

Cleveland State University Graduate Catalog



2006-2008



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Cleveland State University

Frequently Called Numbers

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Admissions, International	216-687-3910	Minority Affairs	216-687-9394
Admissions, Law	216-687-2304	Ombudsperson	216-687-5320
Admissions, Undergraduate	216-687-3754	Parking Services	216-687-2023
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Financial Aid	216-687-3764	VikingCard	216-875-9888
Health and Wellness Services	216-687-3649	Women's Comprehensive Program	216-687-4674

Academic Colleges

College	Dean	Phone Numbers
College of Graduate Studies GA Contracts, Dissertations, Cross-Registration, Graduation Applications, Thesis, Petitions, Transfer Credit, Academic Warning and Dismissal	Mark A. Tumeo, Ph.D., JD, PE	216-687-9370 216-687-5228 216-687-5230
Cleveland Marshall College of Law	Geoffrey S. Mearns, JD	216-687-2344
College of Education and Human Services Education Student Services Center, Rhodes Tower 1401	James McLoughlin, Ph.D.	216-687-3737 216-687-4625
College of Liberal Arts and Social Sciences	Gregory Sadlek, Ph.D.	216-687-3660
College of Science Student Affairs Office	Mary Jane Saunders, Ph.D.	216-687-5580 216-875-9810
Fenn College of Engineering	Charles Alexander, Ph.D.	216-687-2555
Maxine Goodman Levin College of Urban Affairs Urban Student Services	Mark S. Rosentraub, Ph.D.	216-687-2136 216-687-3884
Nance College of Business Administration Business Advising Office	Robert Scherer, Ph.D.	216-687-3786 216-687-3730

Cleveland State University

Graduate Catalog

2006–2008

This publication is neither a contract nor an offer to make a contract. While every effort has been made to ensure the accuracy of the information in this publication, the University reserves the right to make changes at any time with respect to course offerings, degree requirements, services provided, or any other subject addressed in this publication. The information in this publication is provided solely for the convenience of the reader, and the University expressly disclaims any liability which may otherwise be incurred.

Nondiscrimination Policy and Procedure

- A. Cleveland State University is an Affirmative Action/Equal Opportunity institution. No person will be denied opportunity for employment or education or be subject to discrimination in any project, program or activity because of race, color, religion, sex, sexual orientation, national origin, age, handicap or disability, disabled veteran, or other protected veteran status.
- B. Inquiries concerning implementation of the above policy and compliance with relevant statutory requirements, including, inter alia, Title VI and Title VII of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990 may be directed to Maria J. Codinach, Director, Affirmative Action Office, Keith Building, Room 1401, (216) 687-2223.
- C. Students who wish to seek accommodations under Section 504 of the Rehabilitation Act of 1973 and/or the Americans with Disabilities Act of 1990 must request such accommodations and should contact either the Office of Admissions or the Office of Disability Services, University Center, Room 304, (216) 687-2015, for information or to request accommodations.
- D. Complaints of discrimination may be addressed through the Affirmative Action Office and the Student Grievance Procedure outlined in the Cleveland State University Student Handbook, copies of which are available through the Cleveland State University Department of Student Life, University Center, Room 102, (216) 687-2048.



CLEVELAND STATE UNIVERSITY

ACADEMIC CALENDAR

Fall Semester 2006

Date	Activity
August 26	Classes begin
September 1	Last day to add
September 4	Labor Day (closed)
September 8	Last day to drop
October 9	Columbus Day (closed)
November 3	Last day to withdraw
November 10	Veterans' Day (no classes)
November 23-26	Thanksgiving recess
December 8	Last day of instruction
December 11-16	Final examinations
December 17	Commencement

Spring Semester 2007

Date	Activity
January 13	Classes begin
January 15	Martin Luther King Day (closed)
January 19	Last day to add
January 26	Last day to drop
February 19	President's Day
March 11-18	Spring recess
March 19	Classes resume
March 30	Last day to withdraw
May 4	Last day of instruction
May 5-11	Final examinations
May 12	Commencement

