVEY OF PROJECTIVE TECHNIQUES 4 credits
Prerequisite: 630 or instructor's permission. Introduction to rationale, assumptions and ethics of use of projective techniques. Supervised field experience in the interpretation of Rorschach and survey of other important contemporary projective instruments.

706 PSYCHODIAGNOSTICS 4 credits
Prerequisite: 700. Application of psychological testing to problems of diagnosis and evaluation. Practical experience in administration, scoring and interpretation. Integration of projective data with other assessment techniques in varying settings.

707 PRACTICUM IN COUNSELING 4 credits
Prerequisite: doctoral standing or permission of instructor. Internship and experience in supervising a graduate student in counseling.

708 THEORIES OF COUNSELING AND PSYCHOTHERAPY 4 credits
Prerequisite: 630 or permission of the instructor. Major systems of individual psychodynamics explored within a philosophy of science framework. Freudian, behavioral, Rogerian, cognitive and other models. Emphasis on research, contemporary problems and ethics.

709 VOCATIONAL BEHAVIOR 4 credits
Prerequisite: 630 or permission of instructor. Theories and research on vocational behavior and occupational counseling. Topics include major theories of vocational behavior, historical research on these theories, applied work in vocational counseling and applied research.

710 PRINCIPLES AND PRACTICE OF 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.

711 PROFESSIONAL, ETHICAL AND LEGAL ISSUES IN COUNSELING PSYCHOLOGY 4 credits
Prerequisite: doctorate standing or permission of the instructor. Examination of major issues in the field such as code of ethics as a professional and as a person, issues, problems and trends in counseling.

712 OBJECTIVE PERSONALITY EVALUATION 4 credits
Prerequisite: completion of either 600, 400/500, and 560/560. Study of major theories, assessment tasks. Scoring and interpretation of objective instruments for personality assessment (MMPI, CPI, MBTI, SFPP and selected additional inventories.

713 RESEARCH DESIGN IN COUNSELING 1-3 credits
Prerequisite: doctoral standing or permission of the instructor. Study of research designs, evaluation procedures, and review of current literature.

714 ISSUES OF DIVERSITY IN COUNSELING PSYCHOLOGY 4 credits
Prerequisite: 630, one semester of psychology coursework. Critical examination and application of research and theory in counseling diverse populations, focusing on race/ethnicity, gender, sexual orientation, age, diversity perspectives, and multicultural competence.

715 HISTORY AND SYSTEMS IN PSYCHOLOGY 2 credits
Prerequisite: 630. Philosophical and scientific antecedents of psychology and details of the development of systematic viewpoints in the 19th and 20th centuries.

716 INTRODUCTION TO ADULTHOOD AND AGING 4 credits
Prerequisite: graduate standing in psychology or permission of the instructor. Aspects of development, aging with emphasis on life-span methodology and research design including age-related changes in intelligence, personality, sensation, perception, learning, memory, and socialization and intervention approaches.

717 APPLIED COGNITIVE AGING PSYCHOLOGY: SOCIAL DEVELOPMENT 4 credits
Prerequisite: 727, graduate standing in psychology, or permission of instructor. Study of factors influencing social development in the later years. Topics to be covered include: social support networks, loneliness, self-esteem and aging.

718 APPLIED COGNITIVE AGING PSYCHOLOGY: INFORMATION PROCESSING 4 credits
Prerequisite: 727, graduate standing in psychology, or permission of instructor. Perception, learning, motivation, attention, and problem solving in adulthood and their effects on areas such as environmental design, mobility, independence, neuropsychological assessment, and skill performance.

719 APPLIED COGNITIVE AGING PSYCHOLOGY: HIGHER ORDER PROBLEM SOLVING 4 credits
Prerequisite: 727, graduate standing in psychology, or permission of instructor. Memory, development, decision processes, intelligence, and knowledge, and their relation to everyday functioning in areas such as decision-making, communication, judgment, awareness, expertise, wisdom, and creativity.

720 APPLIED COGNITIVE AGING PSYCHOLOGY RESEARCH 4 credits
Prerequisite: 727, graduate standing in psychology, or permission of instructor. Intensive reading in selected content area; design and conduct of a complete research study. (May be repeated.)

721 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.

722 APPLIED DEVELOPMENTAL PSYCHOLOGY 4 credits
Prerequisites: 727, graduate standing in psychology, or permission of instructor. Examination of methodologies, evaluation, child abuse, early intervention, day care, kibbutzim, social networks, subcultural variations, and sociopolitical factors influencing personality development and assessment.

723 INDUSTRIAL GERONTOLOGY 4 credits
Prerequisites: 660, graduate standing in psychology, or permission of instructor. Study of age-related issues in work involving adult and older adult workers. Topics include personal selection, training, motivation and supervision among older employees; health and safety, job design, vocational guidance, and retirement.

724 ADVANCED PSYCHOLOGICAL TESTS AND MEASUREMENTS 4 credits
Prerequisites: 727, graduate standing in psychology, or permission of the instructor. Application of statistical analysis and test construction techniques and statistical analyses of tests with a review of published tests and measurements used in psychology. Study of psychometric theory and principles.

725 ORGANIZATIONAL PSYCHOLOGY 4 credits
Prerequisites: 660, graduate standing in psychology, or permission of the instructor. Analysis of the general systems theory framework to the study of the relationships between organizational characteristics and human behavior. "The internal processes of organizations, and the relationships between organizations and their environment.

726 PERSONNEL SELECTION AND PERFORMANCE EVALUATION 4 credits
Prerequisites: 660, graduate standing in psychology, or permission of the instructor. Review of strategies employed by industrial/organizational psychologists for personnel selection, placement and promotion. Traditional and objective criteria used in performance evaluation including test validation and training effectiveness.

727 TRAINING 2 credits
Prerequisites: 660, graduate standing in psychology, or permission of the instructor. Review of training models and programs in terms of various theoretical orientations, as well as consideration of techniques to evaluate these programs.
RESOURCES METHODOLOGY IN PSYCHOLOGY 2-4 credits
Prerequisites: 660, graduate standing in psychology or permission of instructor. Scientific method will be used to research topics. Includes: research design, methods, analysis, and interpretation of data.

COMPUTER APPLICATIONS IN PSYCHOLOGICAL RESEARCH 4 credits
Prerequisites: Graduate standing in psychology or permission of instructor. Practice application of computers to psychological research including data collection, analysis, and interpretation. Emphasis on user-specified simulation of decision making including use of different models.

ROLE OF ATTITUDES AND VALUES IN INDUSTRIAL/Organizational Psychology 4 credits
Prerequisites: 660, graduate standing in psychology, or permission of instructor. Consideration of the role of attitudes and values in the prediction of behavior including concept of occupational psychology, explaining attitude change, measurement of attitudes and the use of survey methodology.

ORGANIZATIONAL MOTIVATION AND LEADERSHIP 4 credits
Prerequisites: 660, graduate standing in psychology, or permission of instructor. Survey of theories of motivation specifying both the intrinsic and extrinsic determinant of worker motivation. The leadership process and its relation to motivation, group performance and attributions is also analyzed.

JOB EVALUATION AND EQUAL PAY 4 credits
Prerequisite: 660. Major job evaluation systems will be reviewed and critiqued. Issues such as minimum qualifications for a job will be reviewed. Advantages and disadvantages of various job evaluation systems will be compared. Issues concerning federal regulation including the Equal Pay Act, comparable worth and other issues will be discussed. Regression analysis will be used to job evaluation and applicable court cases will be reviewed.

ORGANIZATIONAL CHANGE AND TRANSFORMATION 4 credits
Prerequisites: 660 or permission of instructor. Survey of theories and introduction to practical methods of organizational change and transformation used to increase organizational effectiveness and improve employee quality of work life.

INFORMATION PROCESSING AND INDUSTRIAL/Organizational Psychology 4 credits
Prerequisites: 660, Graduate standing in psychology. Cognitive processes used in psychology is applied to traditional concerns of industrial/organizational psychology such as performance appraisal or motivation.

PERSONNEL PSYCHOLOGY AND THE LAW 4 credits
Prerequisite: 660. Issues in personnel psychology which have legal implications are reviewed. The impact of recent court decisions are evaluated in staffing and compensation.

GRADUATE SEMINAR IN INDUSTRIAL/Organizational Psychology 4 credits (May be repeated).
Prerequisite: graduate standing in psychology and permission of the instructor. Special topics in psychology.

ADVANCED COUNSELING PSYCHOLOGY 4 credits (May be repeated).
Prerequisites: 671, 672, 673 and permission of instructor. This course provide graduate students in counseling with actual client contacts and supervisory experiences under faculty supervision. Credit/No credit.

COUNSELING PSYCHOLOGY PRACTICUM 4 credits (May be repeated)
Prerequisite: 796 (three or four credits) or 5600:675 (five hours). Advanced counseling psychology students will have supervised training in clients in a variety of settings and will focus on supervision development of specialized theoretical applications. Credit/No credit.

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.

DOCTORAL DISSERTATION 1-2 credits
Prerequisite: open to properly qualified students. Required minimum 12 credits; maximum subject to departmental approval. Supervised research on topic deemed suitable by the dissertation committee.

SOCIAL STRUCTURES AND PERSONALITY 3 credits
Prerequisite: 100 or permission. Interpersonal relationships between position in society, personal characteristics. Personality treated as both result and determinant of structural changes. Lecture.

SOCIAL INTERACTION 3 credits
Prerequisite: 100 or permission. Theoretical and empirical analyses of process by which infant, child, adolescent and adult learn social and cultural requirements necessary to function in new roles, changing rules and society in general.

SOCIOLOGY OF WOMEN 3 credits
Prerequisite: 100 or permission. Examination of research and theories pertaining to women's status in society, including economic conditions, the relationship between gender and experience, and other gender-related issues.

SOCIOLOGY OF URBAN LIFE 3 credits
Prerequisite: 100 or permission. Emergence and development of urban society. Examination of urban social structure from a variety of perspectives emphasizing both historical and contemporary issues. Lecture.

THE VICTIM IN SOCIETY 3 credits
Prerequisite: 100 or permission of instructor. Study of the nature, causes, and consequences of victimization with special focus on crime victimization.

CHRONIC ILLNESS 3 credits
Prerequisite: 100 or permission of instructor. Analysis of social structure and process from which chronic illness develops. Emphasis on current and past research. Lecture/Seminar.

CORRECTIONS 3 credits
Prerequisites: 120 or 420, Social work, theory and practice principles of community and institutional correction systems, including past and present social research. Course taken prior to 3 credit hour Field Placement in Corrections (380.471).

SOCIOLOGY OF DEVIANT BEHAVIOR 3 credits
Prerequisite: 100 or permission of instructor. Analysis of social structure, processes, and social control of deviant behavior. Lecture.

SOCIOLOGY OF LAW 3 credits
Prerequisites: 100 and at least six additional credits of sociology courses or permission. Social organization and consequences of law and legal processes. Emphasis on use of law, social change and aspects of legal professions. Lecture.

SOCIAL ISSUES IN AGING 3 credits
Prerequisite: 100 or permission. A look into the major issues and problems facing older persons. Special attention is given to the unique needs of the elderly as well as an examination of long-term care. Also covers success policy and programs to meet these needs.

SOCIOLOGY OF MENTAL ILLNESS 3 credits
Prerequisite: 100 or permission. The social history of the mental hospital, theories and epidemiology of mental illness, community-based treatment models, the organization of mental health services, the role of personal social networks and mutual support groups.

FAMILY VIOLENCE 3 credits
Prerequisite: 100. Family violence with a focus on child abuse, spousal violence, sexual assault and elder abuse. Theories, methodologies, and strategies to end family violence are explored.

SOCIOLOGICAL THEORY 3 credits
Prerequisite: 100 or permission. An overview and examination of theoretical issues in sociology, through the study of both classical and contemporary theoretical works.

RESEARCH ON A TOPIC UNDER SUPERVISION 3 credits
Prerequisite: 100. Research on a topic under supervision of faculty member with whom specific arrangements have been made. (May be repeated.) Prerequisite: permission of the instructor. Required minimum 12 credits; maximum 72435 Seminar.

SOCIAL PSYCHOLOGY 3 credits
Prerequisite: 100. Scientific examination of the relationship between social processes and psychological phenomena. (Same as KSU 72430 Seminar).

PERSONALITY AND SOCIAL SYSTEMS 3 credits
Prerequisite: 100. Examination of contemporary theory and research on behavior and understanding the role of social status, and social class in the prediction of behavior and understanding decision making. Social class and occupations and sex roles. (Same as KSU 72433 Seminar).

SOCIOLOGY OF GENDER 3 credits
Prerequisite: 100 or 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.

SOCIAL ORGANIZATION 3 credits
General survey of major theories, concepts and problems pertaining to creation, alteration and dissolution of social organization at various levels of size and complexity. (Same as KSU 72540 Seminar).

SOCIAL INEQUALITIES 3 credits
Prerequisite: permission. Seminar dealing with social class and caste with special reference to American social structure. (Same as KSU 72546 Seminar).

COMPLEX ORGANIZATIONS 3 credits
Prerequisite: permission. Organizations and social systems, their effect on individuals. Problems faced by professionals in bureaucracies. (Same as KSU 72548 Seminar).

SOCIOLOGY OF WORK 3 credits
Prerequisite: permission. Examination of work as both independent variables and as both independent and dependent variables. Significance of occupations, professional and work types in organization of work. (Same as KSU 72542 Seminar).

SEMINAR IN RACE RELATIONS 3 credits
Prerequisite: permission. Analysis of the structure and dynamics of race and ethnic relations with attention given to both historical and contemporary issues. (Same as KSU 72587 Seminar).

SOCIOLOGY OF HEALTH CARE 3 credits
Prerequisite: permission of instructor. A general survey of the field of medical sociology with special emphasis on analysis of health and health care in the contemporary urban United States. (Same as KSU 72523).

URBAN HEALTH CARE 3 credits
Prerequisite: permission. Relationships between urban social structures and processes and organization and functioning of health-care delivery systems in urbanized nations. Seminar.

DEViance 3 credits
Prerequisite: permission. Examination of nature and type of deviance. Problems and issues in theory and research. (Same as KSU 72760 Seminar).

SOCIOLOGY OF CRIMINAL BEHAVIOR 3 credits
Prerequisite: permission. Examination of the nature of crime and delinquency. Social structure to social processes. Responses by criminal justice agencies. Seminar.

JUVENILE DELINQUENCY: THEORY AND RESEARCH 3 credits
Prerequisite: permission. Analysis of theories of delinquency, ecological, class, structural, sub-structural, etc. Review of relevant research also presented. Seminar.

SOCIOLOGY OF CORRECTIONS 3 credits
Prerequisite: permission. Analysis of correctional institutions as social systems, formal structures and informal dynamics. Analysis of present state of research. Seminar.

FAMILY ANALYSIS 3 credits
Prerequisite: permission. Analysis and evaluation of sociological theory and research in the family. Concentration on techniques of theory construction and research design in sociological study of the family. Seminar. (Same as KSU 72543 Seminar).

SOCIAL GERONTOLOGY 3 credits
Prerequisite: permission. Impact of aging upon individuals and society. Reactions of individuals and society to aging. (Same as KSU 72687 Seminar).
PUBLIC ADMINISTRATION AND URBAN STUDIES

590 WORKSHOP (1-3 credits) May be repeated Group studies of special topics in urban studies. May not be used to meet graduate major requirements in urban studies. May be used for elective credit only.

600 BASIC QUANTITATIVE RESEARCH (3 credits) Prerequisite: permission. Examines the basic framework of social science research methodologies and basic complementary statistical techniques, including probability and sampling.

601 ADVANCED RESEARCH AND STATISTICAL METHODS (3 credits) Prerequisites: 600. Extends study of social science to include advanced research designs and multivariate statistical techniques.

602 HISTORY OF URBAN DEVELOPMENT (3 credits) Examination of major literature on processes of urbanization in United States and selected facets of urban institutional development.

610 LEGAL FOUNDATIONS OF PUBLIC ADMINISTRATION (3 credits) Prerequisites: Permission. Introduction to the legal foundations and context of public administration, including the interaction of the courts, public organizations, public administration and the public.

611 INTRODUCTION TO THE PROFESSION OF PUBLIC ADMINISTRATION (3 credits) Prerequisite: permission. Examines the theory and practice of the field of public administration.

614 ETHICS AND PUBLIC SERVICE (3 credits) Prerequisite: permission. Examination of the ethical problems and implications of public service, and policies made by those whose actions impact on the broad public. Case studies of decision making in both the public (government) and private (business and the professions) sphere are studied in relation to classical literature in ethical theory.

615 PUBLIC ORGANIZATION THEORY (3 credits) Prerequisites: 611 and 610 or equivalent. Examines the development of public organizational theory and the current status of theoretical and methodological progress.

616 PERSONNEL MANAGEMENT IN THE PUBLIC SECTOR (3 credits) Fundamental principles and public-sector personnel administration, including recruitment, selection, training, motivation, supervision, evaluation, labor relations and affirmative action.

617 LEADERSHIP AND DECISION-MAKING (3 credits) Examines the context of public organizational management including relevant organizational theories, strategic management and planning and public service leadership.

618 CITIZEN PARTICIPATION (3 credits) The fundamental theory, background, techniques, and issues of public participation in the urban policymaking.

619 COMMUNITY ORGANIZING (3 credits) Prerequisites: permission. Examines the field of intergovernmental relations as it applies to urban administration and management.

620 SOCIAL SERVICES PLANNING (3 credits) Prerequisites: 611 and 610 or equivalent. Examines the theoretical developments in public social services planning.

621 URBAN SOCIETY AND SERVICE SYSTEMS (3 credits) Prerequisites: Permission. Analysis of urban communities and the social problems, relationships to planning, public services, and public policy.

622 CIVIL SERVICE PLANNING AND PUBLIC POLICY (3 credits) Prerequisites: 611 and 610 or equivalent. Examines the public service delivery system as it applies to public administration in the federal, state, and local levels.

623 PUBLIC WORKS ADMINISTRATION (3 credits) Prerequisites: Permission. Examines the public sector's role in urban services, urban growth and development.

624 EMERGENCY MANAGEMENT POLICY IMPLEMENTATION AND ANALYSIS (3 credits) Prerequisites: Permission. Examines the implementation of emergency management policies at the local, state, and federal levels. Examines the theory and practice of public policy analysis.

625 STRATEGIC PERSPECTIVES IN EMERGENCY MANAGEMENT (3 credits) Prerequisites: Permission. Examines the development of strategies for emergency management.

626 GRANTSMANSHIP (3 credits) Prerequisites: Permission. Examines the role of grants in urban management.

628 URBAN ECONOMIC GROWTH AND DEVELOPMENT (3 credits) Prerequisites: Permission. Examines the role of economic growth and development in urban areas.

640 PUBLIC SECTOR FUND MANAGEMENT (3 credits) Prerequisite: Permission. Examines the role of public sector fund management in urban areas.

650 COMPARATIVE URBAN SYSTEMS (3 credits) Prerequisite: Permission. Examines the role of comparative urban systems in the world.
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<td>563</td>
<td>Pollution Control</td>
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<td>570</td>
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<td>Support Phenomena</td>
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### Engineering

**CHEMICAL ENGINEERING (4200):**

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<td>521</td>
<td>Fundamentals of Multiphase Transport Phenomena</td>
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<td>Process Analysis and Control</td>
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<td>561</td>
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<td>Support Phenomena</td>
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</table>
609 CHEMICAL REACTION ENGINEERING
Prequisite: 330 or permission. Kinetics of homogeneous and heterogeneous systems. Reactor design for ideal and non-ideal flow systems. 3 credits

610 CLASSICAL THERMODYNAMICS
Prerequisite: 250. Conventional view of thermodynamics and their application. The state of the system and the process; equilibrium, state and reaction equilibrium. 3 credits

611 SURFACE SCIENCE IN CHEMICAL ENGINEERING
Prerequisite: permission of instructor. This course emphasizes the basic concepts of surface science (adsorption, surface chemistry, interfacial science). 3 credits

621 BIOCHEMICAL ENGINEERING
Prerequisite: 250. Conventional view of biochemical engineering. 3 credits

622 CHEMICAL PROCESS DYNAMICS
Prerequisite: 250. Chemical equilibrium and phase equilibrium. 3 credits

631 CLASSICAL THERMODYNAMICS
Prerequisite: 250. Chemical equilibrium and phase equilibrium. 3 credits

632 NONLINEAR DYNAMICS AND CHAOS
Prerequisite: 350-355. Description and analysis of the complex behavior exhibited by nonlinear equations. Emphasis is on the numerical methods to quantify chaos. 3 credits

633 PHYSICAL PROPERTIES OF STRUCTURAL BIOPOLYMERS
Prerequisite: permission of instructor. Examination of the physical properties of biological materials and their applications. 3 credits

636 CHEMICAL PROCESS DYNAMICS
Prerequisite: 300. Development and solutions of mathematical models for chemical processes, including models based on transport phenomena principles, population balance methods and systems analysis. 3 credits

637 CHEMICAL ENGINEERING ANALYSIS
Prerequisite: 250, 255, 350. Mathematical analysis of problems in transport processes, chemical kinetics and control systems. Solution techniques for these problems and their practical significance are stressed. 3 credits

640 ADVANCED POLYMER ENGINEERING
Prerequisite: 222 or 600 or permission. Reactors for polymerization, polymer characterization, polymer processing, polymer rheology. 3 credits

641 ADVANCED PLANT DESIGN
Prerequisite: permission. Project design of process and equipment. 3 credits

642 RENEWABLE RESOURCES FOR ENVIRONMENTALLY BENIGN CIVIL ENGINEERING
Prerequisite: permission of instructor. Focus on renewable resources. 3 credits

643 HETEROGENEOUS CATALYSIS
Prerequisite: 300. Kinetics and mechanisms of heterogeneous and homogeneous catalytic reactions and the characterization of heterogeneous catalysts. 3 credits

644 TOPICS IN CHEMICAL ENGINEERING
Prerequisite: 350-355. May be repeated for a total of six credits. Prerequisite: permission. Topics selected from new and developing areas of chemical engineering, such as chemical engineering research. 3 credits

645 CHEMICAL ENGINEERING REPORT
Prerequisite: 223. A relevant problem in chemical engineering is studied. Required course for students electing non-thesis option. Final report must be approved by advisor and advisory committee. 3 credits

646 MASTERS' THESIS
Prerequisite: 223. A relevant problem in chemical engineering is studied. Required course for students electing non-thesis option. Final report must be approved by advisor and advisory committee. 3 credits

647 ADVANCED TRANSPORT PHENOMENA
Prerequisite: 600. Advanced theory of transport phenomena such as heat transfer, mass transfer, momentum transfer, reactor theory, reaction kinetics, and numerical and experimental methods. 3 credits

648 MULTIPHASE TRANSPORT PHENOMENA
Prerequisite: 600. General transport phenomena, including all aspects of multiphase systems. Numerical and experimental methods. 3 credits

649 ADVANCED REACTION ENGINEERING
Prerequisite: 605. Kinetics of heterogeneous systems, steady and unsteady state mathematical modeling of chemical reactors. Fluidization and additional topics derived from current literature. 3 credits

651 ADVANCED CHEMICAL ENGINEERING THERMODYNAMICS
Prerequisite: 600. Equilibrium in the multiphase system at high pressures, phase equilibrium for multiphase systems, reaction equilibrium in multiphase systems. Thermodynamics of surfaces, thermodynamics of systems under stress, nonequilibrium thermodynamics and current topics from literature. 3 credits

652 MOMENTUM TRANSPORT
Prerequisite: 600. Discussion of potential flow, boundary layer formation and turbulent flow phenomena for Newtonian fluids. 3 credits

653 NON-NEWTONIAN FLUID MECHANICS
Prerequisite: 600. Tensor and curvilinear coordinates. Newtonian viscoelasticity. Development of nonlinear constitutive equations. Special and general flows of various constitutive models. 3 credits

654 ENERGY TRANSPORT
Prerequisite: 600. Convection, natural and forced convection, and radiation heat transfer using equations of continuity, momentum and energy. 3 credits

655 TOPICS IN ENERGY TRANSPORT
Prerequisite: 220. Advanced analytical and graphical methods for solving complex heat transfer problems found in chemical engineering. 3 credits

656 MASS TRANSFER
Prerequisite: 600. Theory of mass transfer with applications to absorption, distillation and heterogeneous catalysis. 3 credits

721 PROCESS CONTROL
Prerequisite: 200. Introduction to modern control theory of chemical processes including cascade control, multivariable control and data sampled control. 3 credits

726 POLYMER ENGINEERING TOPICS
Prerequisite: permission. Selected topics of current interest in polymer engineering, such as modeling of reactors or processes, multiphase materials, multiphase flow, artificial fiber engineering, etc. 3 credits

738 CHEMICAL PROCESSING OF ADVANCED MATERIALS
Prerequisite: permission. Advanced materials such as ceramic-based materials, sensor materials, application of reaction engineering to sol-gel processing, ceramic processing, modified chemical vapor deposition. 3 credits

739 ADVANCED CATALYST DESIGN
Prerequisite: 555. Development of catalyst theory and its application to the design of practical catalysts. 3 credits

741 ADVANCE POLLUTION CONTROL
Prerequisite: 555. Analysis of current environmental regulation and the analysis of new materials and processes. Application of reactors in environmental protection. 3 credits

742 BIOCATALYSIS AND BIORANSFORMATIONS
Prerequisite: 3105/4105/501 or permission of instructor. Focuses on the development of biocatalysis, including methods for the production of enzymes in vivo. 3 credits

751 CHEMICAL ENGINEERING SEMINAR
Prerequisite: 3 credits. May be repeated for a total of six credits. Prerequisite: permission of instructor. Advanced level coverage of specialized chemical engineering topics. 3 credits

752 ADVANCED RESEARCH TECHNIQUES FOR ENVIRONMENTAL ENGINEERS
Prerequisite: permission. 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. 3 credits

881 PRELIMINARY RESEARCH
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 Committee. 3 credits

891 DOCTORAL DISSERTATION
May be repeated for a total of more than six credits. Prerequisite: acceptance of research proposal by the dissertation director. Final dissertation must be approved by the dissertation director. Original research by the doctoral student. 3 credits

CIVIL ENGINEERING

4300:

514 DESIGN OF EARTH STRUCTURES
Prerequisite: 240, 254 or permission. Design of earth structures; dams, highways, fills, cut-offs, etc. 3 credits

516 SOIL AND ROCK EXPLORATION
Prerequisite: 254 or permission. In-situ exploration, sampling and analysis methods. 3 credits

521 CHEMISTRY FOR ENVIRONMENTAL ENGINEERS
Prerequisite: 254 or permission. Computer methods of environmental engineering. 3 credits

522 ENVIRONMENTAL ENGINEERING DESIGN
Prerequisite: 254 or permission. Design of chemical and biological processes utilized in the treatment of water and wastewater. 3 credits

523 ENVIRONMENTAL ENGINEERING DESIGN
Prerequisite: 254 or permission. Environmental and chemical processes utilized in the treatment of water and wastewater. 3 credits

524 WATER QUALITY MODELING AND MANAGEMENT
Prerequisite: 254 or permission. Analysis of the physical and chemical processes affecting stream quality. Development of management strategies based upon the application of water quality modeling techniques to environmental systems. 3 credits

525 HAZARDOUS AND SOLID WASTES
Prerequisite: permission. Hazardous and solid waste characterization and disposal. 2 credits

526 APPLIED HYDRAULICS
Prerequisite: 254 or permission. Applied hydraulics in civil engineering. 3 credits

527 COMPUTER METHODS OF STRUCTURAL ANALYSIS
Prerequisite: 254 or permission. Computer methods of structural analysis. 3 credits

528 OPTIMUM STRUCTURAL DESIGN
Prerequisite: 254 or permission. Optimum design of structures. 3 credits

530 ADVANCED MECHANICS OF MATERIALS
Prerequisite: 254 or permission. Advanced mechanics of materials. 3 credits

531 TRANSPORTATION PLANNING
Prerequisite: 254 or permission. Transportation planning and analysis for transportation systems. 3 credits

532 HIGHWAY DESIGN
Prerequisite: 254 or permission. Design of highway systems. 3 credits

533 PAVEMENT ENGINEERING
Prerequisite: 254 or permission. Pavement materials. 3 credits

534 TRAFFIC ENGINEERING
Prerequisite: 254 or permission. Traffic flow theory, traffic studies, traffic engineering, traffic control and transportation administration. 3 credits
567 ADVANCED HIGHWAY DESIGN
Prerequisite: 554. Autoscan, or permission. Computer-aided geometric design of highways including survey data entry, digital terrain modeling, cross-section templates, horizontal and vertical road design, earthwork computations, and advanced topics.
3 credits

568 HIGHWAY MATERIALS
Prerequisite: 361, 370, or permission. Properties of aggregates, manufacture and properties of portland cement concrete, properties of asphaltic materials, design and testing of hot mix asphalt pavement mixtures and of surface treatments. Laboratory preparation of specifications and inspection and testing of student project requirement. Graduate students will be required to perform an additional eight-hour asphalt laboratory assignment. Repair of asphalt pavement. Solution and to topics on a highway material topic.
3 credits

574 UNDERGROUND CONSTRUCTION
Prerequisite: 314. Description of practices and techniques of underground construction. Selection of proper method for individual site. Design of underground openings, support systems and linings.
2 credits

604 DYNAMICS OF STRUCTURES
3 credits

606 ENERGY METHODS AND ELASTICITY
3 credits

607 PRESTRESS CONCRETE
Prerequisite: 404. Basic concepts. Design of double tee roof girders; shear; development length; column; piers, design of highway bridge girders; prestressed: post-tensioned. Continuous girders, cores; variable force changes, connections.
3 credits

608 MULTISTORY BUILDING DESIGN
Prerequisite: 401. Floor and roof systems. Staggered truss system; braced frame design; unbraced frame design; drift indices; monocoque (tube and panel tube systems; earthquake design; fire protection. Analysis by ANSYS.
3 credits