First 6-week Summer Session 2007

Date	Activity
May 19	Classes begin
May 28	Memorial Day (closed)
June 29	Last day of instruction
Final examinations	Last scheduled class day unless otherwise noted by the instructor

Second 6-week Summer Session 2007

Date	Activity
July 2	Classes begin
July 4	Independence Day (closed)
August 10	Last day of class
Final examinations	Last scheduled meeting day unless otherwise noted by the instructor

Additional Summer Sessions: Courses that are more than 6 weeks in length will have the same start date as the first 6-week session. For example, an 8-week course in the 2006-2007 summer session would begin on May 19 and end on July 13.

Fall Semester 2007

Date	Activity
August 25	Classes begin
August 31	Last day to add
September 3	Labor Day (closed)
September 7	Last day to drop
October 8	Columbus Day (closed)
November 2	Last day to withdraw
November 12	Veterans' Day (no classes)
November 22-25	Thanksgiving recess
December 7	Last day of instruction
December 10-15	Final examinations
December 16	Commencement

Spring Semester 2008

Date	Activity
January 12	Classes begin
January 21	Martin Luther King Day (closed)
January 18	Last day to add
January 25	Last day to drop
February 18	President's Day
March 9-16	Spring recess
March 17	Classes resume
March 28	Last day to withdraw
May 2	Last day of instruction
May 3-9	Final examinations
May 10	Commencement

First 6-week Summer Session 2008

Date	Activity
May 17	Classes begin
May 26	Memorial Day (closed)
June 27	Last day of instruction
Final examinations	Last scheduled class day unless otherwise noted by the instructor

Second 6-week Summer Session 2008

Date	Activity
Date	Activity
June 30	Classes begin
July 4	Independence Day (closed)
August 8	Last day of Class
Final examinations	Last scheduled meeting day unless otherwise noted by the instructor

Additional Summer Sessions: Courses that are more than 6 weeks in length will have the same start date as the first 6-week session. For example, an 8-week course in the 2007-2008-summer session would begin on May 17 and end on July 11.

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A Message from the President



Welcome to Cleveland State University, and thank you for your interest in our graduate and advanced programs. Whether your interest is in one of our doctoral or master's degree programs, a graduate or professional certificate program, or you simply wish to take a few graduate courses on a non-degree basis, you will find your experience at Cleveland State University to be intellectually stimulating, as well as professionally rewarding.

We believe that we change lives at Cleveland State University and, in so doing, contribute to the intellectual and economic growth of our region. Our goal is to answer students' ever-changing intellectual and professional needs and prepare them fully for the workplace of the 21st century. This may be why we have the highest percentage of graduate and professional students of any of Ohio's public universities: fully one-third of our entire student body is enrolled in our challenging graduate programs.

Our graduate students contribute vast life experience and maturity, as well as cultural and ethnic diversity, to make our campus an exciting learning environment. In the breadth and depth of our graduate programs, you will meet a faculty that is first-rate by every academic standard. They will welcome you as partners into their projects and research. We also are committed to being the model for a modern urban university, relating to the surrounding region as classroom, laboratory, and field station. Faculty, students, and community work together to achieve the goal of excellence in performance and accomplishment.

In the pages that follow, you will find brief descriptions of our graduate and professional programs. If you have a career direction or academic goal clearly in mind, then I encourage you to apply to the graduate program most suited to your interests and to make an appointment to meet with that unit's graduate program director. If you are uncertain about your interests or about which program might best serve your academic needs, please contact the College of Graduate Studies. The Graduate Dean and the College of Graduate Studies staff are prepared to explore with you the best possible fit between your personal goals and our graduate offerings. Our faculty and staff welcome the opportunity to discuss with you how our programs might best accommodate your interests in advanced study.

Best wishes for success in your graduate studies at Cleveland State University.