609 FINITE ELEMENT ANALYSIS
Prerequisite: 554 or equivalent. Introduction: development of finite element method as applied to various topics from building and structural mechanics. Use of computer software. Analysis of numerical methods. Application to eigen-value problems and linear static analysis. Analysis of non-linear static and dynamic problems. Introduction to computer software. Solution by ANSYS.
3 credits

610 COMPOSITE MATERIALS IN CIVIL INFRASTRUCTURE
Prerequisite: 554 or equivalent. Constituent materials, manufacturing processes; panel properties by micro-macro- mechanics; simplification of composite beam-columns; and application to high-rise bridges and submarines in concrete and wood structures.
3 credits

611 FUNDAMENTALS OF SOIL BEHAVIOR
Prerequisite: 314. In-depth examination of structure and fundamental physico-chemical and mechanical properties of engineering soils viewed as particulate matter.
2 credits

612 ADVANCED SOIL MECHANICS
Prerequisite: 518. 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.
3 credits

613 ADVANCED GEOTECHNICAL TESTING
Prerequisite: 518, 519. Theory and practice of static and dynamic in situ and laboratory soil testing. Testing procedures, equipment and interpretation. General concepts of geotechnical parameters for routine and special site conditions. One lecture, two laboratories per week.
3 credits

615 EARTHQUAKE ENGINEERING I
Prerequisite: 514 or permission. Foundation bearing capacity and settlement analysis. Design of shallow and deep foundations in soils. Pile driving and load test procedures and analysis. Theory and design of energy dissipating structures including retaining walls, levees and bulkheads.
3 credits

616 EARTHQUAKE ENGINEERING II
Prerequisite: 514 or permission. Soil-strata interaction and applications to underground structures including conduits, tunnels and shafts. Advanced foundation construction methods and problems including deep excavating, soil stabilization, underpinning and caverning. Slope stability analysis.
3 credits

617 SOIL IMPROVEMENT
Prerequisites: 313 and 314. Admixture stabilization, precompression with vertical drains, biasing, vibracore, injection and grouting, thermal methods, electro-osmosis, soil rein­forcement, case histories.
3 credits

617 NUMERICAL METHODS IN GEOTECHNICAL ENGINEERING
Prerequisites: 313 and 314. Sawtooth-state and transient flow through walls, consolidation, soilstructure interaction, piling, water deformation analysis of earth structures.
3 credits

618 ROCK MECHANICS
Prerequisite: 554 or permission. Mechanical nature of rocks; linear elasticity and application to rock problems; inelastic behavior of rocks; time dependence and effects of pore pressure; experimental characterization of rock properties; failure theory and rock creep.
3 credits

620 SANITARY ENGINEERING PROBLEMS
Prerequisite: 323. Application of both laboratory methods and theory to solution of sanitary engineering problems involving water pollution, stress-reinforcement, special industrial wastes, detergents and others.
2 credits

621 ENVIRONMENTAL ENGINEERING PRINCIPLES
Concurrent: 323. Study of basic principles of chemical reaction engineering, microbiology, environmental regulations, and environmental migration required for the understanding and solving environmental problems.
3 credits

622 AQUATIC CHEMISTRY
Prerequisites: 3150-131 and 3150-153 or permission. Quantitative treatment of variables that govern the chemistry of aquatic systems. Emphasis on carbonate in open-closed systems, chemical and biological reactions, oxidative-reduction-reactions.
3 credits

623 PHYSICAL/CHEMICAL TREATMENT PROCESSES
Prerequisite or corequisite: 621. Theory, current research associated with physical/chemical processes, the impact on design-coagulation/flocculation, sedimentation, filtration, absorption, processes, and advanced topics.
3 credits

624 BIOLOGICAL WASTEWATER TREATMENT PROCESSES
Prerequisite or corequisite: 621. Theory, current research associated with biological processes, related physical/chemical processes, the impact on design-activated sludge, fixed film processes, gas transfer, sludge stabilization, sludge dewatering processes, phosphorus.
3 credits

625 WATER TREATMENT PLANT DESIGN
Prerequisite: 623. Design of water treatment plants for potable, industrial and commercial uses. Development of water sources, treatment methods and financing used to design best practical methods in terms of cost-benefits.
3 credits

626 WASTEWATER TREATMENT PLANT DESIGN
Prerequisite: 534. 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 for determine best practical designs to be utilized.
3 credits

627 ENVIRONMENTAL OPERATIONS LABORATORY
Prerequisite: 625 or permission. Combination of laboratory experiments related to the design and operation of water and wastewater treatment processes. Experimental design, data collection, analysis and report preparation.
3 credits

628 ADVANCED CHEMICAL OXIDATION PROCESS
Prerequisites: 310-151 and 3150-151 or permission. Qualitative and quantitative treatment of variables that govern process chemistry and kinetics in water. Emphasis on ozone, hydrogen peroxide, and ultraviolet light (UV).
3 credits

629 SOIL REMEDIATION
Prerequisite: 621 or permission. Provide a thorough understanding of site characterization, treatment, and soil remediation technologies, as well as present new and emerging remediation technologies.
3 credits

630 AIR POLLUTION CONTROL
Prerequisite: 621 or permission. Introduction to air pollution control philosophies, approaches, regulations, and modeling. Also apply an independent evaluation/design approach for the control of particulate matter, SOX and NOX.
3 credits

640 ADVANCED FLUID MECHANICS
3 credits

641 OPEN CHANNEL HYDRAULICS
Prerequisite: 400-200 or permission. Application of basic principles of fluid mechanics to flow in open channels. Criteria for analysis of uniform, gradually- and rapidly-varied flows. Study of movement and transportation of sediments.
3 credits

645 APPLIED HYDROLOGY
Prerequisite: 641. Discussion of water cycle such as precipitation, evaporation, stream flows, floods, infiltration. Mathematical analysis and their application to problems of water demand, storage, transportation, including mathematical modeling of urban runoff and statistical hydrology.
3 credits

646 COASTAL ENGINEERING
Prerequisite: 641. Engineering of low and non-linear wave theories. Interaction of structures, waves and ocean analysis of shore, offshore structures. Movement, transportation of sediments in lake shore and coastal areas.
3 credits

652 ADVANCED TRANSPORTATION ENGINEERING I
Prerequisite: 361, 466, or permission. Highway and parking facility design, transportation planning, highway capacity estimates, signal systems and optimization, incident detection and traffic management, freeway ramp metering, and highway traffic safety.
3 credits

653 ADVANCED TRANSPORTATION ENGINEERING II
Prerequisite: 361, 466, or permission. Highway and parking facility design, transportation planning, highway capacity estimates, signal systems and optimization, incident detection and traffic management, freeway ramp metering, and highway traffic safety.
3 credits

656 TRAFFIC DETECTION AND DATA ANALYSIS
3 credits

658 PLASTICITY
Prerequisite: 642, 6400-052 or equivalent. Mathematical formulation of constitutive equations with focus on their use in structural analysis. Internal variables. Isotropic, kinematic hardening.
3 credits

662 NONLINEAR PLASTICITY
Prerequisite: 642, 6400-052 or equivalent. Mathematical formulation of constitutive equations with focus on their use in structural analysis. Internal variables. Isotropic, kinematic hardening.
3 credits

664 ADVANCED REINFORCED CONCRETE DESIGN
3 credits

665 ADVANCED STEEL DESIGN
Prerequisite: 401. Properties of steel, fasteners, bearing, friction joints, Gusset plates, bolts in tension, end plates, weld joints. CYClic loads, fatigue analysis, types of detail, torsion, stability design.
3 credits

680 EXPERIMENTAL METHODS IN STRUCTURAL MECHANICS
3 credits

681 LIMIT ANALYSIS IN STRUCTURAL ENGINEERING
3 credits

684 ADVANCED SEMINAR IN CIVIL ENGINEERING
Prerequisite: permission. Advanced projects, reading, studies, or experimental in various areas of civil engineering.
1-3 credits

685 ENGINEERING REPORT
Prerequisite: permission. Design of project, reading, studies, or experimental in various areas of civil engineering.
1-3 credits

686 MASTER'S RESEARCH
Prerequisite: permission. Admission to the research. May be repeated.) Research on a suitable topic in civil engineering not exceeding the non-thesis option. The final engineering report must be approved by the advisor and the advisory committee.
2 credits

687 MASTER'S THESIS
Prerequisite: permission. Research and thesis on some suitable topic in civil engineering as approved by the department. Defense of thesis is by final examination.
2 credits
Graduate Courses

701 EARTHQUAKE ENGINEERING
3 credits

702 PLATES AND SHELLS
3 credits

703 VISCOELASTICITY and VISCOPLASTICITY
3 credits

704 FINITE ELEMENT ANALYSIS II

710 ADVANCED COMPOSITE MATERIALS
2 credits

712 DYNAMIC PLASTICITY
3 credits
Prerequisite: 683 or 703. Impulsive and transient loading of structural elements (beams, plates, shells, etc.) in which inelastic deformation occurs. Topics include: longitudinal and transverse plastic wave propagation in thin rods, propagation of plastic hinges, rate-dependent viscoplastic waves, transverse impact on beams and plates, high-rate forming, blast loading, shock waves in solids.

717 SOIL DYNAMICS
3 credits
Prerequisite: 674 or permission. Vibration and wave propagation theory relating to soils, soil structures and foundations. Dynamic behavior of soils. Design of foundations for dynamic loading impact, pulsating and blast loading.

731 BIOMEDIATION
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.

750 SEEPAGE
2 credits
Description of parameters determining permeability of various soils. Analytical, numerical and experimental methods to determine two- or three-dimensional movement of groundwater. Unsaturated flow.

800 PRELIMINARY RESEARCH
1-5 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.

809 DOCTORAL DISSERTATION
1-36 credits
(May be taken more than once.) Prerequisite: acceptance of research proposal by the Interdepartmental Doctoral Committee and approval of the dissertation director. Original research by the doctoral student.

ELECTRICAL ENGINEERING

4400:

548 OPTICAL COMMUNICATION NETWORKS
3 credits
Optical waveguides and optical integrated components, optical transmitters and receivers, optical communication network design.

549 DIGITAL COMMUNICATION
3 credits
Prerequisite: 341. Introduction to digital communication theory and systems, coding of analog and digital information, digital modulation techniques. Introduction to information theory.

553 ANTENNA THEORY
3 credits
Prerequisite: 354 or equivalent. Theory of EM radiation, wave antennas, arrays, receiving antennas, array theory, scattering, introduction to radio, design. Antennas for reduced currents, self and mutual impedances. Equivalent principle, radiation from aperture antennas.

598 MICROWAVES
4 credits
Prerequisite: 354 or equivalent. Dynamic fields, Maxwell's equation and wave equations. Field analysis of wave guides, microwave components, techniques and systems.

597 WIRELESS COMMUNICATIONS
3 credits
Prerequisite: 548. Theoretical aspects of wireless communication systems, waveguides, propagation, multiple access, modulation, demodulation, multi-path channel characteristics, diversity, cellular, and PCS systems and standards.

561 OPTICAL ELECTRONICS AND PHOTONIC DEVICES
3 credits
Lightwave engineering, photonic principles and optical electronic device technology.

565 PROGRAMMABLE LOGIC
3 credits
Prerequisite: 263. Electronic circuitry considerations in logic circuits, methods of sequential circuit design, algorithmic analysis, synthesis, development of computer arithmetic elements, memory, storage devices.

570 MICROPROCESSOR INTERFACING
3 credits
Microprocessors for structural and control systems. Digital controller devices and their applications in the microcomputer and physical environment.

572 CONTROL SYSTEMS II
Prerequisite: 571. Stable, variable analysis, design of control systems. Discrete systems, analysis, digital computer control. Experiments include hybrid, full control system, digital computer control.

583 POWER ELECTRONICS I
2 credits
Prerequisite: 332. Elements of power electronics circuits. Rectifiers, converters, inverters, analysis and design.

584 POWER ELECTRONICS LABORATORY AND DESIGN PROJECT
2 credits
Prerequisite: 452.66 or equivalent. Experiments on different types of power electronic converters: AC/DC, DC/AC, DC/AC, AC/AC. Design project to include design, simulation, building, and testing of a power electronic circuit.

585 ELECTRIC MOTOR DRIVES
3 credits
Prerequisite: 381. Application of electric machines, choice of motor for particular drive. Application of power semiconductor circuits in the electric machine.

590 TOPICS IN ELECTRICAL ENGINEERING
3 credits
(May be taken more than once.) Prerequisite: permission of department chair. Special topics in electrical engineering.

600 ADVANCED MICROCOMPUTER SYSTEMS
3 credits
Prerequisite: 365 or permission of instructor. Overview of multiprocessor, numerical data processors, multiprocessor, system bus architecture, 16-bit and 32-bit microprocessor architectures, multi-level protection and virtual memory, as supported by commercial microprocessors.

610 CIRCUIT ANALYSIS
3 credits
Prerequisite: standing graduate, time domain analysis, state variable methods and matrix techniques applied in circuit analysis. Realizability and synthesis of driving point impedance and transfer functions.

611 RANDOM SIGNAL ANALYSIS
3 credits
Prerequisite: 447. Analysis, interpretation and smoothing of engineering data through application of spectral, statistical and probabilistic methods.

612 IMAGING SYSTEM ENGINEERING
3 credits
Prerequisite: 651. Engineering principles of imaging systems, analysis, design, and evaluation of imaging systems, processing techniques, and applications.

613 INFORMATION THEORY AND CODING
3 credits
Prerequisite: 641 or permission. Sources, channels, entropy, mutual information, source coding theorem and channel coding theorem. Channel coding theorem for waveform channels. Introduction to rate-distortion theory.

614 CHANNEL CODING
3 credits
Prerequisite: 641 or permission. Algebraic structure of error-control codes, techniques for encoding and decoding. Coverage of the major classes of linear block codes and convolutional codes.

615 DIGITAL SIGNAL PROCESSING
3 credits
Prerequisite: 333. Relations between continuous and discrete-time Fourier expansions. Sampling, aliasing, sampling rate conversion. Operator concepts in signal processing, alias pass systems. FFT, digital filter design.

616 DIGITAL SPECTRAL ANALYSIS AND SIGNAL MODELING
3 credits
Prerequisite: 648 or permission of instructor. Methods and theory of spectral analysis and signal modeling are investigated in detail. Applications of theory include speech processing, optimal filtering, biomedical systems, digital communications.

618 OPTICAL NETWORK ARCHITECTURE
3 credits
Prerequisite: 546. Principles of optical network architecture, analysis, design, control, and fault management.

619 STATISTICAL COMMUNICATION THEORY
3 credits
Prerequisite: 641 or permission. Fundamental principles of transmission of digital information over noisy channels. Optimum receivers. Bandwidth and dimension. Capacity of the band-limited white gaussian noise channel.

620 ELECTROMAGNETIC THEORY I
2 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.

621 ELECTROMAGNETIC THEORY II
2 credits
Prerequisite: 650 or permission of the course instructor. Analytic and numerical techniques for electromagnetic fields, conformal mapping, finite-difference method, finite element method, and the method of moments.

625 ADVANCED ANTENNA THEORY AND DESIGN
3 credits
Prerequisite: 452 or equivalent. Basic properties and recent advances of microstrip antennas. Analysis and design of reflector antennas. Analysis and synthesis of linear and planar antenna arrays.

626 ELECTRONICS LABORATORY AND DESIGN PROJECT
3 credits
Prerequisite: 646. Experiments on logic circuits in modern digital electronic computer and in digital communication systems. Computer organization and control, input/output devices and interface standards, advanced topics in computers.

627 DIGITAL EIGEN SYSTEMS
3 credits
Prerequisite: 646. Applications of logic circuits in modern digital electronic computer and in digital communication systems. Computer organization and control, input/output devices and interface standards, advanced topics in computers.

628 DIGITAL ELECTRONICS SYSTEMS
3 credits
Prerequisite: 365 or equivalent. Elementary properties and recent advances of microstrip antennas. Analysis and design of reflector antennas. Analysis and synthesis of linear and planar antenna arrays.

629 DESIGN OF DIGITAL SYSTEMS
3 credits
Prerequisite: 465. Experiments on logic circuit and output devices, computer design and operation, computer architecture.

630 CONTROL SYSTEM THEORY
3 credits
Prerequisite: 571 or instructor permission. Advanced modern control theory for linear systems. Controllability, observability, minimal realizations of multifactor systems, stability, state variable feedback, estimation, and an introduction to optimal control.

631 SYSTEM SIMULATION
3 credits
Prerequisite: 472 or permission of the instructor. The course is designed to provide the control engineer with tools necessary to simulate continuous systems in digital computer. Topics include linear and nonlinear systems, numerical methods, digital computer, optimization, parallel computing and simulation languages.

632 RANDOM PROCESS ANALYSIS
3 credits
Prerequisite: 674. Analysis and design of control systems with stochastically defined input. Introduction to estimation filters.

633 OPTIMAL CONTROL I
3 credits
Prerequisite: 674. Formulation of optimization problem; application of variational calculus, maximum principle and optimality principle to control problems. Computational techniques in optimization.

634 DYNAMICS AND CONTROL OF POWER ELECTRONIC CIRCUITS
2 credits
Prerequisites: 452.66 or equivalent. Averaged and sampled-data models for DC/DC and DC/AC converters. Small- and large-signal models of the power electronic devices. Classical and modern approaches.

635 POWER SYSTEM ANALYSIS
3 credits
Prerequisite: 480. Short circuit and load flow analysis of power systems with emphasis on computer solution. Transformer analysis.

636 POWER SYSTEM STABILITY
3 credits
Prerequisite: 681. Steady state and transient stability of power systems with emphasis on computer solution.
775 ROBUST POWER VLSI CIRCUITS
794 ADVANCED SEMINAR

COMPUTER MASTER’S THESIS

conductor devices: diodes, and design techniques based on the graduate student. Supervised research or investigation in major of robust trichal engineering culminating in a master’s thesis.

ADVANCED SEMINAR

(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.

OBJECT

480. Introduction to computer science; special topics. Intended for student seeking Ph.D. in engineering.

MECHANICAL ENGINEERING 4600:

Thermal System Components

Computer Algorithms I

Prerequisites: 400.206 and 3450.235. Organization of scientific and engineering problems for computer solutions. Analysis of error and convergence properties of algorithms.

Computer Algorithms II

Prerequisites: 861 or permission. Data structures and algorithm design for minimum execution time and memory requirements.

Advanced Knowledge Engineering

Prerequisite: 641 or equivalent. Advanced study of knowledge acquisition and expert system project management.

Frame-Based Expert System Design

Prerequisites: 441, 641, or equivalent. Introduction to the design and development of frame-based expert systems.

VLSI Design and Automation


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.

Advanced Seminar

(May be taken more than once) Prerequisite: permission of department chair. Advanced level coverage of various topics. Intended for student seeking Ph.D. in engineering.

Mechanical Engineering 4600:

Thermal System Components

3 credits

Prerequisites: 201, 310, 315 or permission. Performance analysis and design of basic components of thermal energy exchange and conversion systems. Components studied include heat exchangers, pumps, compressors, turbines and expansion engines.

Heating and Air Conditioning

3 credits

Prerequisite: 301 or permission; concurrent: 315 or permission. Thermodynamics of gas mixtures. Design and selection of air conditioning equipment. Control of gas mixtures, heating, cooling and humidity.

Compressible Fluid Mechanics

2 credits

Prerequisite: 301 or permission. Subsonic and supersonic flow in nozzles, diffusers, and ducts. One-dimensional reactive gas dynamics. Phantis-Meyer theory. Applications to design and analysis of compressors, turbines, and propulsion devices.

Fundamentals of Flight

3 credits

Prerequisite: 315 or permission. Introduction to basic aerodynamics, airplane performance, stability and control, aeronautics and propulsion. Design considerations are emphasized.

Introduction to Aerodynamics

3 credits

Prerequisite: 310. Introduction to aerodynamic concepts; conformal transformations; theory of thin airfoils, 2-dimensional and theory; wings of finite span, lifting line theory, laminar-vortex, vortex-lattice, and panel methods.

Introduction to Aerospac Propulsion

3 credits

Prerequisite: 310. Introduction to propulsion systems currently used in aerospace fields; propulsion principles for turbojets, rockets, rockets and rocket propulsion.

Energy Conversion

3 credits

Prerequisites: 301 or permission; concurrent: 315 or permission. Topics from fields of internal combustion engines, cycle analysis, modern conversion devices.

Heat Transfer Processes

3 credits

Prerequisites: 310. Analysis, design of extended surfaces, natural convection and mixed convection, combined modes of heat transfer with phase changes.

Experimental Stress Analysis I

3 credits

Prerequisite: 336 or permission. Experimental methods of determining stress or strain. Brittle fracture, stress corrosion, plane strain, photoelasticity, full field thermal techniques.

Machine Dynamics

3 credits

Prerequisite: 321 or permission. Static and dynamic forces in machines, products of inertia, moment of inertia. Rotating elements, forces and moments, interference and resonance. Mathematical models of dynamic systems. Transient response and system accuracy. Root locus method. Computer simulation of transient mechanisms/dynamics, other topics in advance dynamics.

Fundamentals of Mechanical Vibrations

3 credits

Prerequisites: 202 or permission. Undamped and forced vibrations of systems having one or two degrees of freedom.

Vehicle Dynamics

3 credits

Prerequisites: 3450.335 or permission and 202 or permission. Application of dynamic systems analysis techniques to road vehicles. Newtonian and Lagrangian methods. Trajectory interface. Rigid bodies, cameras, handling and stability. Digital simulation.

System Dynamics and Control

4 credits


Control Systems Design

3 credits

Prerequisite: 340 or permission. Methods of feedback control design such as minimized error, pole placement, frequency domain. Compensation techniques. Multivariable and nonlinear design methods and computer-aided control design.

Industrial Automatic Control

3 credits

Prerequisite: 441 or permission. Operation of basic control mechanisms. Study of mechanical, hydraulic, pneumatic, fluidic control systems, including application areas. Tuning of control devices for optimum performance of system. Case studies on control applications from industry, e.g., boilers, furnaces, process control heaters.

Optimization Methods in Mechanical Engineering

3 credits

Prerequisite: 360 or permission. Development and method of solution of optimization problems for mechanical engineers. Use of dynamic programming and operational research methods for optimization including computer utilization and applications.

Robot Design, Control and Application

3 credits

Prerequisites: 321 or permission and 441 or permission. Robot design and control. Kinematic transformations, velocities and accelerations, path trajectories and dynamics, control and sensing in robotics. The automated factory with robot applications.

Introduction to Computational Fluid Flow and Convection

3 credits

Prerequisites: 315 or permission and 360 or permission. Numerical modeling of fluid flow systems, numerical solution of the momentum and thermal boundary layer equations; flow simulation using advanced heat transfer/heat transfer software.
562 PRESSURE VESSEL DESIGN 3 credits
Prerequisite: 336 or permission. Introduction to modern pressure vessel technology. Topics include structural considerations, materials and their environment and design-construction features.

563 COMPUTER AIDED DESIGN AND MANUFACTURING 3 credits
Prerequisite: 160 or permission. The use of computer systems to assist in the creation, modification, analysis, or optimization of engineering designs, and to plan, manage, and control manufacturing plants.

600 GUIDED PROGRESS 3 credits

682 EXPERIMENTAL STRESS ANALYSIS II 3 credits
Prerequisite: 301, or equivalent. Introduction to the development of fracture mechanics. Topics include stress and strain, fatigue, plastic deformation, thermal stress, and continuous and discontinuous fracture mechanics.

684 ADVANCED DYNAMICS OF ROTATING MACHINERY 3 credits
Prerequisites: 422/522 or equivalent. Dynamic modeling and simulation of complex rotating systems. Study of the effects of fluid, thermal, and mechanical interactions.

696 STRESS WAVES IN SOLIDS AND FLUIDS 3 credits
Prerequisites: 625 or equivalent. Digital and continuous control algorithms. Process control and system implementation. Self-learning, diagnostics, intelligent control systems. Case studies and experiments from various engineering disciplines.

704 BOUNDARY LAYER FD I 3 credits
Prerequisite: 301, or equivalent. Study of boundary layer flow. Applications include unsteady flows, flow in pipes, turbomachines, reactor flows, and boundary layer separation.

721 COMPUTATIONAL FLUID DYNAMICS I 3 credits
Prerequisite: 160 or permission. The use of computational techniques in fluid dynamics. Topics include computational methods, numerical methods, and computer programming.

724 CONDUCTION HEAT TRANSFER 3 credits
Prerequisite: 301 or equivalent. Theoretical heat transfer. Transition to laminar, turbulent, and chaotic fluid flow. Convective heat transfer at high velocities. Heat transfer in solid, liquid, and gas systems.

726 CONVECTION HEAT TRANSFER 3 credits
Prerequisite: 301, or equivalent. Introduction to convection heat transfer. Topics include heat transfer in fluids, heat transfer in heat exchangers, and heat transfer in semiconductor devices.

731 MOISTURE TRANSFER AND DRYING PROCESS I 3 credits
Prerequisite: 301, or equivalent. Introduction to moisture transfer and drying processes. Topics include moisture transport in porous media, drying kinetics, and drying processes in food and pharmaceutical products.

733 EXPERIMENTAL STRESS ANALYSIS II 3 credits
Prerequisite: 422/522. Advanced topics in experimental stress analysis. Topics include advanced experimental techniques, data analysis, and experimental design.

734 RADIATION AND COMPUTER PHENOMENA 3 credits
Prerequisite: 625 or equivalent. Study of radiation phenomena and computer modeling. Topics include radiation effects, radiation detectors, and radiation protection.

735 EXPERT SYSTEMS IN MANUFACTURING 3 credits
Prerequisite: 440/442. Introduction to expert systems and their application to manufacturing processes. Topics include rule-based systems, knowledge representation, and expert system development.

755 NEURAL AND FUZZY CONTROL SYSTEMS 3 credits
Prerequisite: 625 or permission. Introduction to neural and fuzzy control systems. Topics include neural networks, fuzzy logic, and intelligent control systems.

766 MICROSCALE AND HEAT TRANSFER III 3 credits
Prerequisites: 625 or equivalent. Kinetics theory, quantum mechanics, and statistical mechanics. Applications to solutions of diffusion and heat transfer equations.

772 WEB-BASED SOLID MODELING AND F-E ANALYSIS 3 credits
Prerequisite: 440/442 or equivalent. Introduction to web-based solid modeling and finite element analysis. Topics include computer-aided design, finite element methods, and computer-integrated manufacturing.

775 ADVANCED THERMAL STRESS AND HEAT TRANSFER 3 credits
Prerequisite: 422/522. Advanced topics in thermal stress and heat transfer. Topics include nonlinear heat transfer, heat conduction in composite materials, and phase change heat transfer.

781 FUNDAMENTALS OF CRYSTALLOGRAPHY 3 credits
Prerequisite: 625 or equivalent. Introduction to crystallography. Topics include crystal structures, crystal symmetry, and crystallographic equations.

782 CORD MECHANICS 3 credits
Prerequisite: 625. Introduction to cord mechanics. Topics include cord dynamics, cord mechanics, and cord motion.

785 INTEGRATED FLEXIBLE MANUFACTURING SYSTEMS 3 credits
Prerequisite: 440/442 or equivalent. Study of flexible manufacturing systems. Topics include computer-aided design, computer-aided manufacturing, and computer-integrated manufacturing.

793 MEASUREMENTS, METHODS AND EXPERIMENTAL ERROR IN THERMOCOUPLE SCIENCE 3 credits
Prerequisite: 422/522. Study of measurement and experimental error in thermocouple science. Topics include thermocouple calibration, thermocouple error sources, and thermocouple error analysis.

796 SPECIAL TOPICS IN MECHANICAL ENGINEERING 1-4 credits
Prerequisite: 422/522. Study of special topics in mechanical engineering. Topics include advanced topics in heat transfer, advanced topics in fluid mechanics, and advanced topics in solid mechanics.

797 ENGINEERING REPORT 2 credits
Prerequisite: Permission. Preparation of an engineering report. The report may cover a variety of topics, including design, analysis, and testing.

798 MASTER’S RESEARCH 6 credits
Prerequisite: Permission. The student is expected to complete a research project in an area of interest to the student and advisor.

799 MASTER’S THESIS 6 credits
Prerequisite: Permission. The student is expected to complete a thesis in an area of interest to the student and advisor.

804 ADVANCED DESIGN OF EXPERIMENTAL DIGITAL SYSTEMS 3 credits
Prerequisites: 321 or equivalent. Analysis of experimental designs for digital systems. Topics include experimental design, statistical analysis, and experimental design guidelines.

805 FINITE ELEMENT ANALYSIS II 3 credits
Prerequisite: 704. Advanced topics in finite element analysis. Topics include advanced finite element methods, advanced finite element modeling, and advanced finite element software.

806 DYNAMICS OF VISCOUS FLOW II 3 credits
Prerequisite: 800. Introduction to turbulence. Topics include turbulence modeling and turbulent boundary layers. Applications include the prediction of turbulence and its effects on fluid flow.

Graduate Courses

101
711 COMPUTATIONAL FLUID DYNAMICS 3 credits
Prerequisites: 661 or permission of instructor. Development of advanced computational techniques for convection-dominated flows. Higher order explicit and implicit schemes including nonorthogonal from capturing methods applied to benchmark problems.

715 HYDROMATRIC STABILITY 2 credits

719 ADVANCED HEAT TRANSFER 2 credits
Prerequisites: 615, 616. Topics include nonhomogeneous or nonlinier boundary value problems of heat conduction, convection with melting, solidification, heat transfer in porous systems and hydrodynamically and thermally unsteady convection.

723 APPLIED STRESS ANALYSIS II 3 credits
Prerequisites: 622. Continuation of 623. Development of approximate solution techniques including finite elements, method of weighted residuals (Rayleigh-Ritz, Galerkin, Trefftz, collocation), least squares, (approximate) finite elements, and finite differences.

725 NONLINEAR CONTINUUM MECHANICS 3 credits
Prerequisites: 622. Finite elements and strain, stress, constitutive equations, stability and eigenfunctions. Solution of finite deformation problems in hypoelasticity coupled thermoviscoelasticity and plasticity, electroelasticity and micropolar theories.

730 VIBRATIONS OF CONTINUOUS SYSTEMS 3 credits
Prerequisites: 620. Continuation of 630. Analysis of continuous systems, using separation of variables, energy, variations, Rayleigh-Ritz and other approximate techniques. Concepts and solutions of integral equations as applied to continuous systems.

731 RANDOM VIBRATIONS 3 credits
Prerequisites: 630 or equivalent. Stationary random processes and their transmission through linear time-invariant discrete and continuous vibration systems. Analysis of random data and interaction between mechanisms of failure.

732 ADVANCED MODAL ANALYSIS OF STRUCTURES 3 credits
Prerequisites: 650 or equivalent. Exact and approximate techniques. Model parameter estimation. System modification; mass/balance; lumping matrices substructuring. Prediction and evaluation of vibration responses.

741 OPTIMIZATION THEORY AND APPLICATIONS 3 credits
Prerequisites: 635 or permission. Theory of optimization in engineering systems, development and method of solution optimization problems for physical processes, large systems. Use of optimization techniques in various research methods of system optimization, control, and design.

742 ADVANCED METHODS IN ENGINEERING ANALYSIS 3 credits
Prerequisites: 630 or equivalent. Applications of finite difference and finite element methods, variational methods, and other methods and similarity transforming to engineering problems in heat transfer, fluid mechanics and vibrations.

790 ADVANCED SEMINAR IN MECHANICAL ENGINEERING 1-4 credits
May be repeated for a total of nine credits. Prerequisite: permission of department chair. Advanced projects and studies in various areas of mechanical engineering. Intended for student seeking Ph.D. in engineering degree.

890 PRELIMINARY RESEARCH 1-5 credits
Prerequisites: approval of dissertation director. Preliminary investigations prior to the submission of a dissertation proposal to the Interdisciplinary Doctoral Committee.

890 DOCTORAL DISSERTATION 1-5 credits
May be taken more than once. Prerequisite: acceptance of research proposal by the Interdisciplinary Doctoral Committee and approval by the dissertation director. Original research by the doctoral student.

BIOMEDICAL ENGINEERING 4800:

575 PHYSIOLOGICAL CONTROL SYSTEMS 3 credits
Prerequisites: 3100:202 and 3450:202. The basic techniques employed in control theory, systems analysis, and model identification as they apply to physiological systems.

580 DESIGN OF MEDICAL IMAGING SYSTEMS 3 credits
Prerequisites: 3100:203, 3650:232, 4400:343, 353, 4800:205 or permission of instructor. Physical principles and engineering design of medical imaging systems, with emphasis on digital radiography, computed tomography, nuclear medicine, ultrasound, and magnetic resonance.

585 IMAGE SCIENCE 3 credits
Prerequisites: 3100:200, 3650:292, 4400:433, or permission of the instructor. Principles of image science, image performance parameters and image assessment techniques of medical imaging systems, with emphasis on digital radiography, tomography, holography, ultrasound and magnetic image science.

587 PHYSICS OF MEDICAL IMAGING 3 credits
Prerequisites: 3100:200, 3650:292, 4400:353, 4800:305. Physical principles of medical imaging modalities with emphasis on the properties, general mechanisms and interaction of radiation with matter, physics of the image formation and optimization.

590 EXPERIMENTAL TECHNIQUES IN BIOMEDICINE 3 credits

600 BIOMEDICAL ENGINEERING COLLOQUIUM 1 credit
(May be repeated for a maximum of 15 credits) The Biomedical Engineering Colloquium is a seminar series designed to introduce students to current topics in biomedical engineering research, design, and business.

601 BIOMEDICAL INSTRUMENTATION I 4 credits
Prerequisites: 3400:161, 562, and 4400:203 or 4400:323. Clinical Preinstrumentation to measure and display phisio logic and anatomic parameters. Basic concepts of instrumentation including design criteria and operational analysis. Practical experience gained through the use of instrumentation in clinical environments.

611 BIOMETRY 3 credits
Statistics and experimental design topics for the biomedical and biomedical engineering discipline, including: hypothesis testing and estimation, ANOVA, probit analysis and nonparametric statistics.

622 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 lassial and modern neural computing architectures. Course will also include the use of traditional neural machines and applications for which neural networks seem most promising will be examined.

627 SENSORY SYSTEMS ANALYSIS 3 credits
Prerequisites: 4400:207 or permission of instructor. Study of various sensory systems from a systems engineering perspective. Techniques from linear and nonlinear systems analyses are applied to objects of vision, heat, touch, and position sensing in humans. Comparison will be made with artificial systems of these senses.

633 PROCESSING OF BIOMEDICAL SIGNALS 3 credits
Prerequisites: graduate standing in the College of Engineering or equivalent. Concepts for the analyses of biomedical signals and systems, including determining and frequency dependent component analyses, histograms, cornenograms and data displays.

644 IMAGE PROCESSING FOR BIOMEDICAL DATA 3 credits
Prerequisites: 4400:207 or equivalent. Computer applications in health care, clinical laboratories, AMI, medical records, direct order entry, A.D.A conversion, patient monitoring, phar­maceutical surfaces, diagnostic algorithms, automated EEG, ECG systems.

652 DIAGNOSTIC IMAGING TECHNIQUES 3 credits
Prerequisites: acceptance of instructor. Advanced Diagnostic Imaging Techniques as applied to Digital Radiography, Computed Tomography, PET, magnetic resonance, ultrasound imaging, magnetic resonance imaging MRI, microscopes and optical confocal microscopy.

663 BIOMEDICAL OPTICS 3 credits
Applications 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.

665 MEDICAL IMAGING DEVICES 3 credits
Prerequisites: Introduction to physics, including radiation, magnetic resonance, and sound. The formation of images. Specific devices including computer tomography, magnetic resonance resonance, ultrasound, gamma cameras and PET.

666 BIOMEDICAL NANO-TECHNOLOGY 3 credits
Prerequisites: 4400:207 or equivalent. Physical properties and functional biomechanics of ligament, tendon, joint-capsule insertions, myotendinous junction, articular cartilage and meniscus. The mechanics of injury, repair, and replacement for accelerated repair and improved function.

672 HARD CONNECTIVE TISSUE BIOMATERIALS 3 credits

673 SOFT CONNECTIVE TISSUE BIOMATERIALS 3 credits
Prerequisites: 4400:207 or equivalent. Physical properties and functional biomechanics of soft tissues. The rationale for the engineering and clinical aspects required for the design and evaluation of biomaterials.

674 CARDIOVASCULAR DYNAMIC TISSUE 3 credits
Prerequisites: 4400:207 or equivalent. Cardiovascular disease conditions, instrumentation and evaluation procedures both invasive and noninvasive used for diagnosis. Direct interaction with active clinical laboratories.

675 CARDIOVASCULAR THERAPEUTIC TECHNIQUES 3 credits
Prerequisites: 4400:207. Cardiovascular therapeutic devices and procedures for correction of congenital defects, valve failure, heart and arterial bypass grafting and less-invasive catheter-based procedures.

676 TRANSPORT PHENOMENA IN BIOLOGY AND MEDICINE 3 credits

679 REHABILITATION ENGINEERING 3 credits
Prerequisites: graduate standing in engineering, mathematics, or science, or permission of the instructor. Devices for rehabilitation, interfacing with the nervous system and various sensors, computer and control equipment and techniques. Rehabilitation equipment, and assistive devices.

680 BIOMATERIALS AND LABORATORY 4 credits
College prerequisite: Biomechanical Laboratory. Material and tissue biocompatibility. 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 biodegradable and implantation of biomaterials at the microscopic level. (May be taken more than once.)

681 ARTIFICIAL ORGANS 3 credits
Prerequisites: graduate standing in the College of Engineering or permission of instructor. Study of tissue and organ function, tissue engineering, and clinical aspects required for the design and manufacture of artificial organs, with emphasis on the artificial heart and artificial kidney.

682 MATHEMATICAL MODELING IN BIOLOGY AND MEDICINE 3 credits
Prerequisites: graduate standing in engineering, mathematics, or physics, or permission of instructor. Mathematical modeling of pharmacokinetics, bioavailability, neuroendocrine, and immune systems, and artificial organ interactions. Deterministic and stochastic approaches.
Education

EDUCATIONAL FOUNDATIONS AND LEADERSHIP 5100:

512 DESIGN AND PRODUCTION OF INSTRUCTIONAL MATERIALS 3 credits
Design, adaptation and preparation of instructional materials using graphics, transparency pro-
duction, video equipment, computer authoring software, mounting and laminating processes,
and other production techniques.

510 INTRODUCTION TO INSTRUCTIONAL COMPUTING 3 credits
Examines the use of word processing, spreadsheets, databases, graphics, telecommunications,
and authoring software in both educational and business settings and evaluates instruc-
tional and applications software.

590,1,2 WORKSHOP 1-3 credits
Individual work under staff guidance on curriculum problems, utilization of community
resources, and planning of course units.

500 PHILOSOPHIES OF EDUCATION 3 credits
Examination of basic philosophical problems underlying broad educational questions that confront
society. Provides foundation for understanding of questions of modern society and education.

502 COMPARATIVE AND INTERNATIONAL EDUCATION 3 credits
Comparative study of national systems with reference to forces that shape their characteristics.
Different theoretical approaches used in study of comparative education are investigated.

504 TOPICAL SEMINAR IN THE CULTURAL FOUNDATIONS OF EDUCATION 2 credits
Majors may be repeated for a total of six credits and subjects related to study of education-
als institutions, theories and ideas. Different topics will be offered from section to section.

514 PLANNING FOR TECHNOLOGY 3 credits
Prerequisite: 520 or permission of instructor. Emphasizes the processes of planning for the use of
technology in the school. Includes plans for faculty support and alternative arrangements
of computer sets up.

620 PSYCHOLOGY OF INSTRUCTION FOR TEACHING AND LEARNING 3 credits
Prerequisites: 210/211 or equivalent. Current theories and research in the areas of cognition and
learning, development, and motivation that underlie approaches to teaching in any con-
text.

624 SEMINAR: EDUCATIONAL PSYCHOLOGY 3 credits
May be repeated for a total of six credits. Prerequisite: 250 or equivalent. In-depth study of
research in selected areas of learning, development, evaluation and motivation.

629 FUNDAMENTAL IN E-LEARNING 1 credit
The nature, purpose, history and philosophy of e-learning will be explored through examina-
tion of associated trends and issues. Establishment of a learning community will be
addressed in the face-to-face course component. E-learning course/distance overview will be
discussed.

630 TOPICAL SEMINAR IN COMPUTER-BASED EDUCATION 3 credits
May be repeated for a total of six credits. Prerequisite: 3520. Advanced topics related to
development, implementation, research and evaluation of C.B.E. Student involvement empha-
sized, required. Knowledge of programming language recommended.

631 INSTRUCTIONAL DESIGN 3 credits
The theory and practice of instructional Design (ID) is a systematic approach to the analysis,
design, development, evaluation, and implementation of effective instruction.

632 WEB-BASED LEARNING SYSTEMS 3 credits
The purpose of this course is to help students become proficient in the design and develop-
ment of web-based learning systems for training and education.

633 HYPERMEDIA 3 credits
This course is a survey of Hypermedia tools and techniques. Students will also be introduced to a variety of hyper-
media applications.

634 VISUAL LITERACY 3 credits
This course will combine a basic understanding of design principles and concepts with review
of learning research on the use of visuals.

635 EMERGING TECHNOLOGIES FOR INSTRUCTION 2 credits
This course examines emerging technologies (hardware, software, systems) that support
learning, and methods for assessing the utility of any technology used for instruc-
tional purposes.

638 TOPICAL SEMINAR IN EDUCATIONAL TECHNOLOGY 3 credits
Prerequisite: 520 or permission of instructor. In-depth study of instructional design, software, tools
and processes for instructional video production, presentation systems.

637 PHILOSOPHIES OF EDUCATIONAL TECHNOLOGY 3 credits
To introduce students to the many philosophies of educational technologies and the manner
in which information technology especially influences our pedagogy.

638 INTEGRATING AND IMPLEMENTING TECHNOLOGY 3 credits
This course is designed to help students with the integration and implementation of effective
use of technology in the classroom.

639 STRATEGIES FOR ON-LINE LEARNING 3 credits
Prerequisite: 520 or permission of instructor. The effective strategies for the management of
electronic courses and the use of computer-based instruction as tools for student learning.

640 TECHNIQUES OF RESEARCH 3 credits
Prerequisite: 520 or permission of instructor. Research methods and techniques commonly used in education and behav-
ioral sciences; preparation of research reports. Includes library, historical, survey and experimental
research and data analysis.

641 TOPICAL SEMINAR IN MEASUREMENT AND EVALUATION 3 credits
Prerequisite: 520 or permission of instructor. An examination of current theories and research
necessary to work with diverse populations.

648 INDIVIDUAL AND FAMILY DEVELOPMENT ACROSS THE LIFE SPAN 3 credits
An exploration of individual and family development. Emphasis will be placed on under-
standing the relationship between the individual and the family.

649 FIELD EXPERIENCE: MASTERS 1-3 credits
Prerequisite: permission of department chair and instructor. Area determined in accordance
with student's program and professional goals.

656 MASTER'S TECHNOLOGY PROJECT 2-3 credits
Prerequisite: 520 or permission of instructor. A technology learning package that includes
any combination of text, graphics, sound, color, motion, and the provision for inter-
action by the target students.

661 INDEPENDENT STUDY 1-12 credits
May be repeated for a total of six credits. Prerequisites: permission of department chair
and instructor. Specific area of study determined in accordance with student's program and
professional goals.

664 MASTER'S PROJECT 1-6 credits
Prerequisites: 520 or permission of instructor. Independent study of a specific problem in ed-
ucational foundations.

66F MASTER'S THESIS 1-6 credits
Prerequisites: permission of department chair and instructor. In-depth study of research prob-
lem within humanistic and behavior foundation.

701 HISTORY OF EDUCATION IN AMERICAN SOCIETY 3 credits
Prerequisite: permission of instructor. History of education in American social order, with special emphasis on social,
political and economic setting.

703 SEMINAR: HISTORY AND PHILOSOPHY OF HIGHER EDUCATION 3 credits
Prerequisite: 520 or equivalent. Prerequisite: permission of instructor. A study of selected
issues in historical and philosophical foundations.

706 SEMINAR: SOCIAL-PHILOSOPHICAL FOUNDATIONS OF EDUCATION 3 credits
Prerequisite: permission of instructor. An examination of historical and philosophical
foundations of educational programs and policies.

710 LEARNING, DEVELOPMENT, AND MOTIVATION 3 credits
Prerequisite: 520 or permission of instructor. An examination of selected theoretical
issues in learning, motivation, and development.

711 LEARNING PROCESSES 2 credits
Prerequisite: 520 or permission of instructor. A study of selected theoretical models of
learning and motivation.

712 TEACHER BEHAVIOR AND INSPECTION 3 credits
Prerequisites: 520 and 740. A study of the behavior of teachers and the phenomena of
teaching.

740 RESEARCH DESIGN 3 credits
Prerequisite: permission of department chair and instructor. A study of research design.

741 DATA COLLECTION METHODS 3 credits
Prerequisites: permission of department chair and instructor. A study of research design.

742 STATISTICS IN EDUCATION 3 credits
Prerequisite: permission of department chair and instructor. A study of research design.

790 RESEARCH PROJECT IN SPECIAL AREAS 1-12 credits
Prerequisite: permission of department chair and instructor. A study of research design.

801 RESEARCH SEMINAR 2 credits
Prerequisite: 520 or permission of department chair and instructor. A study of research
design.

897 INDEPENDENT STUDY 1-6 credits
Prerequisites: permission of department chair and instructor. A study of research design.

Graduate Courses 103
GENERAL ADMINISTRATION 5170:

590 WORKSHOP 3 credits

591 PRINCIPLES OF EDUCATIONAL ADMINISTRATION 3 credits
Prerequisite: 5100:640. A perspective of educational leadership and the context in which it operates, with emphasis on the processes, roles, and relationships involved. Field based research required.

592 MANAGEMENT OF PHYSICAL RESOURCES 3 credits
A comprehensive view of the principles, practices, and new dimensions involved in the planning and management of educational facilities.

593 MANAGEMENT OF HUMAN RESOURCES 3 credits
An orientation to the major dimensions of the personnel function.

594 SCHOOL-COMMUNITY RELATIONSHIPS 3 credits
Prerequisites: 601 and 6100:640. An analysis of the principles, practices, and materials that facilitate the interaction between the school's internal and external publics. Field based research required.

596 EVALUATION IN EDUCATIONAL ORGANIZATIONS 3 credits
Prerequisites: 601 and 6100:640. An examination of the general concepts, models, practical applications and considerations involved in the evaluation of educational organizations.

597 SCHOOL LAW 3 credits
Prerequisites: 601 and 6100:640. An examination of the legal-principles underlying education in the United States as reflected in statutory provisions, court decisions and administrative orders. Field based research required.

598 SCHOOL FINANCE AND ECONOMICS 3 credits
A study of financial operations of school systems, including taxes, other sources of revenue, expenditures, budgeting and effects of economic factors.

599 PRINCIPLES OF CURRICULUM DEVELOPMENT 3 credits
Prerequisites: 601 and 6100:640. This course is intended to help the student develop the performance competencies to engage in curriculum decision making.

600 PRINCIPLES OF EDUCATIONAL SUPERVISION 3 credits
Prerequisites: 601 and 6100:640. An introduction to the school function that improves instruction through direct assistance, curriculum, staff and group development and action research.

601 ADMINISTRATION OF HIGHER EDUCATION 3 credits
Prerequisites: 601 and 6100:640. Overview of current services including analysis of the nature and development of each component and program and discussion of current issues and trends. Field based research required.

602 THE PRINCIPALSHIP 3 credits
An examination of leadership as it relates to the development and maintenance of a school climate conducive to teaching and learning.

607 INDEPENDENT STUDY 1-3 credits
Prerequisites: permission of advisor and supervision of the independent study. Area of study defined by student's needs. (May be repeated for a total of six credits.)

700 ADVANCED PRINCIPLES OF CURRICULUM DEVELOPMENT 3 credits
Study of organization and strength of weaknesses of common methods of administering them. Practical measures for overcoming bureaucratic weaknesses of bureaucracies are offered and assessed by educational institutions.

701 DECISION MAKING IN EDUCATIONAL ADMINISTRATION 3 credits
Decision making is portrayed as a central function of the educational administrator with a unit presentation of the theory, research and practice of decision making.

702 THE SUPERINTENDENCY 3 credits
An orientation to the superintendent's role and an examination of the strategies for dealing with the major relational and functional aspects of the superintendency.

703 ECONOMICS IN EDUCATION 2 credits
Issues related to the changing marketplace of public, private schooling and higher education institutions as they relate to the environment.

704 ADVANCED PRINCIPLES OF CURRICULUM DEVELOPMENT 3 credits
A second course in curriculum development with an emphasis on the performance competencies needed to engage in curriculum planning and decision making.

705 ADVANCED SCHOOL LAW 2 credits
An in-depth study of the law as it pertains to the function and role of the administrator as instructional leader, developer, building, facility and auxiliary services manager.

706 ADVANCED EVALUATION OF EDUCATIONAL ORGANIZATIONS 3 credits
An evaluation course to help educational leaders plan and assess educational priorities and outcomes.

708 TOPICAL SEMINAR EDUCATIONAL ADMINISTRATION 1-3 credits
May be repeated. Permission of instructor. Topical studies in selected areas of concern to students, practicing administrators in public, private educational institutions, organizations.

730 RESIDENCY SEMINAR 3 credits
Focus on recent research in administration and educational administration theory.

731 RESIDENCY SEMINAR 2 credits
Prerequisite: 601. Focus on recent research in administration and educational administration theory.

732 PUBLIC AND MEDIA RELATIONS IN EDUCATIONAL ORGANIZATIONS 3 credits
A course in educational public relations intended to help educational leaders facilitate the development of common perceptions about school issues with multiple constituencies.

740 THEORIES OF EDUCATIONAL SUPERVISION 3 credits
Prerequisites: 610. Includes supervisory models, staff development, and the organizational environment's impact on the climate for effective supervision.

745 SEMINAR URBAN EDUCATIONAL ISSUES 3 credits
A study of the linkage between urban organizations and their social context, particularly as they relate to educational change. Research project required.

746 POLITICS OF EDUCATION 3 credits
Emphasis given to recent efforts to bring about reform at all levels of the educational enterprise and to conceptual perspectives and research findings.

795, 8 RESIDENCY IN EDUCATIONAL ADMINISTRATION 1-2 credits
Students are required to successfully complete a two-semester internship in a school district chosen by the student and his/her advisor.

897 INDEPENDENT STUDY 1-2 credits
Prerequisite: permission of advisor. Independent study of a research problem in education. Students 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.

499 DOCTORAL DISSERTATION 1-20 credits
Prerequisite: permission of advisor. Specific research problem that requires student to apply research skills and techniques to the problem being studied.

HIGHER EDUCATION ADMINISTRATION 5190:

500 INTRODUCTION TO THE STUDY OF HIGHER EDUCATION 3 credits
Introductory examination of roles, functions, issues, trends and activities of institutions of higher education.

515 ADMINISTRATION IN HIGHER EDUCATION 3 credits
In-depth study of administrative roles, functions, knowledge and skills requirements, and administrative behavior. Trends in administrative theory and application also explored.

521 LEGAL ASPECTS OF HIGHER EDUCATION 3 credits
Prerequisite: 5100:640. An examination of the legal issues associated with administrative decision-making.

525 TOPICAL SEMINAR: HIGHER EDUCATION 3 credits
May be repeated. Topic study in a variety of areas related to public and/or private higher education institutions, organizations. Maximum of six credits applied to degree.

526 STUDENT SERVICES AND HIGHER EDUCATION 3 credits
Examination of issues related to the delivery and evaluation of student services in higher education.

527 THE AMERICAN COLLEGE STUDENT 3 credits
An introduction to the sociopsychological literature concerning the impact of college on students and student development theory.

530 HIGHER EDUCATION CURRICULUM AND PROGRAM PLANNING 3 credits
Study of academic planning at the college and university level, factors influencing curriculum design, theories and processes of curricular change and innovation are also explored.

580 WORKSHOP 3-6 credits
(May be repeated for a total of six credits.) Emphasizing the development and implementation of behavior appropriate to the college/university setting.

581 ADVANCED ADMINISTRATIVE COLLOQUIUM IN HIGHER EDUCATION 3 credits
Prerequisite: permission. Examinations of contemporary and future organizational, social and legal issues related to the management of Higher Education Institutions, including those that pose particular concern to students.

587 INTERNSHIP IN HIGHER EDUCATION 3 credits
May be repeated for a total of six credits. (Prerequisite: 501 or permission.) Practical experience and to provide the opportunity to share ideas and experiences from various areas of higher education administration placement.

600 FINANCE AND HIGHER EDUCATION 3 credits
Familiarizes students with the financing of new American Higher Education is financed, identifies various methodologies used, and political and economic impacts and processes involved.

606 ORGANIZATION AND POLICY DEVELOPMENT IN HIGHER EDUCATION 3 credits
An examination of the role of the university in today's society. Focus on internal decision-making and externally driven forces that affect the higher education sector.

608 INDEPENDENT STUDY IN HIGHER EDUCATION 1-3 credits
Selected areas of independent investigation in an area of higher education as determined by the advisor and student in relation to student's academic needs and career goals.

POSTSECONDARY TECHNICAL EDUCATION 5400:

500 POSTSECONDARY LEARNER 3 credits
Prerequisite: 501 or permission of instructor. Describes characteristics of the postsecondary learner; studies issues, factors, and strategies pertinent to successful facilitation of learning in a variety of postsecondary learning environments.

501 LEARNING WITH TECHNOLOGY 1 credit
An overview of informational learning and research technologies used and applied in workforce education and training by fraunchise/learners for learning, research, and evaluation.

505 WORKPLACE EDUCATION FOR YOUTH AND ADULTS 3 credits
Prerequisite: 501 or permission of instructor. History and operations of current workforce educational programs for youth and adults. Includes study of social, economic, and political influences that stimulate growth and expansion of workforce education...

515 TRAINING IN BUSINESS AND INDUSTRY 3 credits
Prerequisite: 501 or permission of instructor. Examines the role and mission of the training function in the modern industrial setting. Foundation for students interested in industrial training or training supervisor positions.

530 POSTSECONDARY INSTRUCTIONAL TECHNOLOGY 3 credits
Prerequisite: 501. Experiences in using, developing, and evaluating instructional technology and media used in postsecondary learning environments.

530 SYSTEMATIC CURRICULUM DESIGN FOR POSTSECONDARY INSTRUCTION 3 credits
Prerequisites: 501 and 5100:640. Development of postsecondary curriculum using sound instructional systems design principles and instructional technologies.

535 SYSTEMATIC INSTRUCTIONAL DESIGN IN POSTSECONDARY EDUCATION 3 credits
Prerequisites: 501, 530, 650. 5100:640. Design, overview of instructional strategies appropriate for postsecondary instructors. Emphasizes on instructional design and learner outcome assessments.

541 GERONTOLOGY SEMINAR 3 credits
Designed for persons practicing in the field of gerontology or preparing for a specialization in educational gerontology, including persons responsible for development and implementation of programs, services, congregational training programs and workshops for older people.
580 SPECIAL TOPICS: WORKFORCE EDUCATION/TRAINING 1-3 credits
(May be repeated for a maximum of 6 credit hours with a change in topic.) Prerequisite: permission of the instructor. Group study of special topics of critical, contemporary concern in workforce education/training.

580.12 WORKSHOP 1-3 credits each
Workshop for educators to improve teaching skills in a specific area of the curriculum. (May be repeated for a maximum of 6 credits.)

594 EDUCATIONAL INSTITUTES 1-4 credits
Special courses designed as in-service upgrading programs, frequently provided with support of national foundations.

600 CONCEPTS OF CURRICULUM AND INSTRUCTION 3 credits
A study of the underlying research and theory of curriculum and instruction with special attention to educational decision in the metropolitan setting.

605 ADVANCED SEMINAR IN CURRICULUM AND INSTRUCTION 3 credits
Prerequisite: 500. A study of recent research and theory in curriculum and instruction with special attention to applications to educational decision making.

610 EDUCATION AND THE YOUNG CHILD 3 credits
Course is concerned on educational needs of young children from birth through five years.

615 PHILOSOPHY AND ORGANIZATION OF MIDDLE SCHOOLS 3 credits
Philosophy, theory, research, and exemplary organizational, assessment, and evaluation components of middle level educational programs, assessment, and evaluation processes.

616 MIDDLE SCHOOL CURRICULUM AND INSTRUCTION 3 credits
Theories, research, and exemplary practices focusing on middle school curriculum and instruction.

617 ELEMENTARY AND SECONDARY LICENSED SEMINAR 3 credits
Prerequisites: admission to teacher education and the Master's with Licensure Program. This course should be taken at the beginning of the Master's with Licensure program as an introduction to curricular and the pragmatics of teaching.

618 ADVANCED INSTRUCTIONAL TECHNIQUES 3 credits
Prerequisite: 517. Methods of teaching a particular area of the middle and secondary school curriculum for students in the Master's with Licensure Program.

619 INSTRUCTIONAL AND MANAGEMENT PRACTICES 3 credits
Prerequisites: 517 and admission to teacher education and the Master's with Licensure Program, and/or GED. Students will develop models and management strategies to become effective instructors. Also included are educational issues that relate to effective management and instruction.

620 LITERATURE FOR YOUNG CHILDREN 3 credits
Literature for children ages two through six examined in depth in terms of value and purpose, methods and techniques for presenting it to children, variety and quality of books available.

622 CHILDREN'S LITERATURE CURRICULUM 3 credits
Examination of literary genres with emphasis on methods and techniques for presenting literature to children in preschool, elementary, and middle grades.

625 CONTEMPORARY ISSUES IN READING INSTRUCTION 3 credits
Prerequisite: 5200:335 or permission of instructor. Survey course exploring current research in reading and writing as constructive processes of meaning-making.

627 SPECIAL TOPICS IN LITERACY EDUCATION 3 credits
(May be repeated for a maximum of 6 credits.) In-depth examination of current research on issues of literacy education.

628 LITERARY ASSESSMENT PRACTICUM 3 credits
Prerequisite: supervisor permission. Supervisory experience within classroom, small groups, and/or 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 within and without previous study in the teaching of reading. Materials, class organization and procedures for developing reading improvement programs, for all secondary school and college level.

635 SEMINAR IN TEACHING FOREIGN LANGUAGES 3 credits
(May be repeated for a total of six credits.) Issues and subjects related to foreign language education and language learning theories. Different topics will be offered from section to section.

637 TOPICAL SEMINAR IN RESEARCH AND THEORY IN FOREIGN LANGUAGE EDUCATION 3 credits
(May be repeated for a total of six credits.) Issues and subjects related to foreign language education and language learning theories. Different topics will be offered from section to section.

645 THEORY AND PRACTICE IN ELEMENTARY SCHOOL MATHEMATICS 3 credits

650 ELEMENTARY SCIENCE CURRICULUM AND INSTRUCTION 3 credits
A critical analysis of contemporary science curriculum and instructional methods for the young learner with particular attention to 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 for science for early adolescent and advanced learners.

692 FIELD EXPERIENCE: COLLOQUIUM 1 credit
Prerequisite: admission to student teaching, corequisite: 694. Instructional experience in the 7-12 classroom to apply theory and research to practice.

693 FIELD EXPERIENCE: MASTER'S WITH LICENSURE 1-3 credits
Prerequisite: admission to student teaching, corequisite: 692. Instructional experience in the 7-12 classroom to apply theory and research to practice. (May be repeated for a maximum of 6 credits.)

694 FIELD EXPERIENCE: CLASSROOM INSTRUCTION 1-3 credits
Prerequisites: approved student teaching application, pass PRAKS II subject tests, approved portfolio and/or approval of the Student Teaching Committee; corequisite: 692. Planned teaching experience in schools approved and supervised by Office of Field Experience.