Michael Schwartz
President

Cleveland State University

The University

Cleveland State University is a state-assisted, metropolitan university whose mission is to recruit and instruct a diverse student population, provide strong arts and sciences programs, support excellence in education, reaffirm its commitment to basic and applied research, and provide a supportive and nurturing educational environment for members of the community.

Cleveland State has some 15,000 students enrolled in more than seventy undergraduate programs, forty master's-level programs, two law degree programs, three specialist degrees (two in education and one in school psychology), six doctoral programs, and joint programs in law-business, law-public administration, and law-environmental studies. The University also offers over a dozen graduate certificate programs. Approximately one-third of Cleveland State's students are enrolled in graduate or professional programs.

The University's eight colleges are the College of Liberal Arts and Social Sciences, the College of Science, the Nance College of Business Administration, the College of Education and Human Services, the Fenn College of Engineering, the Maxine Goodman Levin College of Urban Affairs, the Cleveland-Marshall College of Law, and the College of Graduate Studies. Descriptions of the University's baccalaureate programs are contained in the Cleveland State University Undergraduate Catalog, which can be found at <http://www.csuohio.edu/undergradcatalog/>. Programs in the College of Law are described in the Cleveland-Marshall College of Law Web site at <http://www.law.csuohio.edu/admissions/>.

Other important academic divisions of the University are Continuing Education, which offers a variety of special, non-credit learning opportunities and the English as a Second Language Program, and the Division of University Studies, which provides comprehensive academic and student support services, including orientation programs, academic advising, tutoring, assistance to students with disabilities, mentoring services, and career development and planning.

Another program of interest is Project 60. This program, administered through the University Studies Advising Center, offers senior citizens the opportunity to take undergraduate and graduate courses on a tuition-free, non-credit, and space-available basis. Project 60 allows elders to sample undergraduate and graduate courses without being admitted formally to a degree program.

Cleveland State's faculty is among the best anywhere, with more than ninety percent holding the highest degree in their field. Four out of five hold the Ph.D., a figure unmatched by any other Ohio university. And faculty have received fifty-five prestigious Fulbright Scholar Awards, including twenty awards over the last four years. Our faculty members create an atmosphere that promotes intellectual growth and the creation of new knowledge.

The University has more than 90,000 alumni, most of whom have remained in the Northeast Ohio area to establish careers, give back to the community, and raise their families. Recent research shows that at nearly 1,000 businesses across the country, a Cleveland State graduate is at the helm as founder, chairman, CEO, president, or top executive.

Cleveland State is a metropolitan university that provides a rich environment for learning in an exciting and dynamic location. Our students are fond of claiming that the entire city is their campus for study, practical experience, and recreation. And our pledge to each student is an education in the real world, for the real world, among a diverse and engaged student body.

University Mission Statement

Our mission is to encourage the development of human and humane knowledge in the arts, sciences, humanities, and professions through scholarship, creative activity, and research, while providing an accessible and contemporary education to all individuals. We are here to serve and engage the public and prepare our students to lead productive, responsible, and satisfying lives in the region and in our global society.

University Vision Statement

We will be recognized as a student-focused center of scholarly excellence that provides an accessible and exceptional education to all. We will be a place of opportunity for those who seek truth, strive toward excellence, and seek a better life for themselves and for their fellow citizens. As a leader in innovative collaboration—both internally and externally—with business, industry, government, educational institutions, and the community, the University will be a critical force in the region's economic development. We will be at the forefront of moral, ethical, social, artistic, and economic leadership for the future and embrace the vitality that comes with risk. We will be the strongest public university in the region and be known for our scholarship in service to students and to our community.

History

Established as a state-assisted university in 1964, Cleveland State was created out of the buildings, faculty, staff, and curriculum of the former Fenn College, a private institution of 2,500 students that was founded in 1929.