695 FIELD EXPERIENCE: MASTER'S 1-4 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 1-2 credits
Prerequisites: permission of advisor and department chair. Applied research, independent study, and supervised research on problems of particular interest to the student.

697 INDEPENDENT STUDY 1-2 credits
Prerequisites: permission of advisor and department chair. Selected areas of independent research investigation as determined by advisor and related to the student's academic needs.

699 MASTER'S THESIS 1-4 credits
Prerequisites: 5100:640 and permission of advisor and department chair. In-depth study of research problem in education. Student must be able to demonstrate necessary competencies to deal with research problem in education.

CURRICULAR AND INSTRUCTIONAL STUDIES 5500:

52 DEVELOPMENTAL READING IN THE CONTENT AREAS - ELEMENTARY 3 credits
Nature of reading skills relating to content subjects. Methods and materials needed to promote reading achievement in content subjects by the elementary classroom teacher.

524 TEACHING READING TO CULTURALLY DIVERSE LEARNERS 3 credits
Prerequisites: 5200:331 and permission of instructor. Knowledge, skills and attitudes to employ effective methods of teaching reading to diverse populations and/or learners whose language background is not English.

525 PRINCIPLES OF BILINGUAL/MULTICULTURAL EDUCATION 3 credits
An introduction to the theoretical, cultural, sociological bases of bilingual/multicultural education. Legislation, court decisions, program implementation included.

526 LANGUAGE LITERACY TO SECONDARY LEARNERS 3 credits
Prerequisite permission of instructor. Course applies methodologies for teaching language, reading, and language arts in the bilingual/multicultural classroom. The bilingual student's native language and English skills are stressed.

527 TEACHING MATHEMATICS, SOCIAL STUDIES AND SCIENCE TO BILINGUAL STUDENTS 3 credits
Prerequisites: elementary education majors, 5500:333, 336, 338; secondary education majors, 5500:311; science, social studies in the bilingual/multicultural classroom. Course applies methodologies for teaching mathematics, science, social studies in the bilingual multicultural classroom. The bilingual student's native language and English skills are stressed.

530 TEACHING READING AS A SECOND LANGUAGE 3 credits
Prerequisite: permission of instructor. Course includes teaching language skills to Limited English Proficient students in grades K-12, administration of language assessment tests, selection and evaluation of materials.

550 VOCATIONAL BUSINESS EDUCATION 3 credits
Prerequisite: senior status or permission. Principles of program construction, organization, administration, evaluation, and development of program guides for both intensive and cooperative vocational education.

550 MULTICULTURAL EDUCATION IN THE UNITED STATES 3 credits
An introduction to the multicultural dimensions of American education. Comparisons of urban, suburban and rural educational settings with reference to socioeconomic differences.

551 CHARACTERISTICS OF CULTURALLY DIVERSE POPULATIONS 3 credits
Characteristics of culturally diverse populations with focus on youth in low-income areas. Emphasis on cultural, social, economic, and educational considerations and their implications.

552 PREPARATION FOR TEACHING CULTURALLY DIVERSE POPULATIONS 3 credits
Gain knowledge of learning styles, motivational, instructional, and management techniques; and develop appropriate instructional materials for diverse populations.

553 INSTRUCTIONAL TECHNOLOGY APPLICATIONS 3 credits
Prerequisite: 5100:320 or instructor permission. Focus on developing learner competencies in the use of instructional technologies to enhance both the instructor's personal and professional productivity.

590.12 WORKSHOP 1-3 credits
Workshop for educators to improve teaching skills in a specific area of the curriculum. (May be repeated for a maximum of 6 credits.)

694EDUCATIONAL INSTITUTES 1-4 credits
Special courses designed as in-service upgrading programs. Frequently provided with support of national foundations.

699 MASTER'S THESIS 1-4 credits
Prerequisites: 5100:640 and permission of advisor and department chair. In-depth study of research problem in education. Student must be able to demonstrate necessary competencies to deal with research problem in education.
PHYSICAL EDUCATION 5550:

500 MUSCULOSKELETAL ANATOMY I: UPPER EXTREMITY 3 credits
Prerequisites: 3100:200, 201, 202, and 550:201. Designed to address the upper portions of the musculoskeletal system in comprehensive detail. Includes articulations, alignment, palpation, and movement of the upper extremity.

501 MUSCULOSKELETAL ANATOMY II: LOWER EXTREMITY 3 credits
Prerequisites: 3100:200, 201, 202, and 550:201. Designed to address the lower portions of the musculoskeletal system in comprehensive detail. Includes articulations, palpation, and movement of the lower extremity.

522 SPORTS PLANNING/PROMOTION 3 credits
Analysis of marketing/promotions from a sport manager's perspective. Emphasis on marketing strategy, tactics, and development in sport delivery systems.

530 FOUNDATIONS AND ELEMENTS OF ADAPTED PHYSICAL EDUCATION 3 credits
Principles, components, and strategies necessary for providing motor activities for handicapped students via application of a non-developmental model and alternative methods.

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 in the field.

541 ADVANCED ATHLETIC INJURY MANAGEMENT: UPPER EXTREMITY 4 credits
Prerequisites: 3000:200, 201, 202, and 550:240. This course is designed to cover recognition, evaluation, and rehabilitation of upper extremity injuries as well as general medical pathologies of the upper extremity.

542 THERAPEUTIC MODALITIES AND PHARMACOLOGY 3 credits
Prerequisites: 3000:200, 201, and 550:240. This course is designed to teach the techniques and skills of Sports Medicine personnel in the selection and implementation of therapeutic modalities and drugs.

551 ASSESSMENT AND EVALUATION IN ADAPTED PHYSICAL EDUCATION 3 credits (20 clinical hours)
Prerequisite: Permission of advisor. Research investigation. Students will develop an in-depth analysis of one area of teacher education. Each student will be responsible for the delivery of a short presentation.

553 PRINCIPLES OF COACHING 3 credits
Basics for becoming a successful coach. Discussion of principles applying to most sports, players, and coaches. Ten (10) clinical hours required.

556 LEGAL/Ethical ISSUES IN PHYSICAL AND LEISURE ACTIVITIES 3 credits
Legal and contemporary issues of greatest concern to those interested in physical and leisure activity: risk management, playground safety, blood-borne pathogens, ethics.

590,1,000 WORKSHOP 1-3 credits
Practice, intensive, and concentrated involvement with current curricular practices in areas related to physical education.

594 STUDENT TEACHING COLLOQUIUM 2 credits
Prerequisites: Required physiological foundations courses; required historical/philosophical foundations courses; required program studies courses. Students are grouped into teams and directed to complete a teaching module under the direction of an advisor. Emphasis is on research about student teaching experience, to analyze progressive learning as it relates to this and future teaching.

595 PRACTICUM: STUDENT TEACHING 6-10 credits
Prerequisites: Required physiological foundations courses; required historical/philosophical foundations courses; required program studies courses. Supervised teaching experiences in a school setting. Students completing the master's plus initial licensure program are provided with the opportunity to teach, explore new methodologies, and to interact with an actual school environment.

600 BIOMECHANICS APPLIED TO SPORT AND PHYSICAL ACTIVITY 4 credits
Prerequisites: Required physiological foundations courses; required historical/philosophical foundations courses; required program studies courses. Supervised teaching experiences in a school setting. Students completing the master's plus initial licensure program are provided with the opportunity to teach, explore new methodologies, and to interact with an actual school environment.

601 SPORTS ADMINISTRATION AND SUPERVISION 4 credits
Prerequisites: Required physiological foundations courses; required historical/philosophical foundations courses; required program studies courses. Supervised teaching experiences in a school setting. Students completing the master's plus initial licensure program are provided with the opportunity to teach, explore new methodologies, and to interact with an actual school environment.

602 MOTOR BEHAVIOR APPLIED TO SPORTS 3 credits
Prerequisites: Required physiological foundations courses; required historical/philosophical foundations courses; required program studies courses. Supervised teaching experiences in a school setting. Students completing the master's plus initial licensure program are provided with the opportunity to teach, explore new methodologies, and to interact with an actual school environment.

603 TACTICS AND STRATEGIES IN THE SCIENCE OF COACHING 3 credits
Prerequisites: 5550:240. This course focuses on coaching the skills, tactics, and strategies in individual and team sports.

604 CURRENT ISSUES IN PHYSICAL EDUCATION 3 credits
Prerequisites: 5550:240. This course addresses current issues and problems related to outdoor education. Topics include the role of physical education in today's society, the role of the physical education teacher, and the role of the physical education administrator.

610 RESEARCH AND APPLICATION OF OUTDOOR EDUCATION TO THE SCHOOL CURRICULUM 3 credits
Prerequisites: 5550:240. This course is designed to provide students with a comprehensive understanding of outdoor education and its application to the school curriculum. Topics include the role of outdoor education in the school curriculum, the role of the outdoor education teacher, and the role of the outdoor education administrator.

611 INDEPENDENT STUDY 1-3 credits
Prerequisites: Permission of advisor. Supervised study, student-designed, and self-directed study. May be repeated for a maximum of 6 credits.

612 RESIDENT OUTDOOR EDUCATION 2 credits
Prerequisites: Permission of advisor. Supervised study, student-designed, and self-directed study. May be repeated for a maximum of 6 credits.

613 PROFESSIONAL DEVELOPMENT IN OUTDOOR EDUCATION 3 credits
Prerequisites: Permission of advisor. Supervised study, student-designed, and self-directed study. May be repeated for a maximum of 6 credits.

614 SPECIAL TOPICS IN OUTDOOR EDUCATION 1-3 credits
Prerequisites: Permission of advisor. Supervised study, student-designed, and self-directed study. May be repeated for a maximum of 6 credits.

615 MASTER'S PROBLEM 1-3 credits
Prerequisites: Permission of advisor. Supervised study, student-designed, and self-directed study. May be repeated for a maximum of 6 credits.

616 MASTER'S THESIS 1-6 credits
Prerequisites: Permission of advisor. Supervised study, student-designed, and self-directed study. May be repeated for a maximum of 6 credits.

618 FIELD EXPERIENCE: MASTERS 1-8 credits
Prerequisites: Permission of advisor. Supervised study, student-designed, and self-directed study. May be repeated for a maximum of 8 credits.

619 RESEARCH AND APPLICATION OF OUTDOOR EDUCATION TO THE SCHOOL CURRICULUM 3 credits
Prerequisites: Permission of advisor. Supervised study, student-designed, and self-directed study. May be repeated for a maximum of 6 credits.

620 COMMUNITY HEALTH 2 credits
Prerequisites: Completion of a course in community health. This course provides an overview of community health issues and the role of the community health worker.

621 COMPREHENSIVE SCHOOL HEALTH EDUCATION 4 credits
Prerequisites: Completion of a course in community health. This course provides an overview of community health issues and the role of the community health worker.
EVALUATION AND SPED IN COUNSELING 5600:

550 COUNSELING PROBLEMS RELATED TO LIFE-THREATENING ILLNESS AND DEATH 3 credits
Prerequisite: permission. Consideration of the global issues, current research, coping behav-
ior, support systems and family and individual needs in regard to lifethreatening situations.

550 WORKSHOP 3 credits
Special instruction designed as in-service and/or upgrading individuals on current issues and
practices in counseling.

560 SEMINAR IN COUNSELING 1 credit
Prerequisite: counseling majors must elect 600 prior to electing 650 and/or within the first 10
of 9000 course work. Selected group experience designed to help a student assess selection
of a profession as a professional.

561 COUNSELING SKILLS FOR TEACHERS 3 credits
Prerequisite: 650 or 630 or permission. The study and practice of selected counseling tech-
niques that can be applied by teachers in working with students, parents and colleagues.

600 ISSUES IN SEXUALITY FOR COUNSELORS 3 credits
A seminar covering, in addition to changing current topics, sexuality across the lifespan, dis-
erity and sexual orientation, and assessment.

601 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.

622 INTRODUCTION TO PLAY THERAPY 3 credits
Prerequisites: enrolled in a master's or doctoral program in counseling or related field, or spe-
cial randeepost students i.e., professional counselors. This course is designed to give students
an introduction to play therapy from a child-centered perspective. Students will develop com-
petencies in child-centered therapy.

623 MARRIAGE AND FAMILY COUNSELING/ THERAPY ETHICS AND PROFESSIONAL IDENTITY 3 credits
This course is designed to help students learn about marriage and family counseling/therapy as
a distinct profession and about its corresponding ethical codes.

631 ELEMENTARY/SECONDARY SCHOOL COUNSELING 3 credits
Introductory class, examines elementary and secondary school counseling practices.

635 COMMUNITY COUNSELING 3 credits
Overview of community and college counseling services; their evaluation, philosophy, organi-
ization and administration.

649 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
related competencies in the school counseling setting will be addressed.

643 COUNSELING THEORY AND PHILOSOPHY 3 credits
Examination of major counseling theories including client-centered, behavioral and existential
theories. Philosophical and theoretical dimension stressed.

645 TESTS AND APPRAISAL IN COUNSELING 4 credits
Prerequisites: 5902/640. Study of the nature of tests and appraisal in counseling including reli-
ability, validity, test construction and selection, administration, scoring, and basic interpreta-
tion of selected measures.

646 MULTICULTURAL COUNSELING 3 credits
Prerequisite: 643 or permission of instructor. An examination of multicultural counseling the-
ory and research necessary to work with culturally diverse people.

647 CAREER DEVELOPMENT AND COUNSELING ACROSS THE LIFE-SPAN 3 credits
Overview of career development and choice over the life-span. Personal, family, and societal
characteristics that affect the individual's career choice, and implementation and assessment.

648 INDIVIDUAL AND FAMILY DEVELOPMENT ACROSS THE LIFESPAN 3 credits
An exploration of individual and family development. Emphasis will be placed on understand-
ing the relationship between the individual and family member.

650 FISSION THERAPY 3 credits
Prerequisites: 590 or 622 and graduate student in counseling or related field. This course is
designed to train therapists how to help parents teach specific child-centered play therapy skills
to use with their children.

651 TECHNIQUES OF COUNSELING 3 credits
Prerequisite: 643 or permission. Study and practice of selected counseling techniques and
strategies for construct, listening, leading and establishing a counseling relationship.

653 GROUP COUNSELING 4 credits
Prerequisites: 643 and 645, or 3750/671 and 710 (735) or permission. Emphasis is placed on
helping the student develop the knowledge and understanding of theory, research and tech-
niques necessary for conducting group counseling sessions.

655 MARRIAGE AND FAMILY THERAPY: THEORY AND TECHNIQUES 3 credits
An overview of the theory and techniques of marital and family therapy, including exposure to
the history, terminology and contributions of significant persons in the field.

657 CONSULTANT COUNSELING 3 credits
Prerequisites: 621, 645. or permission. Examination of consultation models with focus on
process and product.

659 ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES 3 credits
Prerequisite: 653 or 653 or permission. Development of a comprehensive articulated guidance
and counseling program.

666 COUNSELING CHILDREN 3 credits
Prerequisite: graduate student in counseling or related field. This course is designed as an
advanced level course for counselors, school counselors, school psychologists, or other profes-
sionals preparing to engage in therapeutic work with children. It is not a class in diagnosis of
child disorders.

669 SEMINAR IN SCHOOL COUNSELING 3 credits
Prerequisites: 633, 643, 645 and 647. Study of specific guidance techniques and materials
useful to counselors working with the secondary school student, teacher and parents.

667 MARRITAL THERAPY 3 credits
Prerequisite: 655. In-depth study of theories and interventions which focus on the nature and
growth of marital relationships.

668 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.

672 ADVANCED COUNSELING PRACTICUM 4 credits
Prerequisite: 653. Supervised counseling experience with individuals and small groups. Credit
noncredit.

685 INTERNSHIP 3 credits
Prerequisite: 675. Must be repeated for a total of 6 credit hours. Paid or unpaid supervision in
professional counseling clin. Credit/noncredit.

696 FIELD EXPERIENCE: MASTER'S 1-3 credits
Prerequisites: permission of advisor and department chair. Placement in selected setting for
purpose of acquiring experiences and/or demonstrating skills related to student's counseling
program.

707 INDEPENDENT STUDY (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.

708 SUPERVISION IN COUNSELING PSYCHOLOGY I, II 4 credits each
Prerequisite: doctoral residency or permission. Instruction and experience in supervising grad-
uate students in counseling.

710 THEORIES OF COUNSELING AND PSYCHOTHERAPY 4 credits
Prerequisite: 3710/3030 or departmental permission. Major systems of individual psychothera-
py explored within a philosophy of science framework. Freudian, behavioral, Rogerian, cogni-
tive and other. Includes research, contemporary problems and ethics.

711 VOCATIONAL BEHAVIOR 4 credits
Prerequisite: 3710/3030 or departmental permission. Theories and research on vocational behav-
ior and vocational counseling. In-depth examination of the major theories on vocational behavior, empirical
research on these theories, applied work in vocational counseling and applied research.

712 PRINCIPLES AND PRACTICE OF INDIVIDUAL INTELLIGENCE TESTING 4 credits
Prerequisites: 620 or graduate standing. A critical examination of the major theories on in-
tellectual assessment. Hands-on experience in selection 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 such as
the counselor's role as a professional and as a person, issues and problems in counseling.

714 OBJECTIVE PERSONALITY EVALUATION 4 credits
Prerequisites: completion of 3750/4010/5010, 3710/3020/5020, and 3750/750 or 950/620 or per-
mission. 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 proce-
dures and review of current research.

716 RESEARCH DESIGN IN COUNSELING II 3 credits
Prerequisite: 704. Computer analysis of data related to counseling problem. Development of
Research proposal.

717 ISSUES OF DIVERSITY IN COUNSELING PSYCHOLOGY 4 credits
Prerequisites: 3750/3030, one semester of practicum work. Critical examination and appli-
cation of research and theory in counseling diverse populations, focusing on race/ethnicity, discri-
mination, sexual orientation, age, disability, and spirituality.

718 HISTORY AND SYSTEMS IN PSYCHOLOGY 2 credits
Prerequisite: 3750/3030. Philosophical and scientific antecedents of psychology and details of
the development of systematic viewpoints in the 19th and 20th centuries.

718 TOPICAL SEMINARS: GUIDANCE AND COUNSELING 3 credits
Prerequisites: permission of advisor and department chair. A critical examination of the major
topics and assessment techniques that affect the individual in assessment and counseling.

719 DOCTORAL PROFESSIONAL DEVELOPMENT SEMINAR 2 credits
Prerequisite: Admission into the Counseling Education Doctoral Program. To be taken the first
fall term upon admission. Professional issues in the field of counselor education and doctor-
al identity development.

721 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 disor-
der.

724 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
range of treatment interventions used with addictive disorders.

725 ASSESSMENT METHODS AND TREATMENT ISSUES IN MARRAGE AND FAMILY THERAPY 3 credits
Prerequisites: doctoral standing or permission. Provides advanced counseling students with the
knowledge and skills in assessment methods, techniques and instruments relevant to the prac-
tice of marriage and family counseling.

726 OUTCOME RESEARCH IN MARRIAGE AND FAMILY THERAPY 3 credits
Prerequisite: 667. 5670/6020. This course will provide an in-depth examination of marriage
and family therapy outcome research.

727 DOCTORAL INTERNSHIP 2 credits
Must be repeated for a total of 6 credit hours. Prerequisite: passing grade on doctoral writ-
ten and oral comprehensive examinations. Supervision in professional clinical counseling.
Credit/no credit.

728 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 develop-
ment of specialized theories and methods. Credit/no credit.

730 INDEPENDENT READING AND/OR RESEARCH IN COUNSELING PSYCHOLOGY 3 credits
May be repeated. Prerequisite: permission of instructor. Independent readings and/or research
in an area of counseling psychology under the direction of a faculty member.
SPECIAL EDUCATION 5610:  

540 DEVELOPMENTAL CHARACTERISTICS OF EXCEPTIONAL INDIVIDUALS 3 credits  
Prerequisite: admission to a College of Education Teacher Preparation Program or permission of instructor. A survey of the areas covering the identification, developmental characteristics, and intervention strategies for exceptional children and youth in special education settings.  

544 DEVELOPMENTAL CHARACTERISTICS OF INTELLIGENTLY GIFTED INDIVIDUALS 3 credits  
Prerequisite: 440/540. Survey of the psychology, diagnoses, classification and developmental characteristics of intellectually gifted individuals.  

547 DEVELOPMENTAL CHARACTERISTICS OF INDIVIDUALS WITH MILD/MODERATE EDUCATIONAL NEEDS 4 credits  
Prerequisites: 7400/265 and 5610/4040/4500. Survey of the psychology, identification, classification, developmental characteristics of and intervention strategies for individuals with mild/moderate educational needs.  

550 SPECIAL EDUCATION PROGRAMMING: EARLY CHILDHOOD 3 credits  
Prerequisites: admission to a College of Education Teacher Preparation Program, 440/540, 7400/265, or permission of instructor. Developmental patterns of young children with exceptionalities and development/exceptionality appropriate practices with respect to programming and adaptations.  

551 SPECIAL EDUCATION PROGRAMMING: MILD/MODERATE I 3 credits  
Prerequisites: admission to a Special Education Licensure Program, 4405/5405, 4450/5450, 5200:345, 346, 347, or permission of instructor. Educational implications for assessment, teaching strategies, and adaptations needed to meet the needs of school age students with mild/moderate educational needs.  

552 SPECIAL EDUCATION PROGRAMMING: SECONDARY/TRANSITION 3 credits  
Prerequisites: 447 or 448. Survey of assessment, prescriptive service delivery systems, and development of teaching ideas to accommodate developmental patterns of secondary level students with exceptionalities.  

553 SPECIAL EDUCATION PROGRAMMING: MODERATE/INTENSIVE I 4 credits  
Prerequisite: 448. Development of the programming strategies including assessment, interdisciplinary models, family involvement, IEP/PEP/IEP development, instructional practices based upon legal/ethical principles for individuals with moderate/intensive educational needs.  

554 SPECIAL EDUCATION PROGRAMMING: MODERATE/INTENSIVE II 4 credits  
Prerequisites: 448 and 453. Advanced program for providing educational planning and intervention for individuals with moderate to intensive educational needs. Focus is on developing a comprehensive educational program which will facilitate optimum functioning and independence.  

555 SPECIAL EDUCATION PROGRAMMING: MILD/MODERATE II 3 credits  
Prerequisites: admission to a special education licensure program, 451/551, or permission of instructor. Special educational implications regarding assessment, teaching strategies, and adaptive materials necessary to meet the needs of school age students with mild/moderate educational needs.  

559 COLLABORATION AND CONSULTATION IN SCHOOLS AND COMMUNITY 3 credits  
Prerequisites: 445/545, 445/545, 446/546, or permission of instructor. Provides professional educators/intervention specialists with skills in collaboration and consultation for working with parents of exceptional children and other professionals within schools/community settings.  

560 FAMILY DYNAMICS AND COMMUNICATION IN THE EDUCATIONAL PROCESS 3 credits  
Prerequisites: 440/540, or 447/547, or 449/549, or permission of instructor. A study of family theory and structure along with beginning techniques for working with families of students with exceptionalities, in educational and community settings.  

561 SPECIAL EDUCATION PROGRAMMING: EARLY CHILDHOOD MODERATE/INTENSIVE 3 credits  
Prerequisite: Admission to a College of Education Teacher Preparation Program, 440/540, 450/550, and 7400/265, or permission of the instructor. Developmental patterns of young children with moderate/intensive needs (ages 3-8) and developmentally appropriate practices in programming and adaptations.  

563 ASSESSMENT IN SPECIAL EDUCATION 3 credits  
Prerequisite: 440/540. Prepares student to select, administer and interpret formal and informal assessment procedures and use resulting data in planning educational programs for exceptional individuals.  

564 ASSESSMENT AND EVALUATION IN EARLY CHILDHOOD SPECIAL EDUCATION 3 credits  
Prerequisites: 440/540 and 447/547. Provides in-service assessment of children three to eight and their environment who are at risk for disabilities or currently in special education.  

567 MANAGEMENT STRATEGIES IN SPECIAL EDUCATION 3 credits  
Prerequisites: 560/1201/1220/2030, 5610/440, 443, 445, 446. Content emphasis the development of strategies for application of assessment strategies for a variety of behavior management models for intervention of behaviors with exceptional individuals.  

568 ADVANCED BEHAVIORAL INTERVENTION 3 credits  
Prerequisites: 407/507. Advanced techniques for implementing problem behavior, establishing effective rebuffs and evaluating research related to classroom management will be covered. Behavioral therapy strategies will be emphasized.  

570 CLINICAL PRACTICUM IN SPECIAL EDUCATION 3 credits  
Prerequisite: permission of instructor. An supervised practicum experience for students in the area of special education, program planning, training, supervision and presentation, classroom management, adaptations, and collaboration with parents and other educational professionals.  

578 THE SIMMAR INVITATION TO SPECIAL EDUCATION 1-2 credits  
(May be repeated for a total of four credits) Topical study with a varied array of disciplinary input. Staffing will be invited members of allied and contributing professions active in management of exceptional children.  

591 SEMINAR SPECIAL EDUCATION CURRICULUM PLANNING 3 credits  
Prerequisite: certification in an area of special education. Study of curriculum planning practice unique to special education classes and services.  

592 SUPERVISION OF INSTRUCTION 3 credits  
Prerequisite: certification in special education. Supervision and evaluation of instructional programs.  

594 COLLABORATION AND CONSULTATION SKILLS FOR SPECIAL EDUCATORS 3 credits  
Prerequisite: admission to graduate program in special education or permission of the instructor. Consideration of roles and responsibilities of professionals working with individuals with disabilities in the development and implementation of educational interventions and related issues.  

595 INCLUSION MODELS AND STRATEGIES 3 credits  
Prerequisite: admission to graduate program in special education. History, theory, philosophy, legal mandates, models and strategies, curriculum modifications, methods/materials adaptations which support the inclusion of students with disabilities. Emphasis on collaboration and learning.  

596 RESEARCH APPLICATIONS IN SPECIAL EDUCATION 3 credits  
Prerequisites: admission to graduate program in special education and 5100/640, or permission of instructor. Application of quantitative and qualitative research methodology, and its application to the field of special education. Applied research is an essential component of the course.  

611 SEMINAL JURISPRUDENCE IN SPECIAL EDUCATION 3 credits  
Prerequisites: admission to graduate program in special education and 5170/720 or permission of instructor. Consideration of pertinent topics/issues in special education, study to examine and reflect upon the legal aspects of historical and current trends, issues and practices.  

612 SEMINAR SOCIAL/ETHICAL ISSUES IN SPECIAL EDUCATION 3 credits  
Prerequisites: admission to graduate program in special education, 611, or permission of the instructor. A culminating seminar for graduate students in special education designed to study, examine and reflect upon the social and ethical aspects of historical and current trends, issues and practices.  

681 STUDENT TEACHING SEMINAR 1-4 credits  
Prerequisite: 5500:245 and 5500:246 or permission of advisor. Taken concurrently with Student Teaching. Review and discussion of issues raised during teaching experience.  

682 STUDENT TEACHING: SCHOOL AULIDOGY 6 credits  
Prerequisite: Permission of advisor. Directed teaching in titles and functions of instructor and consultant. To be repeated for credit.  

683 STUDENT TEACHING: SPEECH LANGUAGE PATHOLOGY 6 credits  
Prerequisite: Permission of advisor. Directed teaching under supervision of a special teacher and a University supervisor.  

694 RESEARCH PROJECT IN SPECIAL AREA (SCHOLARLY PAPER) 3 credits  
Prerequisite: Cummulative experience in master's program. An in-depth study of an identified topic in a scholarly paper.  

695 FIELD EXPERIENCE: MASTERS (May be repeated for a total of eight credits) Designed to provide on-the-job experience in a special education program on an individual basis.  

696 INDEPENDENT STUDY (May be repeated for a total of nine credits) Prerequisites of advisor. Advanced study of a special topic in the field of special education.  

697 MASTER'S PROBLEM (May be repeated for a total of nine credits) Prerequisites: permission of advisor and supervising faculty. In-depth study. Specific area of investigation determined in accordance with student's needs.  

698 MASTER'S THESIS 4 credits  
Through study and analysis in depth of an educational problem, field projects in special areas, synthesis of existing knowledge in relationship to a specific topic.  

SCHOOL PSYCHOLOGY 5620:  

660 SEMINAR: ROLE AND FUNCTION OF THE SCHOOL PSYCHOLOGIST 3 credits  
Prerequisite: permission of instructor. Seminar on role and function of school psychologist.  

661 COGNITIVE FUNCTION MODELS FOR PRESCRIPTIVE EDUCATIONAL PLANNING 3 credits  
Prerequisite: permission of instructor. Consideration of cognitive development theories and their application for educational programming.  

662 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.  

663 CONSULTATION STRATEGIES IN SCHOOL PSYCHOLOGY 3 credits  
Prerequisite: permission of instructor. A consideration of consultative roles in the practice of school psychology as consultant to process and school and agency personnel, parents and children.  

669 EDUCATIONAL DIAGNOSIS FOR SCHOOL PSYCHOLOGISTS 4 credits  
Prerequisite: permission of instructor. Special study of current assessment approaches applicable to assessment of children's learning problems.  

671 PRACTICUM IN SCHOOL PSYCHOLOGY 4 credits  
Prerequisite: permission of instructor. Laboratory experience in psychology-educational study of individual children who have learning problems in school. (Repeat requirement)  

680 SEMINAR: CURRENT PROFESSIONAL TOPOICS/ISSUES IN SCHOOL PSYCHOLOGY 3 credits  
Prerequisite: permission of instructor. Consideration of pertinent topics/issues in practice of school psychology with emphasis on field based issues.  

683 FIELD SEMINAR: LOW INCIDENCE/RELATED INQUIRIES 3 credits  
Prerequisite: permission of instructor. Consideration of pertinent topics/issues in practice of school psychology with emphasis on field based practices of a partial school psychology.  

684 RESEARCH PROJECT IN SCHOOL PSYCHOLOGY 3 credits  
Prerequisite: permission of advisor. Study, analysis and reporting of school psychology problem.
590 WORKSHOP IN ECONOMIC EDUCATION OR IN SOCIAL STUDIES 1-3 credits
Individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

591 WORKSHOP IN ARITHMETIC OR IN PHYSICAL SCIENCE 1-3 credits
Individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

592 WORKSHOP IN READING 1-3 credits
Individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

ACCOUNTANCY 6200:

520 ADVANCED ACCOUNTING 3 credits
Prerequisites: 630:331 and 332. Examination of accounting theory emphasizing accounting for business combinations, partnerships, foreign operations, nonprofit entities and consolidated statements.

530 TAXATION I 3 credits
Prerequisites: 320 or 621. Federal tax law related to individuals. Master of Taxation students will not be able to take this course to satisfy tax electives in the Master of Taxation program.

531 TAXATION II 3 credits
Prerequisites: 430:621 or permission. Federal income tax law related to partnerships, corporations, trusts, estates and also includes an overview of federal estate and gift tax law.

540 AUDITING 3 credits
Prerequisites: 520 and 521, 430, 454 and 450:221 must be taken prior to or concurrently, or permission of instructor. Examines auditing standards and procedures used by independent auditors in determining whether a firm has fairly presented its financial position.

570 GOVERNMENTAL AND INSTITUTIONAL ACCOUNTING 2 credits
Prerequisites: 335 or 601. Theory and procedures involved in the application of fund accounting, budgetary control, appropriations and various accounting systems to governmental units, educational, medical and other nonprofit institutions.

590 SPECIAL TOPICS IN ACCOUNTING 2 credits
Prerequisite: Permission of instructor. Opportunity to study special topics and current issues in accounting. May be repeated with a change of subject but not to exceed 6 credits.

601 FINANCE, ACCOUNTING 2 credits
Prerequisites: 601. Introduction to basic concepts in concepts in computer technology, steps in system development and logic of designing accounting systems by using a business-oriented language, integrated development environments (IDE), and object analysis and design methodology.

603 BUSINESS SYSTEMS WITH PROCESSING APPLICATIONS 2 credits
Prerequisites: 601. Using object-oriented languages, integrated development environments (IDE), and object analysis and design methodology.

606 APPLICATIONS DEVELOPMENT FOR FINANCIAL SYSTEMS 3 credits
Prerequisites: 601 and 650:605. Analysis, design and development of financial and control applications, using object-oriented languages, integrated development environments (IDE), and object analysis and design methodology.

607 FINANCIAL DATA COMMUNICATIONS AND ENTERPRISE INTEGRATION 3 credits
Prerequisites: 620:650, 650:650 and 650:622. In-depth study of contemporary methodologies, technologies, and standards used to integrate business processes and systems, including XML and eXtensible Business Language (XML).

610 PROCESS ANALYSIS AND COST MANAGEMENT 3 credits

615 ENTERPRISE RESOURCE PLANNING AND FINANCIAL SYSTEMS 3 credits
Prerequisite: 601. Detailed examination of issues related to acquisition, implementation and use of financial modules in enterprise resource planning applications, with emphasis on risk assessment and mitigation.

621 CORPORATE ACCOUNTING AND FINANCIAL REPORTING I 3 credits
Prerequisite: 601. An examination of generally accepted accounting principles in theory and application, as well as financial statement preparation.

622 CORPORATE ACCOUNTING AND FINANCIAL REPORTING II 3 credits
Prerequisite: 621. A continuation of 620:621 which examines generally accepted accounting principles in theory and practice, as well as financial statement preparation.

628 BASIC TAX RESEARCH 2 credits
Prerequisites: completion of M.Tax foundation courses. Designed to develop basic research competence involving federal income, estate, and gift tax laws.

631 CORPORATE TAXATION I 3 credits
Prerequisite: completion of M.Tax foundation courses. Detailed examination of tax problems of corporations and their shareholders. Formation, distribution, redemption, liquidation and penalty taxes covered.

632 TAXATION OF TRANSACTIONS IN PROPERTY 3 credits
Prerequisite: completion of M.Tax foundation courses. Explores federal tax implications of gains and losses derived from sales, exchanges and other dispositions of property.

633 ESTATE AND GIFT TAXATION 3 credits
Prerequisite: completion of M.Tax foundation courses. Analyzes provisions of federal estate and gift tax laws and tax consequences of testamentary and lifetime transfers.

637 ADVANCED ACCOUNTING THEORY 3 credits
Prerequisite: 620:621 and 622 or equivalent. Examination of accounting concepts and standards through critical analysis of articles on current trends in profession. Discussion and outside research stressed.

640 ADVANCED AUDITING 3 credits
Prerequisite: 440:604. Conceptual foundations and current research on professional and internal auditing, includes government regulation and litigation, statistics, computer systems as well as current and prospective developments in auditing.

641 TAXATION OF PARTNERSHIPS 3 credits
Prerequisite: completion of M.Tax foundation courses. Examines intensively provisions of subchapters K and S of Internal Revenue Code and uses of partnerships for tax planning.

642 CORPORATE TAXATION II 3 credits
Prerequisite: 631. Continuation of 631. Concludes study of subchapter C of Internal Revenue Code with major focus on corporate reorganization.

643 TAX ACCOUNTING 2 credits
Prerequisite: completion of M.Tax foundation courses. Attention focused on timing of income and expenses for individuals businesses and its relation to tax planning.

644 INCOME TAXATION OF DECEDENTS, ESTATES AND TRUSTS 2 credits
Prerequisite: 633. An in-depth examination of the decedent’s last income tax return along with the analysis of income taxation of trusts and estates and their creators, fiduciaries and beneficiaries.

645 ADVANCED INDIVIDUAL TAXATION 3 credits
Prerequisite: 430:650. In-depth study of some of the more involved areas of individual income taxation.

646 CONSOLIDATED TAX RETURNS 2 credits
Prerequisite: completion of M.Tax foundation courses. Intensive study of tax provisions concerning use of consolidated tax returns.

647 QUALIFIED PENSIONS AND PROFIT SHARING 3 credits
Prerequisite: completion of M.Tax foundation courses. Nature, purpose and operation of various forms of deferred compensation examined with much emphasis on pension and profit-sharing plans.

648 TAX PRACTICE AND PROCEDURE 2 credits
Prerequisite: completion of M.Tax foundation courses. Analysis of tax aspects of tax-exempt organizations, including return of and limitations of its exemption.

654 INDEPENDENT STUDY IN INCOME TAXATION 3 credits
Prerequisite: 633 or equivalent. In-depth examination of selected topics not otherwise offered in curriculum. (May be repeated for a total of six credits.)

655 ADVANCED INFORMATION SYSTEMS 3 credits
Prerequisite: 601 or equivalent. Advanced study of accounting information systems, elements, principles, design and implementation. Practical data processing and network control flow of information systems.

656 E-BUSINESS RISKS, CONTROLS, AND ASSURANCE SERVICES 3 credits
Prerequisite: 650:630. An examination of the unique risks, controls, and assurance services resulting from and related to the e-business environment.

659 ASSURANCE SERVICES WITH DATA WAREHOUSING AND DATA MINING 3 credits
Prerequisites: 601, 665, 668, and 650:680. Application of data warehousing, data mining, and intelligent agent concepts and tools to designing and developing systems for assurance services, fraud and error detection, and risk mitigation.

660 INFORMATION SYSTEMS AUDIT AND CONTROL PROJECT 3 credits
Prerequisites: 640, 655, and 659. Comprehensive, hands-on information systems audit and control project approved by the instructor.

676 CORPORATE PERFORMANCE EVALUATION AND CONTROL SYSTEMS 3 credits
Prerequisite: 610. Examination of the role of financial information systems in developing strategy, planning, measuring results, and motivating managers to define and pursue organizational goals and objectives.

680 INTERNATIONAL ACCOUNTING 3 credits
Prerequisite: 601. Examination of accounting theory and practice from international perspective with emphasis on multinational investment, business and auditing activities and reporting problems.

687 SELECTED TOPICS IN TAXATION 3 credits
(May be repeated for a total of six credits.) Prerequisites: completion of M.Tax foundation courses. Provides study in contemporary issues in taxation that are not covered in current courses.

695 GRADUATE INTERNSHIP IN ACCOUNTING 3 credits
Prerequisites: 601, 621, 610, and 655. This course provides 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.
FINANCE 6400:

539 INTERNATIONAL BANKING 3 credits
Prerequisite: 371 or 602. Examination of recent trends in the expansion of international banking activities and associated revenue maximizing strategies.

602 MANAGERIAL FINANCE 3 credits
Prerequisite: 6200:601 or equivalent. 6400:602 may be taken concurrently with 6200:601. Emphasis on financial decision making related to goal of firm, specifically, the investment decision, the financial decision and the dividend decision.

623 LEGAL ASPECTS OF BUSINESS TRANSACTIONS 3 credits
(Not open to students with six credits of undergraduate law.) Advanced legal analysis of contracts, UCC,所得/other relationships, business organizations, property, and government regulation.

631 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.

645 INVESTMENT ANALYSIS 3 credits
Prerequisite: 602 or equivalent. Study of the economic and market forces that influence security prices. Techniques of analysis used in evaluating limited income and equity securities.

650 TECHNIQUES OF FINANCIAL PLANNING 3 credits
Prerequisite: 3250:600 and 6400:622. Current techniques and methods of financial analysis are examined, including the use of financial models for short and long run profitability decisions.

655 GOVERNMENT AND BUSINESS 3 credits
Public policy with regard to business institutions and issues are considered from an economic, legal, ethical and political framework.

674 STRATEGIC FINANCIAL DECISION MAKING 3 credits
Prerequisites: 6400:602 and 6500:602. Examines the role of financial decision makers as strategic consultants to other business units with an emphasis on integrative risk management as a planning tool.

678 CAPITAL BUDGETING 3 credits
Prerequisite: 602 or equivalent. At present, various theoretical frameworks of capital budgeting into a comprehensive conceptual scheme. Theoretical concepts and practical applications are presented for better understanding of capital problems.

681 MULTINATIONAL CORPORATE FINANCE 3 credits
Prerequisite: 602 or equivalent. Financial policies and practices of companies involved in multinational operations. Considers management of working capital and permanent assets. Return on investment and capital budgeting for the global firm.

685 E-BUSINESS: LEGAL ISSUES 3 credits
Study of the application of law to emerging e-commerce form of business with concentration on emerging law and policy.

686 E-BUSINESS: FINANCIAL STRATEGY AND PLANNING 3 credits
Prerequisite: minimum of six credits of E-Business foundation courses. Study of financial issues relating to analysis, evaluation, planning, long and short term financing, and management of E-Business projects.

690 SELECTED TOPICS IN FINANCE 3 credits
(May be repeated for a total of six credits) Prerequisite: 602 or equivalent. Provides study of contemporary issues in financial management.

691 INTERNATIONAL MARKETS AND INVESTMENTS 3 credits
Prerequisite: 602 or equivalent. A study of international financial markets with emphasis on international investments and risks in a rapidly changing global economy.

697 INDEPENDENT STUDY IN FINANCE 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.

699 INDEPENDENT STUDY: BUSINESS LAW 3 credits
(May be repeated for a total of six credits) Focus on special topics of study and research in the legal aspects of business administration.

MANAGEMENT 6500:

571 MANAGEMENT PROJECT 3 credits
Prerequisite: 670. Student applies modern management principles, practices, theory to an actual problem in industry.

590 INTRODUCTION TO HEALTH-CARE MANAGEMENT 3 credits
Prerequisite: upper college or graduate standing. Students are required to take 630 or 660 or have completed 330 or 600 or equivalent are ineligible to take this course for credit. Introductory course for health professionals covering principles and concepts of management applied to health services organizations. For those registered for graduate credit, a major research paper is required.

592 HEALTH SERVICES OPERATIONS MANAGEMENT 3 credits
Prerequisite: 580 or 600 or equivalent or permission of instructor. Application of operations and systems analysis to health services organizations.

595 SPECIAL TOPICS IN HEALTH SERVICES ADMINISTRATION 3 credits
Prerequisite: permission of instructor. Special topics in health services administration (e.g., management) focusing on historical and/or contemporary managerial organizational and/or policy/strategy issues are examined. Separate topics may be repeated for a maximum of six credits. For those registered for graduate credit, a major research paper is required.

600 MANAGEMENT AND ORGANIZATIONAL BEHAVIOR 3 credits
Course examines management principles, concepts, functions and process, as well as human behavior in organizations.

601 QUANTITATIVE DECISION MAKING 2 credits
Applies quantitative techniques to business decision making. Topics covered include probability estimation and hypothesis testing, simple and multiple regression and correlation analysis, analysis of variance and nonparametric statistics.
MARKETING COMMUNICATIONS
Prerequisite: 600. The total range of marketing communication tools are examined individually in the context of planning, developing, and implementing a systematic and integrated communications program.

BUSINESS RELATIONSHIP MANAGEMENT
Prerequisite: 600. Examines the role of business relationships that must be managed by the sales and marketing manager. In addition to customer relationship management, the course explores the need to build and sustain relationships with suppliers, partners, shareholders, and other stakeholders.

COMPETITIVE BUSINESS STRATEGY
Prerequisite: 600. Investigation of competitive business strategy from an industry perspec­
tive. The course presents a framework which can be used to understand and develop com­petitive strategies.

INDEPENDENT STUDY IN MARKETING
May be repeated for a total of six credits. Focus on special topics of study and research in marketing on an independent basis.

PROFESSIONAL RESPONSIBILITY
Prerequisite: Nine graduate credits. Seminar on the professional responsibilities of business men and women to make them and the business organization in which they work more responsible decision makers.

INTERNATIONAL BUSINESS
May be repeated for a total of six credits.

APPLIED BUSINESS DOCUMENTATION AND CONTACT
This course is designed to offer a practicum approach to the skills and strategies for handling specialized documents, contact protocols, and business presentations.

INTERNSHIP IN BUSINESS
Prerequisite: Permission of instructor. On-the-job experience with cooperating private and public sector organizations. Individual assignments made by supervising faculty member. Periodic reports and research papers required. Credit/No Credit.

SPECIAL TOPICS IN PROFESSIONAL DEVELOPMENT
Special topics and current issues in the MBA Program Professional Core. May be repeated with a change of subject, not to exceed 4 credits.

COLLOQUIUM IN BUSINESS
Prerequisite: Permission of graduate director. Study of business administration through a semin­ar of several lectures in business research and practice. A broad range of topics in business research and issues will be discussed by guests, faculty, and graduate students. May be repeated, but will not satisfy degree requirements. Credit/No Credit.

INTERNATIONAL BUSINESS
May be repeated for more than three credits.

INTERNATIONAL BUSINESS ENVIRONMENTS
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 corpo­ration.

INTERNATIONAL MARKETING POLICIES
Explores the problems of formulating and implementing marketing strategies and tactics with­in complex and changing multinational organizations and international markets. A planning framework is emphasized.

MULTINATIONAL CORPORATIONS
A course designed to develop an understanding of global businesses, their functions, struc­tures, and strategic operations.

SEMINAR IN INTERNATIONAL BUSINESS
A course covering major issues of international business.

INDEPENDENT STUDY IN INTERNATIONAL BUSINESS
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 inde­pendent basis.

FINE & APPLIED ARTS

ART

ART IN THE UNITED STATES BEFORE WORLD WAR II
Prerequisite: 101 or permission of instructor. Consideration of development of art in the United States from earliest evidence to World War II.

SPECIAL TOPICS IN HISTORY OF ART
Prerequisite: 201. May be repeated for a different subject or level of investigation is selected.

MUSEOLOGY
Lecture course dealing with museum science, including museum history, staff structures, art handling, storage and presentation, and exhibition preparation.

HISTORY OF ART SYMPOSIUM
May be repeated for credit when a different subject is indicated. Prerequisite: one art histo­ry course beyond 201 or permission of instructor. Lecture, individual research and evaluation, group discussion related to current art history and to an article problem.

METHODS OF TEACHING ELEMENTARY ART
Prerequisite: admission to Teacher Education Program Art P-12. A lecture course presenting the prerequisites of skills and knowledge to successfully implement, plan, instruct, and assess a diverse, art-based curriculum for the elementary school. No credit as elective courses for art majors.

METHODS OF TEACHING SECONDARY ART
Prerequisite: admission to Teacher Education Program Art P-12. A lecture course providing the knowledge, skills, and experience necessary for the development of curriculum, instruction and assessment appropriate or application at the high school level. No credit as an elective for art majors.
FAMILY AND CONSUMER SCIENCES 7400:

500 NUTRITION COMMUNICATION AND EDUCATION SKILLS 3 credits
Prerequisite: 133 or 316. Theory and development of communication and education skills essential for dietetics professionals. Includes principles of interpersonal communication, interviewing, nutrition counseling, education techniques, media, and current technology.

501 AMERICAN FAMILIES IN POVERTY 3 credits
Overview of the issues, trends, and social policies affecting American families living in poverty.

503 ADVANCED FOOD PREPARATION 3 credits
Prerequisite: 140 or 240 and permission of instructor. Study of advanced techniques of food preparation. Introduction to and interpretation of classic and foreign cuisines. Emphasis on individualized experience, skill development and evaluation of procedures and results.

504 ADOLESCENCE IN THE CONSUMER CONTEXT 3 credits
Prerequisites: 201, 265 or permission of instructor. The influences of adolescent behavior on the family and the influence of the family environment on adolescent development.

506 FAMILY FINANCIAL MANAGEMENT 3 credits
Analysis of the family's economic unit including financial problems and their resolution, decision-making patterns and financial practices behavior. Cases, exercises, problems and computer analysis.

507 FCS OCCUPATIONAL EMPLOYMENT EXPERIENCE 3 credits
Provides students with knowledge of current business and industrial practices at level minimally compatible with employment expectations of graduates of vocational job training programs in Family and Consumer Sciences.

518 HISTORY OF INTERIOR DESIGN I 3 credits
The study of furnishings, decorative, and architecture from antiquity through the eighteenth century, with emphasis on the socio-cultural influences shaping their development.

519 HISTORY OF INTERIOR DESIGN II 3 credits
The study of nineteenth and twentieth century furnishings and interiors, with emphasis on the socio-cultural influences shaping their development.

520 EXPERIMENTAL FOODS 3 credits
Prerequisites: 246 and 3150/310. Theory and methods used in the experimental study of foods. Analytical procedures in sensory and instrumental evaluation of food quality. Individual research emphasized. Lecture/Laboratory.

523 PROFESSIONAL IMAGE ANALYSIS 3 credits
Prerequisites: Senior status. Examination of theories associated with projecting and maximizing an appropriate professional image consistent with career goals and objectives.

524 NUTRITION IN THE LIFE CYCLE 3 credits
Study of the physiological basis for nutritional requirements; interrelated factors which affect growth, development, maturation and nutritional status from conception through the elderly years.

525 ADVANCED TEXTILES 3 credits
Prerequisite: 121. Evaluation of physical, aesthetic, comfort, care and durability properties of textile products and testing procedures to determine suitability for desired end uses.

527 GLOBAL ISSUES IN TEXTILES AND APPAREL 3 credits
Prerequisite: 121. Examines the global structure and scope of the textile and apparel industries emphasizing an economic perspective.

531 PROFESSIONAL PRESENTATION SKILLS IN FAMILY & CONSUMER SCIENCES 3 credits
Prerequisite: 121. Emphasis on presentation delivery relating to education and industry in Family and Consumer Sciences.

550 NUTRITION I-LECTURE 3 credits
Prerequisites: 121, 123, 317. Principles and practices of textile conservation with emphasis on procedures appropriate for collectors and small historical agencies.

553 HISTORIC COSTUME 3 credits
Study of western costumes and textiles from antiquity to 1800, with emphasis on social-cultural influences.

558 HISTORY OF FASHION 3 credits
Prerequisite: 207. Study of Western fashion, textiles, and designers from the nineteenth century to present, with emphasis on social-cultural influences.

540 FAMILY CRISIS 3 credits
Study of family stress and crisis including internal and external variables and their influence on the family's role, organization, coping and recovery. Includes theory, research and application dimensions.

542 HUMAN SEXUALITY 3 credits
Prerequisite: 202 or permission of instructor. Introduction to problems and values. Emphasis is on the role of values in intimate relationships, the diverse dimensions of sexual responsibility.

546 CULTURE, ETHNICITY AND THE FAMILY 3 credits
Study of the role of culture and ethnicity in adaptation of the family system to environment. Prerequisites: enrollment in 10-12 credits of coursework in cultural anthropology.

546 BEFORE AND AFTER SCHOOL CHILD CARE 3 credits
Study of the development, implementation and evaluation of school-age child care programs for before and after school and vacation periods.

549 FLAT PATTERN DESIGN 3 credits
Prerequisite: 123 or equivalent. Theory and experience in clothing design using flat pattern techniques.

551 CHILD IN THE HOSPITAL 4 credits
Prerequisite: 265, comparable course or permission of instructor. Seminar dealing with special needs and problems of hospitalized child and family. Literature related to effects, separation, illness and stress. Examination of methods for coping.

555 PRACTICUM EXPERIENCE IN A CHILD LIFE PROGRAM 3 credits
Prerequisite: 455/551. Field experience in a child life program and classroom activities including critical analysis of a currently functioning program and program administration.

560 ORGANIZATION AND SUPERVISION OF CHILD-CARE CENTERS 3 credits
Theory, principles and procedures involved in establishing and operating centers for infants, toddlers, and preschool and school-age children.

561 CASE MANAGEMENT FOR CHILDREN AND FAMILIES I 3 credits
Provides an overview of case management basics in a multisystem collaborative context. Includes values, principles, state and service systems, and service coordination.

562 CASE MANAGEMENT FOR CHILDREN AND FAMILIES II 3 credits
Prerequisite: 451/561. Provides in-depth exploration of Case Management principles and practice. Emphasis on process and functions, assessment, cross-system service planning and coordination, advocacy, and cultural diversity.

563 PRACTICUM IN CROSS-SYSTEMS CASE MANAGEMENT FOR CHILDREN AND FAMILIES 3 credits
Prerequisites: 451/561, 452/562, and six hours of electives. Provides on-site opportunities to apply skills in cross-system collaborative case management with children and families. Includes review of strategies, ethics, and social skills, and supervision.

570 THE FOOD INDUSTRY: ANALYSIS AND FIELD STUDY 3 credits
Prerequisite: 245 or permission. Role of technology in expanding the food supply. Chemical, biological and technological effects of processing and storage, on-site tours of processing plants, and field trips.

574 CULTURAL DIMENSIONS OF FOOD 3 credits
An examination of cultural, geographical and historical influences on development of food habits. Emphasis on evolution of diets, effects of religion, education, gender roles, media.

575 ANALYSIS OF FOOD 3 credits
Prerequisite: 3150/310. General chemistry or equivalent. Comprehensive course in the theory and practice of food analysis by classical and modern chemical and instrumental methods. Principle is emphasized by experimentation and demonstration.

576 DEVELOPMENTS IN FOOD SCIENCE 3 credits
Prerequisite: 245. Advanced study of the chemistry and physics of food components, affecting characteristics of foods. Co-curricular function of program and program administration.

580 COMMUNITY NUTRITION I-Lecture 3 credits
Corequisite: 488 for CP student only. Sociocultural aspects of community assessment, program implementation and evaluation, and rationales for nutrition services.

581 COMMUNITY NUTRITION I-CLINICAL 1 credit
Prerequisite: CP students only. 428. Field placement in area agencies on nutrition services. Study of the agency's goals, organization, and philosophy of nutritional care. Credit/No Credit.

582 COMMUNITY NUTRITION II-LECTURE 3 credits
Prerequisites: 485/580 and 489/581 for CP student only. Corequisite: 485/583 for CP student only. This course will focus on managing nutrition services for productivity, economics, community, and labor resources, and evaluation), and educating the dietitians "various publics" about nutrition.

583 COMMUNITY NUTRITION II-CLINICAL 1 credit
Prerequisite: 495/581. Corequisite: 482/582. Field placement in area agencies on nutrition services. Study of the agency's goals, organization, and philosophy of nutritional care. Credit/No Credit.

584 ORIENTATION TO THE HOSPITAL SETTING 2 credits
Prerequisite: 265, comparable course or 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 curricular knowledge of medical terminology, common childhood diseases, illnesses and injuries.

585 SEMINAR IN FAMILY AND CONSUMER SCIENCES 1-3 credits
Prerequisite: permission of instructor. Exploration and evaluation of current developments in selected areas.

587 SPORTS NUTRITION 3 credits
Prerequisites: 133, 350/352, 3150/310 or 203 or 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.

588 PRACTICUM IN DIETETICS 13 credits
Prerequisite: approval of advisor/instructor. Practical experience in application of the principals of nutrition.

589 PROFESSIONAL PREPARATION FOR DIETETICS 1 credit
Prerequisite: open to those dietetics students in the Didactic Program or Graduate program who wish to apply for a Dietetics Internship. Historical aspects ofdietetics and the Dietetics Internship is going. Specialty areas of dietetic practice are explored. Students prepare the application for a Dietetics Internship.

590 WORKSHOP IN FAMILY AND CONSUMER SCIENCES 1-3 credits
Prerequisite: at least junior standing. Investigation on current issue or topic in selected areas of family and consumer sciences. May be off-campus study tour or an on-campus full-time group meeting.

591 CAREER-TECHNICAL FCS INSTRUCTIONAL STRATEGIES 3 credits
Prerequisite: senior standing or permission. Organization of Career-Technical Family and Consumer Sciences programs in public schools or group (state or local) with state career-tecchnical directives, student organizations, and program planning.
696 PARENT EDUCATION
Prerequisite: 206, comparable course, or permission. Practical application that develops and applies various parenting techniques with major emphasis on the evaluation of parent education programs.

698 FAMILY TEACHING SEMINAR
1 credit
Corequisite: 6550:695. Seminar for students currently enrolled in Family and Consumer Sciences student teaching. Emphasis on block and lesson plan development, licensure, portfolio development, PRAXIS III, professional development, and student teaching reflection.

699 FAMILY IN LIFE SPAN PERSPECTIVE
3 credits
Study of individual and family development across life span. Emphasis on adjustment patterns and interpersonal competence. Implications for education theory research and social policy.

701 FAMILY RELATIONSHIPS IN MIDDLE AND LATER YEARS
3 credits
Study of family patterns and problems during middle and later years of life with emphasis on psychological and biological changes and economic and social adequacy. Research and trends in career development.

704 ORIENTATION TO GRADUATE STUDIES IN FAMILY AND CONSUMER SCIENCES
1 credit
Introduction to the concepts and processes necessary for graduate study in the interdisciplinary field of family and consumer sciences.

705 DEVELOPMENTAL PARENT-CHILD INTERACTIONS
3 credits
In-depth analysis of the process. Study of reciprocal interactions between parent and child from birth to adulthood. Consideration of cross-cultural studies, historical and societal influences, and various family characteristics and structures. Online course.

707 FAMILY DYNAMICS
3 credits
Development of techniques in family and consumer sciences programs utilizing role theory, exchange theory and systems theory as understood through the study of the family across the life cycle.

710 CHILD DEVELOPMENT THEORIES
3 credits
A comparative study of developmental theories of the child within the family context. Application of the theories to children rearing in the family will be emphasized.

724 ADVANCED HUMAN NUTRITION I
3 credits
Prerequisites: undergraduate or graduate-level course in nutrition and biochemistry. In-depth study of human nutrition, covering metabolism, physiological functions, and study of foodstuffs of carbohydrate, protein and lipids and the determinants of human energy requirements.

725 ADVANCED HUMAN NUTRITION II
3 credits
Prerequisites: 624 or equivalent. In-depth study of human nutrition with emphasis in the utilization, physiological functions and interrelationships of vitamins and minerals.

731 PROBLEMS IN DESIGN
1-3 credits
(May be repeated, but no more than 6 credits will apply to M.A. or M.S.) Prerequisite: Written approval by faculty advisor. Individual solution of a specific design problem within the student’s area of clothing, textiles and interior specialization.

732 ADVANCED FOOD THEORY AND APPLICATIONS
3 credits
Prerequisites: 2050 or equivalent. Advanced study of the chemistry and physics of food components, attributing the characteristics of foods. Critical evaluation of current basic and applied research emphasis.

734 MATERIAL CULTURE STUDIES
3 credits
Methods of studying clothing, textiles, and interiors from a cultural and historical perspective.

739 THEORIES OF FASHION
3 credits
Study of the theories underlying fashion and evaluation of current research related to the study of fashion.

740 NUTRITION IN DIMINISHED HEALTH
3 credits
Prerequisite: 426 or permission. Exemption of concepts related to nutritional intervention associated with selected pathophysiologic and debilitating conditions throughout the life cycle. Emphasis on current literature.

751 FAMILY AND CONSUMER LAW
3 credits
Study of laws which control and protect individuals within family. Emphasis on current trends, legal rulings. Course taught by attorney.

752 PROFESSIONAL PRESENTATION IN FAMILY AND CONSUMER SCIENCES
3 credits
Development of effective family and consumer sciences professional presentations, emphasis on visuals, display, demonstrations, public relations materials, user manuals, conference management, portfolio development, and learning styles.

755 DEVELOPMENT IN INFANCY AND EARLY CHILDHOOD
3 credits
Analysis of research and theoretical frameworks regarding infant and child development from conception through age five. Implications for guidance and education.

767 SOCIAL PSYCHOLOGY OF DRESS AND THE NEAR ENVIRONMENT
3 credits
Study of dress and the near environment as they relate to human behavior at the micro and macro level.

780 HISTORICAL AND CONCEPTUAL BASES OF FAMILY AND CONSUMER SCIENCES
3 credits
History of the field of family and consumer sciences with emphasis on the leaders and the conceptual basis of the field.

785 RESEARCH METHODS IN FAMILY AND CONSUMER SCIENCES
3 credits
A study of family and consumer sciences research methods emphasizing concept and theoretical development, policy application and ethical considerations.

788 PRACTICUM IN FAMILY AND CONSUMER SCIENCES
3 credits
Prerequisite: permission of advisor/instructor. A minimum of 150 hours of supervised experience in an approved community setting to acquire skill under direction of a faculty advisor.