Cleveland State University's historical roots go back to the 19th century. During the 1880s, the Cleveland YMCA began to offer day and evening courses to students who did not otherwise have access to higher education. The YMCA program was reorganized in 1906 as the Association Institute, and this in turn was established as Fenn College in 1929. A significant contribution of Fenn College was its pioneering work in developing internships for students in engineering and business. These internships, as joint ventures between the College and local businesses and industries, provided students with professional contacts and experience, as well as an affordable education. The historic Fenn Tower still stands as a reminder of these early years, when the University already had a strong commitment to equal access to higher education.

The Cleveland-Marshall College of Law traces its origins to 1897 when the Cleveland Law School was founded. It was the first evening law school in the state and one of the first to admit women and minorities. Another evening law school, John Marshall School of Law, was founded in 1916. In 1946, the two schools merged to become the Cleveland-Marshall School of Law. Cleveland-Marshall became part of Cleveland State University in 1969.

Evening and Weekend Classes

Most graduate programs are available in the evening. During a typical term, more than 5,500 undergraduate and graduate students attend the hundreds of classes offered during the late afternoon and evening hours. Many classes meet once a week or on Saturdays, thus providing multiple scheduling alternatives.

A Dynamic Campus Environment

Strategically located in downtown Cleveland, the University sits in the midst of major businesses and institutions that provide students with internships and other career opportunities. Nearby neighbors include *The Plain Dealer* (Ohio's largest newspaper), Playhouse Square Center (home of the Cleveland Opera, the Great Lakes Theater Festival, and touring Broadway productions), Tower City Center, Jacobs Field, The Quicken Loans Arena, and the North Coast Harbor, which is the home of the Rock and Roll Hall of Fame and Museum, the Great Lakes Science Center, and Cleveland Browns Stadium.

The Cleveland State campus consists of 85 acres—the largest footprint in downtown Cleveland—with forty buildings used for teaching, research, housing, administration, and recreation. The University is in the process of implementing a \$179 million Campus Master Plan, which includes a 130,000 square foot recreation center; renovation of a historic mansion into Parker Hannifin Hall; a new home for the College of Graduate Studies; a new Parker

Hannifin Administration Center; conversion of landmark Fenn Tower into student housing with 400-450 beds; and retail outlets, green spaces, and parking garages. Not only is the master plan changing the face of the University, it is creating vibrant interaction with the surrounding community and a new neighborhood in downtown Cleveland. The recreation center and Fenn Tower residence hall will open in time for fall 2006 semester.

Within easy reach of the University are the Cleveland Clinic, Severance Hall (home of the Cleveland Orchestra), the Cleveland Museum of Art, the Cleveland Museum of Natural History, the Cleveland Play House (the oldest repertory theater company in the country to have a continuous existence), Karamu House (America's oldest African American community theater company), and the Western Reserve Historical Society.

We believe that a first-class education benefits not only the graduates of Cleveland State but the rest of society, as well. Public and private institutions, corporations, and businesses have joined as our partners in a dynamic learning experience. With their help, the University has created an environment in which the individual, the curriculum, and the community interact to achieve the highest levels of learning.

Extended Campuses

Expanding its horizons, Cleveland State University has established extended campus sites in Westlake and Solon to better serve Northeastern Ohio.

The West Center is located in the Fencorp Building at 26202 Detroit Road. The East Center is located in the Centre Point Building at 34055 Solon Road.

These facilities house ten classrooms each, state-of-the-art computer labs, student lounges, and administrative and student service offices. These one-stop academic hubs are conveniently located at major highways, serving eastern and western suburbs. For more information, call East Center at

(216) 802-3000 and West Center at (216) 875-9600.

Accreditation See Addendum

Cleveland State University is accredited by The Higher Learning Commission, a commission of the North Central Association of Colleges and Schools. For more information, contact the North Central Association of Colleges and Schools, Commission on Institutions of Higher Education, 30 North LaSalle Street, Suite 2400, Chicago, Illinois 60602-2504, (800) 621-7440.