794 MASTER’S PROJECT
5 credits
Prerequisite: permission of advisor. The development, implementation and evaluation of a community-based supervised project which may make a significant contribution to the field and may lead to publication.

795 CHILD LIFE INTERNSHIP
5 credits
Prerequisite: 555 and permission of advisor. Field experience in a child life program at an pediatric-related facility under the supervision of Certified Child Life Specialists.

796 INDIVIDUAL INVESTIGATION IN FAMILY AND CONSUMER SCIENCES
5-12 credits
Prerequisite: permission of advisor. Individual investigation and analysis of a specific topic in student’s area of specialization of interest under direction of a faculty advisor.

697 INDIVIDUAL INVESTIGATION IN FAMILY DEVELOPMENT
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 OF 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.

699 MASTER’S THESIS
5 credits
Prerequisite: permission of advisor. Supervised research in a specialized area of family and consumer sciences which makes a contribution to the field and may lead to publication.

MUSIC
7500:

526 GRADUATE MUSIC THEORY REVIEW
2 credits
Prerequisite: Undergraduate music theory equivalent to four semesters. Review of basic music concepts. Coverage includes the chromatic harmonic 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 undergraduate and 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
Prerequisite: 202. Comparative musicology; acoustics; psychology and physiology of music; aesthetics; theory of music history; historical musicology.

553 MUSIC SOFTWARE SURVEY AND USE
2 credits
Prerequisites: 102 or 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 as a program.

556 ADVANCED CONDUCTING: INSTRUMENTAL
2 credits (30 clinical hours)
Prerequisites: 361 and 442 or permission. Baroque techniques and problems relating to practice, rehearsal and preparation of solo, chamber and orchestral ensembles. Course for orchestra junior level.

556 ADVANCED CONDUCTING: CHORAL
2 credits
Prerequisite: 361 or equivalent. Conducting techniques to the choral ensemble, including leadership, error detection, tonal development, stylistic accuracy and analysis. One hour lab required.

560 REPERTOIRE AND PEDAGOGY: ORGAN
3 credits
Prerequisite: permission of instructor. Survey of organ literature of all eras and styles, and methods of teaching organ, applying principles to literature.

560 REPERTOIRE AND PEDAGOGY: STRING INSTRUMENTS
3 credits
Prerequisite: permission of instructor. Study of the repertoire in terms of general structure, character, scoring, notation, pitch, rhythmic and harmonic elements, improvisation, interpretation, and articulation of string instruments.

567 GUITAR PEDAGOGY
2 credits
Prerequisite: permission of instructor. A systematic analysis of guitar literature, including instruction on selected solo and chamber music by composers from centuries.

568 GUITAR ARRANGING
2 credits
Prerequisite: permission of instructor. After comparative analyses of selected examples, students make original solo guitar arrangements of works written for other solo instruments encompassing a variety of musical styles.

569 HISTORY AND LITERATURE OF THE GUITAR AND LUTE
2 credits
Prerequisite: permission of instructor. Study of plucked, fretted string instruments from the 15th Century to the present. Construction, notation, literature and performance practices. Modern editions and recordings will be 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, rhythm, articulation, interpretation and generalization 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, oration, articulation, 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, oration, articulation, and interpretation of dynamics, rhythm, articulation, and tempo.

574 INTEGRATIVE CONDUCTING WORKSHOP
2 credits
A study of how to prepare and conduct a rehearsal which respond to the needs of the singers while maintaining stylistic integrity in executing the music.

590 WORKSHOP IN MUSIC
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 ten 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.

605 BEGINNING ITALIAN I FOR SINGERS
2 credits
Instruction is given in grammar, pronunciation, and syntax in the Italian language. Classroom drills will involve reading in Italian with special attention to pronunciation.

606 BEGINNING ITALIAN II FOR SINGERS
2 credits
Prerequisite: 605 or equivalent. Instruction is given in grammar, pronunciation, and syntax in the Italian language. Classroom drills will involve reading in Italian with special attention to pronunciation.

609 PEDAGOGY OF JAZZ IMPROVISATION
2 credits
In-depth study of the musical materials as they relate to the teaching of jazz improvisation.

611 FOUNDATIONS AND PRINCIPLES OF MUSIC EDUCATION
2 credits
Prerequisite: permission of instructor. Study of basic philosophical, historical, sociological and psychological concepts among which public school music programs function.
612 PRACTICES AND TRENDS IN MUSIC EDUCATION 3 credits
Prerequisite: permission of instructor. In-depth exploration of innovative practices and trends in music education. Findings of research and practice related to prevailing situations in public school programs.

613 INSTRUCTIONAL PROGRAMMING IN MUSIC FOR THE MICROCOMPUTER 3 credits
Prerequisite: 452/552. An introduction to programming for the microcomputer including BASIC, Pascal, and Assembler. Programming will be directed towards music educational concepts.

614 EVALUATION AND TESTING IN MUSIC EDUCATION 3 credits
Prerequisite: permission of instructor. Study and application of principles of music aptitude, music achievement and content evaluation; and research as a function of evaluation.

615 MUSICAL STYLES AND ANALYSIS I 3 credits
Prerequisite: completion of instructor. Detailed study of compositional techniques and stylistic traits observed in Western music from period of Gregorian chant through music of Pelegrinus Gesualdo and others of late Renaissance period. Project paper.

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 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.

619 THEORY AND PEDAGOGY 2 credits
Prerequisite: permission of instructor. Methodology of theory teaching in 20th Century. Focus on differing philosophies of approach to theory instruction as noted from tests on subject. Recent innovations and techniques of teaching, such as programmed material, computer-assisted instruction studied.

620 COMPUTER ANALYSIS IN MUSIC 2 credits
Prerequisite: an elementary course in the 615-619 series. A systematic study of analytic techniques in music which make use of the computer. Hands-on experiences with music encoding, card manipulation, interactive, systems and program writing as related to music analysis.

621 MUSIC HISTORY SURVEY: MIDDLE AGES AND RENAISSANCE 2 credits
Prerequisite: permission of instructor. Historical and stylistic analysis of all aspects of music of Middle Ages and Renaissance. Research and writing in areas of special interest.

622 MUSIC HISTORY SURVEY: BAROQUE 2 credits
Prerequisite: permission of instructor. Historical and stylistic analysis of Baroque music. Study in depth of specific examples, from recordings, scores and live performance. Continuation and synthesis of approach to study of music history; selected readings related to each student's particular fields of interest; project paper.

623 MUSIC HISTORY SURVEY: CLASSIC AND ROMANTIC 2 credits
Prerequisite: permission of instructor. Historical and stylistic analysis of music of the Romantic period. Study in depth of specific examples through recordings, scores and live performance. Continuation and synthesis of approach to study of music history; selected readings related to each student's particular fields of interest; project paper.

624 MUSIC HISTORY SURVEY: MUSIC SINCE 1900 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 to study of music history; selected readings and project paper.

625 GRADUATE BIBLIOGRAPHY AND RESEARCH IN MUSIC 2 credits
Prerequisite: graduate music degree equivalent. Examination of all types of published music materials; research methods for thesis preparation and professional publishing; field trips to music libraries, computerized music research.

627 COMPUTER STUDY DESIGN 2 credits
The design and maintenance of computer lab. Emphasis on hardware and software setup to maximize function and minimize maintenance.

630 TEACHING AND LITERATURE: WOODWIND 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. Study and performance of woodwind literature from classical to popular. Membership by audition. Highly select mixed choir. Performs classical literature from operatic, oratorio and lieder repertoires.

634 MUSIC HISTORY SURVEY: STRING INSTRUMENTS 2 credits
Prerequisite: permission of instructor. Historical and stylistic analysis of music from period of Baroque to the 20th Century. Study in depth of specific examples through recordings and live performances. Continuation and synthesis of approaches to study of music history; selected readings and project paper.

635 TEACHING AND LITERATURE: STRING INSTRUMENTS 2 credits
Prerequisite: permission of instructor. Research in current trends and issues in string teaching techniques and appropriate literature.

640,1,2 ADVANCED ACCOMPANYING I, II, III 1 credit each
Prerequisite: Graduating senior in keyboard performance and/or accompanying or permission of the instructor. An in-depth study of principles of accompanying, sight reading, standard repertoire, and transcription.

647 MASTER'S CHAMBER RECITAL 1 credit
Prerequisite: permission of instructor. A recital of chamber music repertoire. Solo, duos, trios, quartets and other chamber music compositions. Student to work with the conductor and be present during the entire recital.

653 ELECTRONIC MUSIC 3 credits

657 STUDENT RECITAL 1 credit
Prerequisite: permission of instructor. A recital of chamber music repertoire. Solo, duos, trios, quartets and other chamber music compositions. Student to work with the conductor and be present during the entire recital.

663 VOCAL PEDAGOGY 3 credits
Prerequisite: permission of instructor. In-depth study of subjects dealing with teaching of voice. Physiology of vocal instrument, principles governing vocal production and application of vocal pedagogy.

666 ADVANCED SONG LITERATURE 3 credits
Prerequisite: permission of instructor. Systematic study of song literature presented chronologically according to national schools of composition. Stylistic compositional characteristics and representative works of all major composers of solo song literature.

675 SEMINAR IN MUSIC EDUCATION 1-3 credits
Prerequisite: permission of instructor. Intensive study of special topics in the field of music education.

676 WORKSHOP IN CHORAL MUSIC EDUCATION 2 credits
Prerequisite: permission of instructor. A seminar dealing with the selection of choral repertoire for multiple church programs at all levels. Approaches to score preparation, programming, rehearsal, and vocal techniques will be studied.

697 ADVANCED PROBLEMS IN MUSIC 1-3 credits
Prerequisite: permission of instructor. In-depth study of special topics related to the field of music.

698 GRADUATE RECITAL 2 credits
Prerequisite: permission of instructor. A recital of solo or chamber music or composition. Recital to be presented in the presence of a panel of judges.

699 MASTER'S THESIS/PROJECT 4-6 credits
Prerequisite: permission of instructor. A student thesis, project, or recital document written in conjunction with the graduate recital, depending on the student's degree option.

MUSICAL ORGANIZATIONS 7510:

602 AKRON SYMPHONY CHOIR 1 credit
Open to University and community members by audition. Prospective members should contact the School of Music two weeks before semester begins. Performs with Akron Symphony Orchestra.

603 UNIVERSITY SYMPHONY ORCHESTRA 1 credit
Membership by audition. Organization devoted to study of orchestral literature. Full-length concerts as well as special University appearances. Major conducted ensemble.

604 SYMPHONIC BAND 1 credit
Membership by audition. The University Symphony Band is the most select band at the University and performs the most demanding and challenging music available.

605 VOCAL CHAMBER ENSEMBLE 1 credit
Membership by audition. Open to those enrolled in applied voice study. Coaching and rehearsal of solo and ensemble literature for voices from operatic, oratorio and leider repertoires.

606 BRASS ENSEMBLE 1 credit
Membership by audition. Study and performance of literature for brass ensemble from all periods of music history. Frequent public concerts. For advanced brass players.

607 STRING ENSEMBLE 1 credit
Membership by audition. In-depth study and performance of chamber music literature with special emphasis on string quartet and piano trio.

608 OPERA WORKSHOP 1 credit
Prerequisite: permission of instructor. A studio class in producing opera. Study and performance of vocal literature from operatic repertoire. Includes annual production of standard opera and/or contemporary chamber works with stage design and choreography.

609 PERCUSSION ENSEMBLE 1 credit

610 WOODWIND ENSEMBLE 1 credit
Membership by audition. Study and performance of woodwind literature from all periods for various combinations of woodwinds. Develops performance skills and knowledge of woodwind literature.

614 KEYBOARD ENSEMBLE 1 credit
Prerequisite: permission of instructor. Performance of keyboard literature. Develops skills in ensemble performance.

615 JAZZ ENSEMBLE 1 credit
Membership by audition. Provides experience in jazz ensemble performance. A student is expected to have knowledge of rudiments of music and some experience in jazz ensemble performance.

618 SMALL ENSEMBLE MIXED 1 credit
Membership by audition. Ensembles with diverse instrumentation which rehearse and perform a selected body of music.

620 CONCERT CHOIR 1 credit
Membership by audition. Highly select mixed choir. Performs classical literature from all periods of music, including selected repertoire of the a cappella choral literature.

621 UNIVERSITY SINGERS 1 credit
Membership by audition. Mixed ensemble devoted to performance of a wide variety of choral literature from classic to popular. "Major conducted ensemble" for vocal majors.

625 CONCERT BAND 1 credit
Membership by audition. Performs the finest in concert band literature available for concert bands today.

626 MARCHING BAND 1 credit
This organization is noted for its high energy performances at University football games. Enrollment is open to all members of the University student body.

627 BLUE AND GOLD BRASS II 1 credit
The official band for Akron home basketball games. Membership is by audition.

628 UNIVERSITY BAND 1 credit
This ensemble is active during springsemester Only. This concert band is open to all members of the University Community.

630 GRADUATE RECITAL 1 credit
Prerequisite: permission of graduate advisor. Recital prepared and presented as a requirement for the additional credit. Prerequisite: permission of graduate advisor. Recital prepared and presented as a requirement for the additional credit.

676 ELECTRONIC MUSIC 1 credit
Prerequisite: permission of instructor. Computerized music research, including programming for microcomputer.

A P P L I E D M U S I C 7520:

521 PERSUASION 2 or 3 credits each
Prerequisite: permission of instructor. In-depth study of methods of persuasion in music education. Study of the psychology of music and its relationship to the teaching of music.

521 APPLIED MUSIC FOR MUSIC MAJORS 2 or 3 credits each
Prerequisite: permission of instructor. In-depth study of methods of persuasion in music education. Study of the psychology of music and its relationship to the teaching of music.
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 BARYTONE
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
543 JAZZ VOCAL STYLES
621-641 GRADUATE STUDY IN APPLIED MUSIC
621 PERCUSSION
622 CLASSICAL GUITAR
623 HARP
624 VOICE
625 PIANO
626 ORGAN
627 VIOLIN
628 VIOLA
629 CELLO
630 STRING BASS
631 TRUMPET OR CORNET
632 FRENCH HORN
633 TROMBONE
634 BARYTONE
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
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
508 WOMEN, MINORITIES AND NEWS
516 NEW MEDIA WRITING

517 NEW MEDIA PRODUCTION
520 MAGAZINE WRITING
525 COMMERCIAL ELECTRONIC PUBLISHING
535 COMMUNICATION IN ORGANIZATIONS
536 ANALYZING ORGANIZATIONAL COMMUNICATION
537 TRAINING METHODS IN COMMUNICATION
538 HEALTH COMMUNICATION

544 THEORY OF GROUP PROCESSES
557 PUBLIC SPEAKING IN AMERICA
559 LEADERSHIP AND COMMUNICATION
562 ADVANCED MEDIA WRITING
569 NONLINEAR VIDEO EDITING
571 THEORIES OF RHETORIC
581 FILM AS ART: AN INTRODUCTION TO THE FILM FORUM
590 COMMUNICATION WORKSHOP
593 PRODUCTION PRACTICUM
600 INTRODUCTION TO GRADUATE STUDY IN COMMUNICATION
603 EMPIRICAL RESEARCH IN COMMUNICATION
604 INTRODUCTION TO QUANTITATIVE RESEARCH IN COMMUNICATION
606 COMMUNICATION PROBLEMS IN THE BASIC SPEECH COURSE
608 COMMUNICATION PEDAGOGY
610 SURVEY OF COMMUNICATION THEORY
615 THEORIES OF MASS COMMUNICATION
616 CONTEMPORARY PUBLIC RELATIONS THEORY
645 INTERCULTURAL COMMUNICATION THEORY
670 COMMUNICATION CRITICISM
680 GRADUATE COMMUNICATION INTERNSHIP
691 ADVANCED COMMUNICATION STUDIES
687 GRADUATE RESEARCH IN COMMUNICATION 16 credits
(May be repeated for a total of six credits.) Prerequisite: 7600-600 and approval of project proposal one term prior to the beginning of the project. Performance of research on problems found in mass media communication.

698 MASTER'S PROJECT/PRODUCTION 16 credits
(May be repeated for a total of six credits.) Prerequisite: Permission of the school director.

699 MASTER'S THESIS 16 credits
(May be repeated for a total of six credits.) Prerequisite: Permission of the school director.

SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY 7700:

530 ASPECTS OF NORMAL LANGUAGE DEVELOPMENT 3 credits
Not open to communicative disorders majors. 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, family, and school.

540 AUGMENTATIVE COMMUNICATION 3 credits
Prerequisite: 330 or 43350 or permission of instructor. Overviews augmentative communication systems, cued systems, symbols, devices, vocabulary, funding. Considers interdisciplinary issues in assessment/intervention.

545 MULTICULTURAL CONSIDERATIONS FOR AUDIOLOGISTS AND SPEECH-LANGUAGE PATHOLOGISTS 2 credits
Prerequisite: 7700-110 or graduate standing. This course introduces the multicultural considerations faced by audiologists and speech-language pathologists providing services to families and individuals with communication disorders.

560 SPEECH-LANGUAGE AND HEARING DISORDERS IN THE PUBLIC SCHOOLS 2 credits

561 ORGANIZATION AND ADMINISTRATION: PUBLIC SCHOOLS 2 credits
Prerequisites: Senior or graduate standing. For clinicians who plan to work in public school systems. Covers program requirements and professional/ethical issues imposed by NASP, NAEHCY, and school board.

580 EARLY INTERVENTION FOR PRESCHOOLERS 2 credits
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.

585 TEACHING AND LEARNING STRATEGIES IN SPEECH-LANGUAGE PATHOLOGY 2 credits
Prerequisite: Graduate status. Current practice related to clinical intervention designed for individuals with developmental disabilities. Explores use of the natural environment and the computer as intervention tools.

590 WORKSHOP: SPEECH-LANGUAGE PATHOLOGY AND/O R AUDIOLOGY 3 credits
May be repeated for a total of four credits. Prerequisite: Permission. Group investigation of a particular phase of speech pathology and/or audiology not offered by other courses.

610 INSTRUMENTATION IN SPEECH PATHOLOGY AND AUDIOLOGY 2 credits
Prerequisites: and use of the natural environment and the computer as intervention tools.

611 RESEARCH METHODS IN COMMUNICATIVE DISORDERS I 3 credits
Introduction to research methods in the field of communicative disorders.

612 RESEARCH METHODS IN COMMUNICATIVE DISORDERS II 2 credits
Prerequisite: 611. Advanced experimental methods; development of a research study.

620 ARTICULATION 2 credits
Historical background, current theories and research related to etiology, evaluation and treatment of articulation and phonology disorders.

623 SUPPORT SYSTEMS FOR INDIVIDUALS AND FAMILIES WITH COMMUNICATIVE DISORDERS 2 credits
Prerequisite: Graduate status. Enhances students' abilities to interview, provide educational information, and create support systems for persons with communicative handicaps and their families.

624 NEUROGENIC SPEECH AND LANGUAGE DISORDERS 3 credits
Prerequisite: Graduate status. This course presents current theories and research related to neuroanatomical etiology, diagnosis, classification and treatment of adults with neurologically based communicative disorders.

626 VOICE AND PALLATE 3 credits
Prerequisite: Graduate status. Background and current research related to normal vocal and velopharyngeal function as well as the etiology, diagnosis, and treatment of voice and cleft palate disorders.

627 STUTTERING: THEORIES AND THERAPIES 2 credits
Prerequisite: Graduate status. This course provides information and discussion on theories, classification, diagnosis, and treatment of fluency disorders.

628 TOPICS IN DIFFERENTIAL DIAGNOSIS OF SPEECH AND LANGUAGE DISORDERS 2 credits
(May be repeated for a total of four credits) Prerequisite: permission of director of Speech and Hearing Center.

629 TOPICS: SPEECH PATHOLOGY AND AUDIOLOGY 2 credits
Prerequisite: Permission of instructor. Selected current topics in clinical and/or experimental areas of speech pathology, audiology, or language. Emphasis on review of current and historical literature.

630 CLINICAL ISSUES IN CHILD LANGUAGE 4 credits
Prerequisite: Graduate status. Presents current research perspectives on child language disorders and clinical methodologies in language assessment and intervention.

631 COGNITIVE BRAIN INJURY 3 credits
Prerequisite: permission of instructor. A study of behavioral deficits, stages of recovery, assessment techniques, and principles of cognitive rehabilitation related to closed head injury.

632 DYSPHAGIA 3 credits
Prerequisites: 501 and 502. Outlines etiology, assessment, and treatment for infants, children, and adults with feeding and swallowing disorders (dysphagia). It provides actual experiences in diagnosis and feeding.

633 PROFESSIONAL ISSUES 2 credits
Prerequisite: Graduate status. Ethical, moral and legal processes within current SLP professional issues are discussed. Students are encouraged to develop professional personal viewpoints and identity.

638 SEMINAR IN LANGUAGE AND SPEECH OF THE HEARING IMPAIRED 2 credits

639 ADVANCED CLINICAL TESTING 4 credits
Thematic basis for the tests, reliability, and validity of tests. Review of current and historical literature relative to above tests.

640 SPECIAL TESTS/ME/DICAL AUDIOLOGY 4 credits
Prerequisites: 633 or permission of instructor. Underlying psychophysiologic principles of administration and interpretation of special and tension tests. Relationship between otology and audiology.

641 AMPLIFICATION 3 credits
Prerequisite: 633 or permission of instructor. Components of amplification systems; methods of evaluating hearing aid performance.

642 PEDIATRIC AUDIOLOGY 2 credits
Prerequisite: 633 or permission of instructor. Otology of hearing loss in children, techniques for testing preschool and school-age children and other difficult-to-test clients.

643 INDUSTRIAL AUDIOLOGY 2 credits
Prerequisite: 633 or permission of instructor. Theoretical principles of noise measurement: etiology of noise-induced hearing loss and acoustic trauma; industrial hearing conservation programs; Occupational Safety and Health Act (OSHA) regulations.

644 AURAL REHABILITATION 4 credits
Prerequisite: permission of instructor. Review of current methodologies employed in aural rehabilitation of children and adults as well as current and potential areas of research.

645 EVOKED POTENTIALS 2 credits
Prerequisite: permission of instructor. Study of auditory, visual and somatosensory evoked potentials and their clinical applications in audiology and neuro-otology.

646 ELECTRONYSTAGMOGRAPHY 2 credits
Prerequisite: permission of instructor. Study of the anatomy and physiology of the vestibular system; nystagmus; electronystagmographic (ENG) recording procedures; ENG protocols; interpretation of ENG results.

650 ADVANCED CLINICAL PRACTICUM: SPEECH-LANGUAGE PATHOLOGY 16 credits
Prerequisite: Permission may be repeated. Supervised clinical practice in evaluation and treatment of speech and language disorders for a total of 24 credits. Prerequisite: 501.

654 ADVANCED CLINICAL PRACTICUM: AUDIOLOGY 16 credits
Prerequisite: Permission may be repeated. Supervised clinical practice in evaluation and treatment of hearing disorders; includes preparation of written reports.

655 EXTERNAL PRACTICUM: SPEECH PATHOLOGY AND AUDIOLOGY 26 credits
Prerequisite: Permission may be repeated. Clinical practice in a selected speech-language pathology or audiology facility.

657 SPECIAL PROBLEMS: SPEECH PATHOTHY AND/OR AUDIOLOGY 12 credits
(May be repeated for a total of six credits.) Prerequisite: permission of instructor. Directed research or reading in selected topics in speech pathology, audiology, or language disorders.

699 MASTER'S THESIS 4-6 credits
May be repeated for a total of six credits.) Prerequisite: permission of School Director.

SOCIAL WORK 7750:

501 SOCIAL WORK PRACTICE I 3 credits
Prerequisite: 276 or permission of instructor. Basic concepts and methods of social work practice, particularly relating to understanding and working with individuals and families.

502 SOCIAL WORK PRACTICE II 3 credits
Prerequisite: 401 or permission of instructor. Concepts and methods of social work practice, particularly relating to understanding and working with groups in various settings in our culture.

503 SOCIAL WORK PRACTICE III 3 credits
Prerequisite: 401 or permission of instructor. Development and practice methodological issues in utilization of community organization and service delivery as social work process in assessing problems and developing programs to meet needs.

504 SOCIAL WORK PRACTICE IV 3 credits
Prerequisite: 401 or permission of instructor. Professional social work practice with families in social services, the dynamics of family systems, assessment of family function and dysfunction, professional helping processes.

510 MINORITY ISSUES IN SOCIAL WORK PRACTICE 3 credits
Prerequisite: 276 or permission of instructor. Must be taken prior to or concurrently with one of the other practice courses 402, 403, 404. Racial, ethnic and cultural issues in social work practice. Addressed to various practice and theoretical perspectives, in various types of social problems, services agencies, individual family, group, community and societal contexts integrated with the methodological processes of the social work practitioners.

511 WOMEN'S ISSUES IN SOCIAL WORK PRACTICE 3 credits
Prerequisite: 276 or permission of instructor. Social work practice, knowledge and skill, social welfare institutions and social policy in relation to women's issues and concerns in the United States.

525 SOCIAL WORK ETHICS 3 credits
Prerequisite: 276 or permission of instructor. Social Worker's code of ethics as applied to practice problems and issues in social work practice.

527 HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT I 3 credits
Prerequisite: for 427: 278 or permission of instructor: for 527: permission of instructor. Social work perspective on human development across the life cycle. Human diversity approach consistent with the needs of social work students preparing for practice.

530 HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT II 3 credits
Prerequisites: 420, 421, 422 or permission of instructor. Emphasis on social workers understanding of and use of individual interaction and growth within family as a system, groups, roles, organizations, community and culture.

540 SOCIAL WORK RESEARCH 3 credits
Prerequisite: for 440: 278 or permission of instructor: for 540: permission of instructor. Social work practitioner's role in utilization of scientific method in the conduct of practice and utilization of social work research as foundation for social work and social science literature for improvement and advancement of social work practice.

541 SOCIAL WORK RESEARCH II 3 credits
Prerequisite: for 440: 440 or permission of instructor: for 540: permission of instruction. Development of social work intervention with individual, group and community. Processing and interpreting agency information for better practice, policy and administrative decisions.
SOCIAL POLICY ANALYSIS FOR SOCIAL WORKERS 3 credits
Prerequisite for: 445: 276 or permission of instructor: for 545: graduate social work degree or permission. Description, analysis and construction of social policy in social services; to understanding the factors which establish or change social policies, to grade consequences of social policies, and to establish goals for social policy development; integration of effective social work methodology.

SOCIAL NEEDS AND SERVICES FOR LATER ADULTHOOD AND AGING 3 credits
Prerequisite: 276 or permission of instructor: Application of knowledge and principles of professional social work practice in understanding, development and provision of social services to meet needs of aging and later maturity individuals, families and communities and institutions serving them and their relatives.

SOCIAL WORK IN CHILDREN'S THERAPY 3 credits
Prerequisite: 276 or permission of instructor: In-depth exploration of structure and functioning of social services designed to help children, and of practice of social work in child-welfare settings, including cooperation of supplementary, supportive, and subsistence services.

SOCIAL WORK IN MENTAL HEALTH 3 credits
Prerequisite: 276 or permission of instructor: Issues, organization, development, and methodology of mental health professional social work practice in mental-health settings.

SOCIAL WORK IN JUSTICE SYSTEMS 3 credits
Prerequisite: 276 or permission of instructor: The theory and practice of social work with the juvenile justice systems of the United States. Traditional approaches and recent developments, prevention, diversion and community outreach, legal concerns, case management, institutional functioning.

THE BLACK FAMILY 3 credits
Prerequisite: 276 or permission of instructor: Contemporary problems facing black families, male-female relationships, single parent households, black seniors and elderly, public policy, theoretical models, explaining development of the black family.

SOCIAL WORK IN HEALTH SERVICES 3 credits
Prerequisite: 276 or permission of instructor: Policies, programs and practice in health-care settings. Short-term, intermediate and long-term, hospitals, outpatient services, emergency services, clinics, visiting nurse services, nursing homes, pediatric services, self-help organizations.

ADULT DAY CARE 3 credits
Prerequisite of 276 or permission of instructor: for 554: permission of instructor. Planning, development, implementing, and evaluating, and delivery of adult day-care services.

SOCIAL WORK WITH THE MENTALLY RETARDED 3 credits
Prerequisite: 276 or permission of instructor: Application of social work principles in the provision of social services to meet the needs of the mentally retarded and developmentally disabled and their families.

ADMINISTRATION AND SUPERVISION IN SOCIAL WORK 3 credits
Prerequisite: 276 or permission of instructor: Basic terminology, theories, principles, organization, and procedure of levels of administration to be explored along with the relationships between social work and law and comparisons of the theoretical bases of the two professions.

SUBSTANCE ABUSE AND SOCIAL WORK PRACTICE 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, feedback, and problems encountered.

SOCIAL WORK PRACTICE: FAMILY AND CHILDREN 3 credits
Prerequisite: second level graduate student or permission of instructor. The basic knowledge, skills, and professional roles and functions as they are carried out at different hierarchical levels in human service organizations.

SOCIAL SERVICES AND POLICY ANALYSIS 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, feedback and problems encountered.

COMMUNITY ORGANIZATION AND PLANNING 3 credits
Prerequisite: second level graduate student or permission of instructor. The theory and practice of social work with the juvenile justice systems of the United States. Traditional approaches and recent developments, prevention, diversion and community outreach, legal concerns, case management, institutional functioning.

AGING AND SOCIAL WORK PRACTICE 3 credits
Prerequisite: second level graduate student or permission of instructor. Provides an integrative view of social work practice with an emphasis on values, family, and social policies, and evaluation of professional inter- ventions.

SOCIAL WORK PRACTICE WITH GAYS AND LESBIANS 3 credits
Prerequisite: second level graduate student or permission of instructor. Describes gay and lesbian culture and lifestyles, discrimination based on sexual orientation, and intervention strategies appropriate to working with gays and lesbians.

PSYCHOPATHOLOGY AND SOCIAL WORK 3 credits
Prerequisite: third level graduate student or permission of instructor. An examination of the symptoms, theories, and psycho-social aspects of mental illness, and the role of the social worker in the treatment of mental disorders.

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.

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, feedback, and problems encountered.

SOCIAL WORK ADMINISTRATION 3 credits
Prerequisite: second level graduate student or permission of instructor. The theory and practice of social work with the juvenile justice systems of the United States. Traditional approaches and recent developments, prevention, diversion and community outreach, legal concerns, case management, institutional functioning.

STRENGTHS OF COMMUNITY ORGANIZATION 3 credits
Prerequisite: second level graduate student or permission of instructor. The basic knowledge, skills, and professional roles and functions as they are carried out at different hierarchical levels in human service organizations.

COMMUNITY ORGANIZATION AND PLANNING 3 credits
Prerequisite: second level graduate student or permission of instructor. The theory and practice of social work with the juvenile justice systems of the United States. Traditional approaches and recent developments, prevention, diversion and community outreach, legal concerns, case management, institutional functioning.

COMMUNITY SERVICE IN SOCIAL WORK 3 credits
Prerequisite: second level graduate student or permission of instructor. Provides students with an understanding of the political framework at federal, state, and local levels and their impact on communities.

PROGRAM EVALUATION 3 credits
Prerequisite: second level graduate student or permission of instructor. The theory and practice of social work with the juvenile justice systems of the United States. Traditional approaches and recent developments, prevention, diversion and community outreach, legal concerns, case management, institutional functioning.

FINANCIAL MANAGEMENT OF SOCIAL AGENCIES 3 credits
Prerequisite: second level graduate student or permission of instructor. The basic knowledge, skills, and professional roles and functions as they are carried out at different hierarchical levels in human service organizations.

AGING AND SOCIAL SERVICES 3 credits
Prerequisite: second level graduate student or permission of instructor. The theory and practice of social work with the juvenile justice systems of the United States. Traditional approaches and recent developments, prevention, diversion and community outreach, legal concerns, case management, institutional functioning.

AGING: POLICIES AND PROGRAMS 3 credits
Prerequisite: second level graduate student or permission of instructor. The theory and practice of social work with the juvenile justice systems of the United States. Traditional approaches and recent developments, prevention, diversion and community outreach, legal concerns, case management, institutional functioning.

SOCIAL WORK PRACTICE: FAMILY AND CHILDREN 3 credits
Prerequisite: second level graduate student or permission of instructor. The basic knowledge, skills, and professional roles and functions as they are carried out at different hierarchical levels in human service organizations.

SOCIAL WELFARE POLICIES 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 support- ive, supplemental and substitute aspects of services.

ADVANCED PRACTICE AND POLICY IN SUBSTANCE ABUSE 3 credits
Prerequisite: second level graduate student or permission of instructor. This course provides students the knowledge and skills necessary for change in substance abuse, evaluation of programs, and preventive work.

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.

SOCIOLOGICAL ANALYSIS OF HEALTH AND SOCIAL PROBLEMS 3 credits
Prerequisite: second level graduate student or permission of instructor. Provides an understanding of the phenomenon of social work practice, such as treatment groups, making administra- tive decisions, in planning and evaluation, and doing preventive work.
THEATRE

567 CONTEMPORARY THEATRE STYLES
A detailed examination of representative plays of the contemporary theatre. 3 credits

570 THEATRE IN EDUCATION
3 credits

A first-hand experience with current theatre, methods, and materials in P-12 theatre education and process drama techniques. Field experience provided when possible.

575 ACTING FOR THE MUSICAL THEATRE
3 credits

Prerequisite: Permission. A scene study course in analyzing and performing roles in American musical theatre. At least one musical theatre performance major or director required.

600 INTRODUCTION TO GRADUATE STUDIES
3 credits

Exploration of the basic research tools and methods appropriate to the discipline, including utilization of the computer. Guidelines for writing thesis.

603 SPECIAL TOPICS IN THE ARTS
1-4 credits

May be repeated as different subject areas are covered, but no more than 12 credits may be applied toward M.A. degree. Traditional and experimental courses in theatre, supplementing those listed in the General Bulletin.

605 COLLOQUIUM ON THE ARTS
3 credits

A brief exploration of the major visual and performance arts and organizations examined in relationship to the fine arts management of arts. Team taught.

606 PROBLEMS IN DIRECTING
3 credits

Advanced directing course with special emphasis on staging of complex plays from all periods of dramatic literature.

607 SEMINAR IN DRAMATIC LITERATURE
3 credits

Representative Western stage play (non-American) are examined in theatre, historical, and critical/theoretical context.

608 GRADUATE ACTING TECHNIQUES
2 credits

Advanced study of basic acting techniques, especially Stanislavski, through analysis and performance. Voice/Movement Lab required.

609 GRADUATE ACTING PROBLEMS
3 credits

Study of problems confronting the advanced actor in various modern styles of performance. Voice/Movement Lab required.

610 HISTORY OF TECHNICAL PRODUCTION
2 credits

Theatre history from the Greeks to the present with emphasis on scenic, lighting, and technical theatre of each period.

612 HISTORY AND THEORY OF STAGE LIGHTING
3 credits

Historical survey of the evolution of stage lighting, culminating in an understanding of modern lighting design skills and their practical application. Term application or major project required.

615 ADVANCED TECHNICAL THEATRE
2 credits

Processes including multiple set productions, revolving and their lightings, techniques in simple drawing and the basic properties and operating techniques in multimedia.

620 SEMINAR IN SCENE DESIGN
3 credits

Prerequisite: 106 or undergraduate scene design course or permission of instructor. Study of problems in scene design. Directing, research, design, and studio management.

623 AUDIENCE DEVELOPMENT
2 credits

Developing audiences for the arts through marketing techniques, including selection, organization, and single ticket campaigns, promotional strategies, mediate/relations, market research, and team marketing.

625 PRINCIPLES OF ARTS ADMINISTRATION
2 credits

Principles and practices in non-profit arts management, including organizational structure, fundamentals of board-related functions, and public policy for the arts.

626 FUNDRAISING AND GRANTSmanship IN THE ARTS
3 credits

Prerequisite: Permission. Techniques and evaluation of a development campaign for individuals, corporations, foundations, federal and state grants, and endowment, including research and proposal writing.

628 GRADUATE RESEARCH/READING
1-3 credits

May be repeated for a total of nine credits. Prerequisite: permission. Independent research or independent readings under supervision of member of graduate faculty.

631 ARTS ADMINISTRATION PRACTICES AND POLICIES
3 credits

Principle: Admission to Graduate Program. Examination of current issues in arts management practices, presentation of management, responsibilities, and unique management problems in non-profit theatre companies, dance companies, orchestras, and museums.

632 LEGAL ASPECTS OF ARTS ADMINISTRATORS
3 credits

Legal responsibilities and liabilities of an arts organization, contracts, copyright, law, insurance, taxation, artists’ 1099s, personnel law, and labor law.

633 INTERNSHIP
3 credits

Prerequisite: permission. Faculty supervised work experience in an arts management, performance or technical situation with a selected cultural organization.

599 MASTERS THESIS
16 credits

May be repeated for a total of six credits. Prerequisite: permission of graduate coordinator of theatre arts program. Research related to the completion of the master’s thesis.

THEATRE ORGANIZATIONS

7810:

601 PRODUCTION PRACTICUM/DESIGN/TECHNOLOGY
1-2 credits

May be repeated for a total of four credits. Prerequisite: permission of instructor. Practice in selected production, design/technology operations, applications and techniques as they apply to production prints and major departmental productions.

605 PERFORMANCE PRACTICUM
1-2 credits

May be repeated for a total of 12 credits. Prerequisite: permission of project advisor. Recognition of work undertaken by the student when performing a role in a theatre production. Credit assigned and work supervised by faculty project supervisor.

DANCE PERFORMANCE

7920:

590 WORKSHOP IN DANCE
1-3 credits

Prerequisite: Advanced standing or permission. May be repeated for a total of eight credits. Group projects investigating a particular field of dance not covered by other courses.
628 ADULT/GERONTOLOGICAL HEALTH NURSING II PRACTICUM 2 credits
Prerequisites: 610, 620 or acceptance into Post-Master's Adult/Gerontological NP program; 680, concurrent 621 or acceptance into Post-Master's Adult/Gerontological NP program. Prerequisite: emphasis on health promotion and complex, uncomplicated acute or chronic illness state of the adult/geriatric adult.

632 ADULT/GERONTOLOGICAL HEALTH NURSING II PRACTICUM 2 credits
Prerequisites: completion of 625, 660, with emphasis on complex chronic illness states and Comorbidities of the adult/older adult.

639 RESOURCE MANAGEMENT IN NURSING SETTINGS 3 credits
Prerequisite: admission to Graduate Program or permission of instructor. Examine management of fiscal and human resources in nursing service settings; assesses impact of economics and labor relations on healthcare and nursing care.

636 FISCAL MANAGEMENT IN NURSING ADMINISTRATION 3 credits
Prerequisite: Admission to Graduate Program or permission of instructor. Examine management of fiscal resources in nursing service settings.

637 LEADERSHIP IN NURSING ORGANIZATIONS I 3 credits
Prerequisites: admission to Graduate Program or permission of instructor. Leadership and management theories are utilized to guide study of the role of nurse administrator.

638 LEADERSHIP IN NURSING ORGANIZATIONS II 3 credits
Prerequisite: 636, 638. Leadership and management theories are utilized to guide study of the role of nurse administrator.

656 ORGANIZATIONAL BEHAVIOR IN NURSING SETTINGS 3 credits
Prerequisites: Admission to Graduate Program or permission of instructor. Examine organizational behavior, theories, or principles related to systems analysis and assessment of organizational structure in nursing settings.

661 NURSE ANESTHESIA RESIDENCY I 4 credits
Prerequisites: 664, 665. This course introduces the second year student to the art and science of both obstetrical and pediatric anesthesia related theory, research, and practice.

662 PRACTICUM: NURSING ADMINISTRATION I 3 credits
Prerequisite: Admission to Graduate Program or permission of instructor. Leadership and management theories are utilized to guide study of the role of nurse administrator.

663 PRACTICUM: NURSING ADMINISTRATION II 2 credits
Prerequisite: 662. Comprehension of leadership and management theories utilized to guide study of role of the nurse administrator.

664 SCIENTIFIC COMPONENTS OF NURSE ANESTHESIA 3 credits
Prerequisite: admission to the Nurse Anesthesia program. The course presents current dealing with the chemical and physical components of anesthesia agents.

665 PHARMACOLOGY FOR NURSE ANESTHESIA I 3 credits
Prerequisite: 664. The study of intravenous induction agents, injectable analgesics, and inhalation anesthetics commonly used in the administration of general anesthesia. Includes use of muscle relaxants.

666 INTRODUCTION TO NURSE ANESTHESIA 4 credits
Prerequisite: admission to the Nurse Anesthesia program. This course provides an overview of anesthetic concepts and prepares students for their in-hospital residency. The course stresses a lecture component and selected laboratory experiences.

668 PRINCIPLES OF ANESTHESIA I 4 credits
Prerequisite: 664. This course focuses on the acquisition of basic skills related to nursing anesthetists and administration of anesthesia agents, with a focus on equipment.

669 PHARMACOLOGY FOR NURSE ANESTHESIA II 3 credits
Prerequisite: 664. Focuses on mechanisms of drug transport within the human body for inhalated and injected medications. The effects of accessory drugs are also discussed.

671 NURSE ANESTHESIA RESIDENCY II 4 credits
Prerequisite: 667. Comprehension of the theoretical basis for specific nursing interventions and rationale for their use in thoracic anesthesia, cardiac anesthesiology, vascular anesthesia, and neurosurgical anesthesia management.

673 PROFESSIONAL ROLE SEMINAR 2 credits
Prerequisites: 664, 665. Discusses issues, concepts, and theories related to the professional role of nurse anesthetists. Focuses on leadership/management content as well as professional ethical issues.

674 NURSE ANESTHESIA RESIDENCY III 4 credits
Prerequisite: 664. Focuses on the understanding of pharmacology and physiologic principles of other organ systems and the relevant implication that govern anesthetic management.

675 NURSE ANESTHESIA RESIDENCY IV 4 credits
Prerequisite: 668. Comprehensives review of basic and advanced anesthetic concepts important to the entry-level nurse anesthetist.

680 ADVANCED PEDIATRIC/ADOLESCENT ASSESSMENT 3 credits
Prerequisite: admission to Adult/Gerontological Health Nursing I and II, or permission of general faculty; concurrent 681, Advanced pediatric/adolescent assessment and clinical reasoning for primary care nursing with introduction to differential diagnosis and clinical management.

681 CHILD AND ADOLESCENT HEALTH NURSING I 3 credits
Primary care nursing for children and adolescents and their families; emphasis on health promotion and problems in family/community contexts.

682 CHILD AND ADOLESCENT HEALTH NURSING I PRACTICUM 2 credits
Prerequisite: admission to Adult/Gerontological Health Nursing NP track or Post-Master's Child and Adolescent Health NP program. Clinical practicum course emphasizing primary care nurse's role to enhance positive health behavior outcomes of well children/adolescents and those with minor health disruption problems in family/community contexts.

683 CHILD AND ADOLESCENT HEALTH NURSING II PRACTICUM 2 credits
Prerequisite: 680. Expand the role of the nurse for primary care using consultation and program development, marketing related to development and implementation of health programs for children, adolescents, and families.

685 CHILD AND ADOLESCENT HEALTH NURSING II 3 credits
Emphasis on primary care nursing to enhance positive health behavior outcomes of children/adolescents with acute and chronic health disruptions in family/community context.

690 PHARMACOLOGY FOR CHILD AND ADOLESCENT HEALTH NURSING 3 credits
Prerequisite: Admission to Graduate Program. Emphasis on major categories of pharmacologic agents, their influence on developmental outcomes of children/adolescents in ambulatory, acute and chronic care environments.

697 CHILD AND ADOLESCENT HEALTH NURSING III 3 credits
Emphasis on advanced practice in primary health care using consultation and program development related to developmental and health behavior outcomes of children/adolescents and families.

698 CHILD AND ADOLESCENT HEALTH NURSING INTERNSHIP 1-4 credits
Prerequisite: Admission to the internship program. Includes participation in the service delivery and evaluation of the child/adolescent health nurse's role and performance in contemporary health settings.

699 PRACTICUM: CHILD AND ADOLESCENT HEALTH NURSING 5 credits
Prerequisite: 697. Integration of knowledge and skills with a specified population of children/adolescents and their families. Emphasis on implementation of programmatic interventions and evaluation.

700 BEHAVIORAL HEALTH NURSING I PRACTICUM 2 credits
Development of clinical competencies and empiric techniques in the delivery of behavioral health care to individuals.

701 BEHAVIORAL HEALTH NURSING II PRACTICUM 3 credits
Prerequisite: Admission to the graduate program. Focuses on the theories, concepts, and techniques utilized in the delivery of behavioral health care to individuals.

702 INDEPENDENT STUDY 1-4 credits
Opportunity for advanced graduate nursing practice in a selected area of specialization.

704 ADULT/GERONTOLOGICAL HEALTH NURSING CNS I PRACTICUM 2 credits
Prerequisite: Admission to the MSN program. Focus on the development of clinical competencies relevant to advanced practice nursing. Transition to a community-based role.

705 ADULT/GERONTOLOGICAL HEALTH NURSING CNS II PRACTICUM 2 credits
Prerequisite: 671, 674. Focuses on the development of clinical competencies relevant to advanced practice nursing. Transition to a community-based role.

706 ADULT/GERONTOLOGICAL HEALTH NURSING CNS I PRACTICUM 4 credits
Prerequisite: Admission to the MSN program. Focus on the development of clinical competencies relevant to advanced practice nursing. Transition to a community-based role.

707 ADULT/GERONTOLOGICAL HEALTH NURSING CNS II PRACTICUM 3 credits
Prerequisite: 671, 674. Focuses on the development of clinical competencies relevant to advanced practice nursing. Transition to a community-based role.

708 INSTRUCTIONAL METHODS IN NURSING EDUCATION 3 credits
Prerequisites: 675 or permission of instructor. Study of a variety of instructional methodologies used in nursing education, including teaching and learning methods used in classroom, laboratory, and clinical settings.

712 NURSING CURRICULUM DEVELOPMENT 2 credits
Prerequisites: admission to the Advanced Role Preparation in Nursing Education certificate program. Study of a variety of instructional methodologies used in nursing education, including teaching and learning methods used in classroom, laboratory, and clinical settings.

713 EVALUATION IN NURSING EDUCATION 2 credits
Prerequisite: admission to the Advanced Role Preparation in Nursing Education certificate program or permission of instructor. Examines curriculum development with a focus on teaching/learning strategies. Emphasis is on processes of developing curriculum.

714 PRACTICUM: TEACHING/ADULT EDUCATION 2 credits
Prerequisite: admission to the Advanced Role Preparation in Nursing Education certificate program or permission of instructor. Application of principles of evaluation and measurement to instructional and educational evaluation. Emphasis is on evaluation as a process, includes evaluation of teacher, learner and program.

715 PRACTICUM: THE ACADEMIC ROLE OF THE NURSE EDUCATOR 2 credits
Prerequisites: 681, 682. Preceptor study and practice in the role of a nurse educator. Each student presents lecture content and provides clinical supervision to a group of students.
810 HISTORY 3 credits
Prerequisite: admission to the Adult/Gerontological Nursing Practitioner track or the Post-MSN Adult/Gerontological track and 620 or its equivalent for the Post-MSN students. College of Pharmacy and Health Science students must complete 551 or 552. Focus on epidemiology, evaluation of common chronic and acute problems of adults in primary health care settings. Focus on epidemiology, evaluation of common chronic and acute problems of adults in primary health care settings. Emphasis on health promotion and risk assessment.

811 ACUTE CARE NURSE PRACTITIONER I 4 credits

812 ACUTE CARE NURSE PRACTITIONER II 4 credits
Prerequisite: 681, 610. Focus on advanced nursing interventions related to systemic specific health problems of adults in tertiary care settings.

830 QUALITATIVE NURSING SCIENCE SEMINAR 3 credits
Prerequisite: admission to Adult/Gerontological Nursing Practitioner track or the Post-MSN Adult/Gerontological Nursing Practitioner certificate program and 621 or its equivalent. Focus on 621 or 625. Clinical management of complex chronic problems of adults in primary health care settings. Focus on long term management using different interventions to improve health outcomes and clinical reasoning.

833 ACUTE CARE NURSE PRACTITIONER II 4 credits
Prerequisite: 681, 610, 612. Focus on advanced nursing interventions related to systemic specific health problems of adults in tertiary care settings.

864 HISTORY AND PHILOSOPHY OF NURSING SCIENCE 3 credits
Prerequisite: admission to the PhD. Program or permission of the faculty. Focus on the nature of metaphysics and epistemology and the influence of contemporary Eastern and Western philosophies on the developing epistemology of disciplinary nursing knowledge. (KSU 70710)

870 THEORY CONSTRUCTION AND DEVELOPMENT IN NURSING 3 credits
Prerequisite: 681, 610. Exercises strategies for theory development, including logical-empirical-deductive and inductive approaches. Emphasis will be on elements and strategies used in theory building. (KSU 70715)

880 INTRODUCTION TO NURSING KNOWLEDGE DOMAINS 1 credit
Prerequisite: Admission to the PhD. Program or permission of the professor. Introductory seminar analyzing selected theoretical and methodological approaches to knowledge development in nursing. Emphasis on critical analysis of knowledge in areas of special interest. (KSU 70720)

885 QUANTITATIVE RESEARCH METHODS 3 credits
Prerequisite: admission to the PhD. Program or permission of the professor. An integrated approach to study of quantitative nursing research. Exploration of the interdependent relationship of methodology, design/review, data analysis and interpretation of findings. (KSU 70725)

887 ADVANCED HEALTH CARE STATISTICS I 3 credits
Prerequisite: Admission to the PhD. Program or permission of the professor. Pre-or corequisite: 825. An in-depth examination of descriptive statistics, correlation, regression, multiple regression sets, scaling, nonlinear transformation, missing data, and interactive effects; including multiple regression data, integrating understanding of inference and probability concepts. (KSU 70730)

888 ADVANCED HEALTH CARE STATISTICS II 3 credits
Prerequisite: Admission to the PhD. Program or permission of the professor. Exercises strategies for theory development, including logical-empirical-deductive and inductive approaches. Focus on advanced nursing interventions related to systemic specific health problems of adults in tertiary care settings.

889 NURSING AND HEALTH CARE POLICY 3 credits
Prerequisite: Admission to the PhD. Program or permission of the professor. Critical examination of theories and processes of formulating state/national health care policy. Focus on health issues, the political and legislative process, and contemporary policy shapers. (KSU 70745)

890 NURSING SCIENCE SEMINAR I 3 credits
Prerequisite: 882, 612. Seminar on in-depth analysis, synthesis, and evaluation of one substantive area within nursing and related disciplines focusing on the generation and dissemination of nursing knowledge. (KSU 88091, 88191, 88291)

891 ADVANCED METHODS FOR RESEARCH 4 credits
Prerequisite: Admission to the PhD. program or permission of the professor. Advanced seminar in developing research development, methods, and evaluation essential to the advancement of nursing knowledge. (KSU 70745-70749)

892 NURSING SCIENCE SEMINAR II 3 credits
Prerequisite: 891. An in-depth focused analysis and synthesis of a substantive area relevant to the student's specific research focus, culminating in a written product for dissemination. (KSU 87091)

910 FIELD EXPERIENCE IN NURSING 1-12 credits
Prerequisite: Admission to the PhD. Program or program of instruction. Individual enrollment in field experience, practicum, or internship settings related to nursing.

915 SPECIAL TOPICS IN NURSING 4 credits
Prerequisite: Admission to the PhD. Program or permission of instructor. Study of special topics in nursing practice, research, or the profession. Offering in response to existing interests and opportunities. Topic is announced when scheduled.

916 PROFESSIONAL INVESTIGATION IN NURSING 3 credits
Prerequisite: Admission to the PhD. program or permission of instructor. Individual enrollment for independent study in nursing carried out by students under supervision of a doctoral faculty member.

918 RESEARCH IN NURSING 1-15 credits
Prerequisite: Admission to the PhD. program or permission of instructor. Research carried out by a student under faculty supervision. In-depth inquiry should result in a paper or appropriate project.

999 DISSERTATION II 1-15 credits
Prerequisite: Advancement to candidacy. May be repeated independent dissertation research under the guidance of a faculty chairperson and a dissertation committee. (KSU 80199)

PUBLIC HEALTH 8300:

601 PUBLIC HEALTH CONCEPTS 3 credits
Organizational structure, history, law, ethics, essential services, global problems, and future of public health.

602 SOCIAL AND BEHAVIORAL SCIENCES IN PUBLIC HEALTH 3 credits
Training in health education and intervention (communication, collaboration, and strategies); socio-cultural, diversity, and regional issues as pertains to public health.

604 EPIDEMIOLOGY IN PUBLIC HEALTH 3 credits
Epidemiological concepts and public health applications. Student presentations to focus on major public health issues, chronic conditions, etc.

605 BIOSTATISTICS IN PUBLIC HEALTH 3 credits
Exploration of biostatistics, statistical inference, central tendency tests, analysis of variance, regression analysis, survival analysis, and applications in public health. (Epi Info and JMP statistical packages).

606 SERVICES ADMINISTRATION IN PUBLIC HEALTH 3 credits
Management principles, planning and evaluation, grant-writing, economics, policy, data sources, and applications to public health.

607 ENVIRONMENTAL HEALTH SCIENCES IN PUBLIC HEALTH 3 credits
Air quality, water quality, sanitation, solid waste management, hazardous materials management, vector-borne disease, occupational health, legal issues, environmental risk assessment and response.

610 GRANT WRITING FOR PUBLIC HEALTH PROFESSIONALS 3 credits
Prerequisite: admission to MPH Program. Elective course for MPH students with minimum grant writing experience. Methods and techniques for writing grant proposals to fund public health programs and operations.

629 SPECIAL TOPICS IN PUBLIC HEALTH 1-6 credits
Special topic sections will focus on specific topics of current interest in public health.

637 INDEPENDENT STUDY 1-15 credits
Prerequisite: permission of academic advisor and instructor. Includes research or other individual projects designed jointly by student and instructor. Covers topics not available in electives (may only be taken for a maximum of 3 credits). Credit/No Credit.

639 PRACTICUM 1-15 credits
Student is teamed with a faculty advisor and community preceptor to work on a meaningful public health issue. For students who desire additional field experience. Credit/No Credit.

643 CAPSTONE PROJECT 36 credits
Student is teamed with a faculty advisor and community preceptors to work on a meaningful public health issue. Paper demonstrating applications learned will be required. Credit/No Credit.
631 ENGINEERING PROPERTIES OF SOLID POLYMERS 2 credits
Transitions as a function of polymer structure, optical characteristics, mechanical including ultimate properties, viscoelastic behavior of elastomers and plastics, large strain behavior. Emphasis on experimental methods.

641 POLYMERIC MATERIALS ENGINEERING SCIENCES 2 credits
Physical properties of polymer melts and amorphous and crystalline polymers. Glass transitions, crystallization, molecular orientation and morphology of important commercial polymers. fabrication and processing of products and composite materials.

642 ENGINEERING ASPECTS OF POLYMER COLLOIDS 2 credits
Thermodynamic properties of polymer colloids, solgel transformation, rheology of polymer solutions, gels, suspensions and emulsions, phase separation, application to papers and plastics technology.

650 INTRODUCTION TO POLYMER ENGINEERING 2 credits
Basic concepts of polymer engineering taught in a lecture-laboratory format intended for orientation of new graduate students.

651 POLYMER ENGINEERING LABORATORY 3 credits
Rheological characterization of polymer melts, rubber and plastic extrusion, extrudate swell, injection molding and compression molding, crystallization, viscoelastic behavior, viscoelasticity, film blowing, impact and tensile testing.

661 POLYMERIZATION REACTOR ENGINEERING 3 credits
Polymerization kinetics, classical reactor design, comparison of polymerization in batch and continuous stirred-tank reactors, flow patterns around agitators, tubular reactors, reactor stability.

693 MASTER'S THESIS 1-6 credits
(May be repeated) Supervised original research in specific area of polymer engineering.

711 ADVANCED ELECTROMAGNETIC AND OPTICAL PROPERTIES 2 credits
Maxwell's equations with application to anisotropic dielectrics, interference and dichroism and representation of gratings, optical instruments, polarizability, scattering and diffraction of x-rays and light. Microwave scattering, applications.

712 RHEO-OPTICS OF POLYMERS 2 credits
Applications of the physical methods as means of determining stress fields in polymers, viscoelasticity and elasticity of polymers in glasses, rubbery and fluid states. Theory of dynamic birefringence and its application to mechanical relaxations of amorphous and semicrystalline polymers.

713 RADIATION SCANTERING AND DIFFRACTION BY POLYMERIC MATERIALS 2 credits
Principles of scattering and diffraction theory as applied to polymer crystals, gelaes and multilayered systems. Wide-angle and small angle x-ray scattering, analysis and determination of crystal structures, mathematical description of orientation distribution of polymer and determination of anisotropy factors by X-ray and other methods.

720 MOLECULAR ASPECTS OF POLYMER RHEOLOGY 2 credits
Prerequisite: 621 or permission of instructor. Molecular theory for concentrated solutions and melts of flexible homopolymers, molecular rheology of miscible polymer blends, block copolymers, and liquid crystalline polymers.

721 RHEOLOGY AND PROCESSING TWO-PHASE POLYMER SYSTEMS 2 credits
Prerequisite: 621 or equivalent. Particle-particle interactions, mixing devices and design, rheological properties of emulsions and solid dispersions. Rheological behavior of polymer systems, linear viscoelastic behavior, phenomena phenomenon representing suspension behavior, dispersion of droplets to form emulsions, phase morphology development and rheological properties of blends.

722 ADVANCED MODELING OF POLYMER PROCESSING 2 credits
Prerequisite: permission of instructor. Modelling of processing operations including extrusion and injection molding, fiber spinning, processing, coated end designed.

723 RHEOLOGY AND PROCESSING OF ElASTOMERS 2 credits
Interpretation of rheological properties and critical study and analysis of processing operations including behavior in internal mixers, screw extruders, die systems and vulcanization molding.

724 ADVANCED EXTRUSION AND COMPOUNDING 2 credits
Principles of operation and flow in single and twin screw extruders, screw design, characteristics of internal mixers, analysis and simulation of flow.

725 CHROMOMEDICAL AND PROCESSING OF THERMOS 2 credits
Prerequisite: 621 or permission of instructor. Rheological behavior of thermosets, vulcanization of rubbers, time-temperature-transition relationships in thermosets, reaction injection molding, compression molding, extrusion.

727 ADVANCED POLYMER RHEOLOGY 2 credits
Prerequisite: 621 or equivalent. Second level course in non-linear constitutive equation for viscoelasticity, dilatoclastic, viscoelastic polymeric materials. Utility and applicability to polymer processing problems.

728 NUMERICAL ANALYSIS OF POLYMER PROCESSING OPERATIONS 2 credits
Prerequisite: permission of instructor. Analysis of cases studies modeled flows of polymer fluids through channels of simple and twin-screw extruders and die and molds with the use of commercial softwares such as Polyflow and Moldflow.

731 STRESS ANALYSIS OF POLYMERS AND COMPOSITES 2 credits
Prerequisite: 621. The design of rubber mounts, bearings and sandwich components with demonstration of finite element methods. Classical gajtelz and shells theories with applications to composite structures.

741 PHASE TRANSFORMATIONS IN POLYMERIC MATERIALS 2 credits
Prerequisite: permission of instructor. Thermodynamics of macromolecules and phases of polymer, thermodynamic and viscoelastic methods, crystallization, crystal-crystal transformation, stress induced crystallization.

743 POLYMER BLENDS AND ALLOYS 2 credits
Thermodynamics ofmiscibility and relationship to structure of components, compatibilizing agents, blending procedures, microphysical properties and structure-property relationships.

755 LIQUID CRYSTALS 2 credits
Prerequisite: permission of instructor. Structure of low molecular weight and liquid crystalline polymers, characterization, physical properties including optical properties, phase transitions, structure-property relationships, processing of polymer species.

757 ADVANCED TOPICS IN POLYMER ENGINEERING 2 credits
(May be repeated) Prerequisite: permission of instructor. Advanced special topics intended for PhD. students in polymer engineering.

889 PRELIMINARY RESEARCH 1-5 credits
(Val be repeated) Prerequisite: completion of qualifying examination, approval of Student Advisory Committee. Preliminary investigation of Ph.D. dissertation subject.

895 DOCTORAL DISSERTATION 1-5 credits
May be repeated. Prerequisite: completion of candidacy examination of Student Advisory Committee. Original research by a Ph.D. candidate.

POLYMER SCIENCE 9871:

601 POLYMER CONCEPTS 2 credits
Prerequisites: 316-294 and 316-314 or equivalent courses or permission of instructor. Introduction to the basic concepts in polymer science, including polymerization, copolymerization, and naturally occurring polymers. Polymer nomenclature, definitions and classifications. Polymer stereochemistry and structure-property relationships.

602 ADVANCED CHEMISTRY AND PHYSICAL BEHAVIOR OF POLYMERS 2 credits
Prerequisite: 601 or instructor's permission. Introduction to fundamentals and practical aspects of polymer synthesis and reactions of polymers, general knowledge of laboratory and theoretical methods for polymer preparation, practical examples.

604 SPECIAL PROJECTS IN POLYMER SCIENCE 1-3 credits
Prerequisite: Permission. Research projects of limited nature assigned to student entering polymer science program. Intended for familiarize student with typical problems and techniques in the field.

607 POLYMER SCIENCE SEMINAR I AND II 1 credit each
Prerequisite: limited to five 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
Prerequisites: permission or equivalencies 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
Prerequisites: Basic knowledge of computer programming and permission of instructor. Laboratory use of computers in polymer science research for data acquisition, data analysis, graphing, and preparation of reports and 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, features of polymers.

632 PHYSICAL PROPERTIES OF POLYMERS II 2 credits
Prerequisites: 631 or permission of instructor. Nonlinear-coordinate theories of mechanical motion and applications to time-dependent mechanical, electrical and scattering properties of polymeric systems, time-temperature superposition, free volume, WLF relation, fracture, glass transition.

634 POLYMER STRUCTURE AND CHARACTERIZATION 2 credits
Prerequisite: 316-294 or permission of instructor. Presentation of statistical description of polymer microstructure, polymer blends, characterization of conformation, mechanical weight, local structure, crystal structures and properties and application of these concepts.

635 POLYMER THERMODYNAMICS 2 credits
Prerequisite: 634 or permission of instructor. Presentation of the theories and experiments concerning polymer solutions, polymer phase equilibria, and polymeric phase transitions and dilute solution steady-state transport.

693 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
Prerequisites: 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, polymer compounding and processing, vulcanization methods, physical testing, plastics preparation and compounding, manufacturing processes, Laboratory.

703 POLYMER TECHNOLOGY III 2 credits
Prerequisite: 701 or permission of instructor. Flow properties, extrusion, calendering and milling, mixing, microbiology, engineering properties, rubber sprays, viscoelastic analysis and application.

704 CONDENSATION POLYMERIZATION 2 credits
Prerequisite: 316-294 or permission of instructor. Survey of the theory and practice of condensation polymerization. Typical condensation polymerization techniques with special emphasis being placed on the properties and applications of polymers prepared by this technique. Typical monomers, polymers, and application. Laboratory.

705 FREE RADICAL REACTIONS IN POLYMER SCIENCE 2 credits
Prerequisite: 316-243 or permission of instructor. Covers the kinetics and mechanisms of free radical initiated reactions involved in polymer science, including polymerization methods, detailed consideration of the initiation, propagation and termination steps in free radical polymerization, and preparation of prepared free radical initiated reactions and mechanisms.

706 IONIC AND MONOMER INSERTION REACTIONS 2 credits
Prerequisite: 316-294 or permission of instructor. Covers the kinetics and mechanisms of free radical initiated reactions involved in polymer science, including polymerization methods, detailed consideration of the initiation, propagation and termination steps in free radical polymerization and preparation of prepared free radical initiated reactions and mechanisms.

711 SPECIAL TOPICS: POLYMER SCIENCE 1-3 credits
Prerequisites: 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.

889 DOCTORAL DISSERTATION 1-5 credits
Open to properly qualified students accepted as candidates for Doctor of Philosophy in Polymer Science depending on the availability of staff and facilities.
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 grounds for a complaint shall attempt to resolve the problem through a conference with the faculty member involved, the department head, and/or the graduate advisor. Following that, the student may attempt to resolve the problem with the assistance of the academic dean. A graduate student presenting a case to the academic dean must provide a written statement of the grievance, together with all appropriate supporting material. When or if the problem has not been adequately solved at that level or the student wishes to appeal that decision, the student shall prepare a written statement of the complaint setting forth clearly and specifically the allegations and shall hand deliver the written complaint to the Dean of the Graduate School. The Dean of the Graduate School shall notify the complainant confirming the receipt of the complaint and shall request all materials from the Dean of the complainant's college.

2. Within one week of receipt of the complaint, the Dean of the Graduate School shall communicate with all parties in an attempt to informally resolve the problem. The result of this process will be a recommendation by the Dean of the Graduate School which will be communicated in writing to all parties, including the Senior Vice President and Provost.

3. The complaint shall become a grievance to be filed with the Senior Vice President and Provost if: 1) the Dean of the Graduate School wishes to have a Hearing Committee render a recommendation on the grievance; or 2) the student wishes to appeal the recommendation of the Dean of the Graduate School. The student must notify the Senior Vice President and Provost in writing within one week of notification of the Dean of the Graduate School's decision on the complaint.

4. Upon receipt of the grievance, the Senior Vice President and Provost shall notify in writing the President of Graduate Student Government that a Hearing Committee should be constituted. The Hearing Committee shall be organized in no more than two weeks.

5. When the grievance has been filed with the Chairperson of the Hearing Committee, it shall be the responsibility of that Chairperson to notify in writing all parties involved in the grievance within five working days. This notification shall include the following information: that a grievance has been filed; the nature of the grievance; and the parties involved.

6. If the charged party in that grievance admits the validity of the grievance, the Chairperson of the Hearing Committee shall waive the hearing and shall direct an appropriate resolution in consultation with the Hearing Committee.

7. If the party charged in the grievance denies the validity of the grievance, the Hearing Committee shall conduct the hearing.

8. At any point in the grievance process, the Chairperson may extend the deadlines with the mutual consent of all parties.

Hearing Committee

A Hearing Committee shall be established as follows:

1. Chairperson - The Chairperson shall be a member of the graduate faculty with full membership, but not from a department involved in the proceedings. This Chairperson shall be chosen at random from an established pool selected by the Graduate Council and shall serve for only one grievance proceeding. The Chairperson shall conduct the hearing and shall vote only in the case of a tie.

2. Members - Four members shall be selected as follows:
   a. A graduate student not involved with the complainant and not from the complainant's department, selected jointly by the Department Chair and the President of the Graduate Student Government. If the grievance is filed against the Department Chair, the Academic Dean shall substitute for the Department Chair. If the grievance is filed against the department, the Senior Vice President and Provost shall substitute for the Department Chair.
   b. A faculty member not involved with the complainant and not from the complainant's department, selected jointly by the Department Chair and the President of the Graduate Student Government. If the grievance is filed against the Department Chair, the Academic Dean shall substitute for the Department Chair. If the grievance is filed against the department, 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 representative of the Graduate Council.

3. A Hearing Committee shall be organized anew each and every time a grievance is brought forth. A Hearing Committee shall serve through the adjudication and resolution of the complaint.

Hearing Procedure

1. The hearing must take place within three weeks of the Hearing Committee's formation.

2. At least three working days prior to the hearing, the Hearing Committee Chairperson shall provide the Hearing Committee and the Parties involved with:
   a. The student's written statement of the grievance.
   b. Written notification of when and where the Hearing Committee shall meet.
   c. A copy of "Grievance Procedures for Graduate Students" and all relevant documents.

3. Each party shall be required to appear in person before the Hearing Committee to present his/her case. Each party may have an advisor/colleague present to protect his/her rights if so desired. However, the parties shall speak and act on their own behalf. Witnesses may be called to present evidence on behalf of the complainant or the charged person. The use of tape recorders is prohibited, except as may be required to accommodate persons with disabilities.

4. All parties shall be entitled to an expedited hearing. In urgent cases in which it is alleged that a regulation, administration decision, or action threatens immediate and irreparable harm to any of the parties involved, the Hearing Committee shall expedite the hearing and disposition of the case. The Hearing Committee is empowered to recommend to the Dean of the Graduate School that an individual, department, or college discontinue or postpone any action which threatens to cause irreparable harm, pending the final disposition of the case.

5. The burden of proof shall be on the complainant and the standards of justice and 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, or 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 students 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.

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 (i.e., written). The University Board of Trustees automatically waives any claim of the University to copyright in books, texts, or articles of a purely academic nature authored by faculty or students except when the material is prepared as a sponsored project in which case it is the property of the University. Ownership would then be assigned to the University or its designee as the Board of Trustees directs. Questions of authorship are often best handled informally between potential joint authors.

Patents

All discoveries and inventions made by you while associated with The University of Akron must be reported to your faculty advisor, and through your advisor to your department chair, dean, and thereafter to the Office of Research Services and Sponsored Programs using the standard University of Akron invention disclosure form. This form provides a guide to describing and identifying the invention broadly and referencing specific results. Those persons thought to be possible inventors should also be identified on this form.

Patents or 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 3343.14. 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 here 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 read and sign the Confidentiality Agreement (sample form attached to this page). Prior to the start of your research, it is the responsibility of the research director to inform you in writing of any restrictions on the research with a copy also sent to the Office of Research Services and Sponsored Programs, if your research is subject to confidentiality provisions. You are also to be informed by the research director about the scope of the research that is covered by any confidentiality provisions.

If you have any questions as to what information is proprietary, seek guidance from your project’s principal investigator or your faculty research advisor.

Questions of Authorship and Inventorship

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 level.)

In the event you think you have been omitted as an inventor on a parent application, you should first discuss the matter with your faculty research advisor and, thereafter, with your department chair and finally with your academic dean. Following such consultations, either you and/or your faculty advisor, or your department chair, or your dean can request the patent attorney who prepared the application to recheck the findings and then prepare a formal report on inventorship. The whole patent application file may then be referred to the Office of General Counsel for a re-evaluation of valid inventors. However such re-evaluation by patent counsel shall only occur with the prior knowledge of your faculty advisor. Department Chair and Dean.
THE UNIVERSITY OF AKRON
INVENTION PATENT AGREEMENT

Name: __________________________ Last First Middle Initial
Social Security No.: __________________________

The University of Akron graduate students are required to sign this form as a condition of being permitted to participate in any research activity at the University.

1. As a condition of and in consideration of my participating in sponsored research or other financially supported activity at The University of Akron, I hereby agree to communicate fully with my Faculty Advisor, including discussing the details of any work conducted by me and the results which flow therefrom. I recognize that this communication is essential as it relates to any sponsored research, to any course and thesis/dissertation research, and to my safety and the safety of everyone else using the same facility that I use.

2. I further agree to disclose promptly to the director of the research and to my faculty research advisor any invention conceived and/or reduced to practice by me whether jointly with others or solely, which results in whole or in part from such sponsored research or financially supported activity. I agree that I will comply with the provisions of any agreement between The University of Akron and any sponsor for any information and laboratory practice to which I am privileged to know. I will cooperate in assuring that the sponsor's rights, including rights in inventions, patents, copyrights, are fully protected. Further, I hereby assign all rights, title and interest to The University of Akron for its disposal at its sole discretion.

3. I also acknowledge that certain technical information that may arise as a result of the sponsored research or supported activity may be of a confidential nature. I agree to be bound to the reasonable terms of any nondisclosure agreement as it has been agreed to by the University.

4. Finally, I acknowledge and agree that any rights which arise as a result of the sponsored research or supported activity belong to The University of Akron or to the sponsor as determined by agreement between The University of Akron and the sponsor.

Date ___________________________ Student's Signature ___________________________
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FRANK N. KELLY, Dean of the College of Polymer Science and Polymer Engineering, Goodyear Polymer Center 325, 972-7050
S. GREGORY KELLY III, Interim Dean of the College of Engineering, Auburn Science and Engineering Center, 972-7616
JON P. KRISTOFIC, Dean of Wayne College, 1501 Smucker Road Onnille 44667, 1-800-221-8038
JARLA T. MUGLER, Dean of the University College, Student and Administrative Services Building, 972-7066
GEORGE R. NEWKOME, Vice President for Research and Dean of the Graduate School, Goodheart Polymer Center 529, 972-6498
ELIZABETH J. STROBLE, Dean of the College of Education, Zook Hall 218, 972-7680
DELMUS WILLIAMS, Dean of University Libraries, Bierce Library 161D, 972-7497

Graduate Council

September 2002

GEORGE R. NEWKOME, Vice President for Research and Dean of the Graduate School, Chair

TERM EXPIRES AUGUST 31, 2005

JULIE DREW, Ph.D., College of Arts and Sciences: Humanities
MARYHELEN C. KREIDLER, Ed.D., College of Nursing
NARENDER P. REDDY, Ph.D., College of Engineering
JAMES R. ROGERS, JR., Ph.D., College of Education
BERNADITT M. RUP, Ph.D., College of Business Administration

Graduate Faculty* September 2002

LUIS M. PROENZA, President (January 1999) B.A., Emory University; M.A., The Ohio State University; Ph.D., The University of Minnesota, 1971.
RULA ABDIAAB, Assistant Professor of History (1998) B.A., American University of Beirut; M.A., Columbia University at Fullerton; Ph.D., Yale University, 1998.
STEPHEN H. ABE, Education Bibliographer, Professor of Bibliography (August 1988) B.A., University of Texas at Austin; M.A., University of Houston; Ph.D., State University of New York at Buffalo; M.L.S., Kent State University, 1984.
JEFFREY D. ADLER, Assistant Professor of Mathematics (1998) A.B., Princeton University; M.S., Michigan State University; Ph.D., University of Chicago, 1998.
AIGRE AMRIGE, Professor of Finance, Frederick W. Mayer Chair in Finance, (2000) B.S., University of Idaho; M.S., Ph.D., University of Houston, 2000.
M. KAY ALDERMAN, Professor of Education (1978) B.S., University of Southern Mississippi; M.Ed., University of Texas at Austin; Ed.D., University of Houston, 1976.
SONIA ALEMAÑO, Associate Professor of Public Administration and Urban Studies; Associate Director, Center for Social and Health Policy (1996) B.A., John Carroll University; M.A., Kent State University; Ph.D., Case Western Reserve University, 1991.
TANA F. ALEXANDER, Associate Professor of Music (1978) B.M., The Ohio State University; M.M., University of Louisville, 1974.
ALAN S. AMBROSIO, Associate Professor of English (1999) B.A., SUNY Buffalo; M.A., Ph.D., Indiana University, 1999.
ALFRED L. ANDERSON, Professor of Music (1985) B.M.E., Mississippi College; M.M., Indiana University, 1970.
CAROLYN M. ANDERSON, Professor of Communication (1995) B.A., University of Detroit; M.A., Wayne State University; Ph.D., Kent State University, 1992.
GERER A. ANGELONE, Professor of Psychology; Senior Fellow; Institute for Life-Span Development and Gerontology (2000) B.S., M.A., Ph.D., The Ohio State University, 1987.
WILLIAM B. ANSCHUCKLE, Associate Professor of Civil Engineering (1982) B.S.Ch.E., Ohio University; M.S.E.E. Ph.D. University of North Carolina, 1976.
STEVEN R. ASH, Assistant Professor of Management (2001) B.A., M.B.A., Ph.D., New Mexico State University, 1996.
MARK S. AUBURN, Dean of Fine and Applied Arts; Professor of English; Professor of Dance, Theater and Arts Administration; NCA Self Study Liaison (1991) B.S., B.A., The University of Akron; M.A., Ph.D., University of Chicago, 1971.
KENNETH A. AUPERS, Associate Professor of Management (1986) B.A., M.A., Western Michigan University; M.B.A., Kansas State University; Ph.D., University of Georgia, 1982.
JAMES F. AUGUST, Associate Professor of Education (1987) B.A., M.A., Ph.D., Case Western Reserve University, 1971.
DAVID B. BAKER, Director of Archives of History of American Psychology; Associate Professor of Psychology (1996) B.A., Millersville State College; M.Ed., Southwest Texas State University; Ph.D., Texas A&M University, 1996.
CHRISTOPHER P. BANKS, Associate Professor of Political Science (1995) B.A., University of Connecticut, J.D., University of Dayton; Ph.D., University of Virginia, 1995.
CELAL BATUR, Department Chair of Mechanical Engineering, Professor of Mechanical Engineering (February 1992) B.Sc., M.Sc., The Technical University of Istanbul; Ph.D., The University of Leicester, 1976.
KRISTINA M. BELISLE, Associate Professor of Music (2000) B.M., University of Georgia; D.M., University of Michigan State University, 1994.
ROONEY B. BENGSTON, Director of University Galleries (February 1982) B.A., Allegheny College; M.F.A., Kent State University, 1982.
JULIA M. BEYER, Director of Learning Support Services; Adjunct Assistant Professor of Education; Americans with Disabilities Act Coordinator Wayne College (August 1988) B.S.Ed, Gothan College; M.Ed., Kent State University; Ph.D., The University of Akron, 1995.
WISELA S. B. BIRENDA, Professor of Civil Engineering (1968) M.S., Warsaw Technical University; M.S.M.E., Ph.D., Drexel University, 1988.

* The dates in parentheses indicate the beginning of service at The University of Akron; unless otherwise stated, service began in the month of September.
PAMELA G. GARN-NUNN, Professor of Speech-Language Pathology and Audiology (1996 B.S., Ohio University; M.S., Ph.D. Southern Illinois University at Carbondale, 1982.


KAREN R. GEHRING, Associate Professor of Nursing; Coordinator, Education Progress Programs (1989 B.S., Ohio State University; M.N., University of Pittsburgh; Ph.D., Ohio University, 1989.

LAURA D. GELFAND, Associate Professor of Art (1997 B.A., State University of New York at Stony Brook; M.A., Ph.D. Case Western Reserve University, 1994.

SUCHARITA GHOSH, Assistant Professor of Economics (August 1980) B.A., University of Bombay; M.A., M.P., Ph.D. Indiana University; M.P., Ph.D. Indiana University, 1981.

GEORGE C. GIAKOS, Associate Professor of Electrical Engineering; Associate Professor of Biomedical Engineering (1994) B.A., University of Tübingen; M.S., University of Edinburgh; M.S., Ohio University; Ph.D., Ohio State University, 1995.

KATHRYN M. GILL, Associate Professor of Nursing (1979 B.S.N., St. John College; M.Ed., Cleveland State University; M.S.N., Ph.D., The University of Akron, 1985.

TYVONNE M. GILLETTE, Associate Professor of Speech-Language Pathology and Audiology (August 1989) B.S.Ed. University of Toledo; M.A., Ph.D., The Ohio State University, 1995.

GABRIEL F. GIARITI, Professor of Communication (1989 B.S., Xavier University, M.F.A., Ohio University, 1989.


LLOYD A. GOTTLEBER, Professor of Polymer Engineering; Chair, Department of Polymer Engineering; Director, Institute of Polymer Engineering July 2000 B.S.E. Ch. Cornell University; Ph.D., University of Delaware, 1967.

LATHARDUS GOGGIN, Associate Dean of the Graduate School, Professor of Geography and Planning (1968) B.A., Central State University; M.A., The Ohio State University; Ph.D., State University of New York; Ph.D., Kent State University, 1982.


LESLEY J. GORDON, Associate Professor of History (1998 A.B., The College of William and Mary; Ph.D., The University of Virginia, 1981.

SAMUEL GORDON, Professor of Music; Director of Choral Studies (July 1994) B.S., University of Pennsylvania; M.M., Ph.D., Indiana University, 1972.

VICKY R. GOURMIS, Associate Professor of History (1985) B.A., M.A., Ph.D., University of Virginia, 1981.


JOHN C. GREEN, Professor of Political Science; Director of the Ray C. Bliss Institute of Applied Politics (1987) B.A., University of Colorado; Ph.D., Cornell University, 1983.

LAURA K. GROSS, Assistant Professor of Sociology (1989) B.A., State University of New York; A.M., Ph.D., Ohio State University; Professor of Sociology, Intellectual Property Center Fellow (1997 B.S., University of Alaska; M.A., Ph.D., University of Wisconsin, 1993.

RICK FARMER, Assistant Professor of Political Science; Fellow, Ray C. Bliss Institute of Applied Politics (1990) B.A., Northern Oklahoma College, 1989.


TODD PINKLE, Associate Professor of Management; Fitzgerald Institute Fellow, Entrepreneurship; Intellectual Property Center Fellow (November 1990) B.S., D.O., University of Nebraska; M.B.A., University of Wisconsin, 1993.

ANN R. FISCHER, Associate Professor of Psychology (1995) B.A., Ball State University; M.A., Ph.D., University of Missouri at Columbia, 1989.

ELAINE M. FISHER, Assistant Professor of Nursing (1986 B.S.N.), The University of Akron; M.S.N., Kent State University, 1985.

VIRGINIA L. FITCH, Director, School of Social Work; Social Work Fellow, Institute for Life-Span Development and Gerontology (1981) B.S., East Tennessee State University; M.S., State University of Hawaii; Ph.D., Case Western Reserve University, 1982.

CAROLE K. FLEXER, Professor of Speech-Language Pathology and Audiology (1982) B.A., Metropolitan State College; M.A., University of Denver; Ph.D., Kent State University, 1992.

ANNaRiel M. FOOG, Professor (1984) B.A., State University of New York at Potsdam; Ph.D., University of Texas at Dallas, 1994.

BRIAN A. FORST, Professor of Education (1987) B.S., M.S., Eastern Illinois University; Ph.D., Purdue University, 1983.

ANTONIA M. FORSTER, Professor of English (1966) B.A., M.A., Finders University; Ph.D., University of melbourne, 1968.

HAROLD M. FOSTER, Professor of Education (1976) B.A., Indiana University of Pennsylvania; M.A., University of Pittsburgh; Ph.D., University of Iowa, 1976.

MARK D. FOSTER, Professor of Polymer Science (November 1990) B.S., Washington University; Ph.D., University of Minnesota at Minneapolis, 1987.

ALICE FOTHERGILL, Assistant Professor of Sociology (2001) B.A., University of Vermont; Ph.D., University of Colorado, 2001.

WILLIAM A. FRANCIS, Associate Dean of Arts and Sciences; Professor of English (1968) B.A., M.A., Duquesne University; Ph.D., Case Western Reserve University, 1975.

GARY W. FRANK, Professor of Accounting (January 1999) B.A., University of Minnesota; M.A., Ph.D., University of Mississippi, 1984.

SUSAN THOMAS FRANK, Director, Audiology and Speech Center; Assistant Professor of Speech-Language Pathology and Audiology (1990-88) B.A., Marshall University; M.A., The George Washington University, 1977.

LAURACHAN H. FRASER, Assistant Professor of Biology (1999 B.S. M.S.S., University of British Columbia; Ph.D., University of Sheffield, 1996.

LA VERNE M. FRIERSON, Associate Professor of Geology (March 1976) B.S., University of Wisconsin; M.S., Ph.D., Indiana University at Bloomington, 1976.

SALLY GAMA, Director, Office of Accessibility; Psychologist Americans with Disabilities Act Coordinator for Students; Member of the General Faculty (1983) B.S., Indiana University; M.S., Ph.D. The University of Akron, 1986.

XIANHEGGAO, Assistant Professor of Mechanical Engineering (January 2001) B.S., M.S., Xian Jiaotong University; M.S., Ph.D. Brown University, 1987.

RAYMOND C. ROBY, Associate Professor of Marketing; Associate Director of the Fisher Institute for Professor Selling (2001) B.B.A., University of Michigan; Ph.D., Southern University of California, 1990.


MERSA A. RONEY, Vice-Rector, Dean of Students; Associate Professor of Education (2000) M.S., Kansas State University, Ph.D., Purdue University, 1985.

KATHLEEN M. ROSSL-AALOIMOLKI, Associate Professor of Nursing; Coordinator, Master's Program (August 1990) S.S.N., College of Mount Saint Joseph; M.S.N., Ph.D., Case Western Reserve University, 1995.


JAMIE M. ROY, Associate Professor of Modern Languages (1996) B.A., University of Michigan, M.A., Purdue University, 1981.

CRAIG R. RUY, Associate Professor of Psychology; Director, Project for Life-Span Development and Gerontology (1996) B.A., University of Maryland; M.Ed; Howard University; M.S.N., Catholic University of America; Ph.D., The University of Akron, 1995.

PROWSILA K. RAY, Associate Professor of Philosophy (1996) B.A., M.A., University of South Florida; Ph.D., Florida State University, 1993.

ATEP F. SALLE, Professor of Civil Engineering (1983) B.Sc., Cairo University, M.Sc., Ph.D., Purdue University, 1981.

LINDA M. SALIGA, Associate Professor of Theoretical and Applied Mathematics (1983) B.S.E., M.S., University of Michigan; Ph.D., University of Chicago, 1989.

RONALD L. SABLE, Associate Professor of Biology (1982) A.B., Greensboro College; M.S., University of Richmond; Ph.D., Virginia Commonwealth University, 1979.

ERROL B. SANCAY, Associate Professor of Physics (1986) B.A., Robert College, Istanbul; B.S., Ph.D., University of Toronto, 1973.

RAYMOND E. SANDERS, Associate Professor of Psychology; Senior Fellow, the Institute for Life-Span Development and Gerontology (1996) B.A., M.A., Ph.D., University of Arizona, 1969.


IRA D. SASOWSKY, Associate Professor of Geology; Director of Environmental Studies (1995) B.S., University of Delaware; M.S., Ph.D., Pennsylvania State University, 1992.

JOHN R. SAYLER, Assistant Professor of Education (2000) B.S.Ed., The University of South Carolina; Ph.D., University of California, 2001.

SCOTT D. SAYLER, Assistant Professor of Mechanical Engineering (1998) B.S.E., Milwaukee School of Engineering; M.S.M.E.; Ph.D., Purdue University, 1997.

KAREN R. SCHUELL, Assistant Professor of Education (2001) B.A., University of California, Santa Cruz; M.A., Ph.D., University of Iowa, 1999.


VICTORIA S. SCHMID, Professor of Accounting, Senior Fellow, Institute for Life-Span Development and Gerontology; Director of the Center for Gerontological Health, Nursing, and Advocacy (1977) B.S., M.S., Pennsylvania State University, Ph.D., Case Western Reserve University, 1987.


KAREN A. SCHWARTZ, Associate Professor of Nursing; Fellow, the Institute for Life-Span Development and Gerontology (1995) B.S.B., M.S., The University of Akron; Ph.D, Case Western Reserve, 1995.

ALDEN W. SEWN, Associate Professor of Civil Engineering (January 1990) B.S.C.E., N.C., South Dakota School of Mines and Technology; Ph.D., Virginia Polytechnic Institute and State University, 1986.


DANIEL B. SHEFFER, Associate Professor of Biology; Associate Professor of Biomedical Engineering; Director, Bioinformatics Laboratory (1997) B.S., M.E.D.; M.S., Virginia Polytechnic Institute and State University, 1979; Ph.D., Columbia University, 1983.


KAREN R. SCHUELL, Assistant Professor of Education (2001) B.A., University of California, Santa Cruz; M.A., Ph.D., University of Iowa, 1999.


VICTORIA S. SCHMID, Professor of Accounting, Senior Fellow, Institute for Life-Span Development and Gerontology; Director of the Center for Gerontological Health, Nursing, and Advocacy (1977) B.S., M.S., Pennsylvania State University, Ph.D., Case Western Reserve University, 1987.


KAREN A. SCHWARTZ, Associate Professor of Nursing; Fellow, the Institute for Life-Span Development and Gerontology (1995) B.S.B., M.S., The University of Akron; Ph.D, Case Western Reserve, 1995.

ALDEN W. SEWN, Associate Professor of Civil Engineering (January 1990) B.S.C.E., N.C., South Dakota School of Mines and Technology; Ph.D., Virginia Polytechnic Institute and State University, 1986.


DANIEL B. SHEFFER, Associate Professor of Biology; Associate Professor of Biomedical Engineering; Director, Bioinformatics Laboratory (1997) B.S., M.E.D.; M.S., Virginia Polytechnic Institute and State University, 1979; Ph.D., Columbia University, 1983.


KAREN R. SCHUELL, Assistant Professor of Education (2001) B.A., University of California, Santa Cruz; M.A., Ph.D., University of Iowa, 1999.


VICTORIA S. SCHMID, Professor of Accounting, Senior Fellow, Institute for Life-Span Development and Gerontology; Director of the Center for Gerontological Health, Nursing, and Advocacy (1977) B.S., M.S., Pennsylvania State University, Ph.D., Case Western Reserve University, 1987.

College of Nursing
ESTELLE B. NAES, 1967-1975, Ph.D.
LILLIAN J. DEYOUNG, 1975-1988, Ph.D.
ELIZABETH J. MARTIN, 1988-1992, Ph.D.
JANNE R. DUNHAM-TAYLOR, 1996-1997, Ph.D. (interim)
CYNTHIA CAPERS, 1997-present, Ph.D.

Wayne College
MARVIN E. PHILLIPS, 1972-1974, M.A. (acting director)
JOHN G. HEDRICK, 1974-1974, M.A. (director)
JOHN G. HEDRICK, 1974-1979, M.A. (dean)
ROBERT L. McELWEE, 1979-1980, M.A. (acting dean)
JOHN P. KRISTOFKO, 1997-present, Ph.D. (dean)

College of Polymer Science and Polymer Engineering
FRANK N. KELLEY, 1988-present, Ph.D. (dean)
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