In addition, individual Cleveland State programs hold the following professional accreditations:

Business Administration: BBA and MBA programs of the Nance College of Business Administration are accredited by AACSB International, the Association to Advance Collegiate Schools of Business. In a separate accrediting process, the graduate and undergraduate programs in accounting are accredited by the AACSB. The Health Care Administration program is accredited by the Accrediting Commission on Education for Health Services Administration.

Chemistry: The Department of Chemistry's undergraduate curriculum is approved by the American Chemical Society. Its clinical chemistry Ph.D. program is accredited by the Commission on Accreditation in Clinical Chemistry.

Education: Preparation programs offered by the College of Education and Human Services for prospective teachers and other school personnel are fully accredited by the National Council for the Accreditation of Teacher Education (NCATE) and approved by the Ohio Department of Education. The School Counseling and the Community Agency Counseling programs are accredited by the Council for Accreditation of Counseling and Related Educational Programs. The Psychology Specialist (School Psychology) program is approved by the National Association of School Psychologists and is included in the college's NCATE accreditation.

Engineering: The bachelor's degree programs in Chemical, Civil, Electrical, Industrial, and Mechanical Engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The Bachelor of Science in Electronic Engineering Technology program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology. Graduate programs in engineering are reviewed through regular self-study and by other state/OBOR agencies.

Health and Wellness Service: The Health and Wellness Service program is accredited by the Accreditation Association for Ambulatory Health Care.

Law: The College of Law is accredited by the American Bar Association and is a member of the Association of American Law Schools.

Music: The graduate and undergraduate curricula in the Department of Music are accredited by the National Association of Schools of Music.

Nursing: The Undergraduate and Graduate Nursing curricula are fully accredited by the Commission on Collegiate Nursing Education (CCNE), One Dupont Circle, NW, Suite 530, Washington, DC 20036.

Occupational Therapy: The curriculum in Occupational Therapy is accredited by the Accreditation Council for Occupational Therapy Education.

Physical Therapy: The Master of Physical Therapy program is accredited by the Commission on Accreditation in Physical Therapy Education.

Psychology: The Psychology Specialist (School Psychology) program is approved by the National Association of School Psychologists and the National Council for the Accreditation of Teacher Education.

Public Administration: The Master of Public Administration curriculum is accredited by the National Association of Schools of Public Affairs and Administration.

Social Work: The School of Social Work curriculum is fully accredited at the undergraduate and graduate levels by the Council of Social Work Education.

Speech and Hearing: The academic and clinical program in Speech-Language Pathology is accredited by the American Speech-Language and Hearing Association (ASHA). The graduate academic program is accredited by the ASHA Council on Academic Accreditation, and the clinical program is accredited by the Professional Services Board.

Urban Planning, Design, and Development: The Master of Urban Planning, Design, and Development curriculum is accredited by the Planning Accreditation Board.

Student Assessment Policy

Each program on campus assesses student learning outcomes in order to improve student learning, instruction, and curriculum design. Academic assessment is coordinated by the Office of Assessment and includes learning within graduate and undergraduate majors, as well as student service programs. Systematic assessment of student learning incorporates the evaluation of theses, papers, projects, portfolios, pre-and post-tests, licensure, and other examinations in order to determine whether the University's expectations and goals for learning are being achieved. Current and former students' views about the learning process are also solicited through questionnaires, interviews, and focus groups. Feedback from students is continually used to improve academic and non-academic programs.

Affirmative Action Policy

Cleveland State University is committed to the principles of equal employment and educational opportunity for all individuals and to the development and implementation of results-oriented procedures and programs to enhance access and opportunity for minorities and women, persons with disabilities, Vietnam-era veterans, disabled veterans, and other protected veterans. The Board of Trustees has charged everyone associated with the University to support and implement these procedures and programs and to participate in achieving their maximum success.

The Affirmative Action Office is responsible for the administration of the

University's equal opportunity and affirmative action policies and procedures. Through formal and informal procedures, the Affirmative Action Office is primarily responsible for the investigation and resolution of all complaints of unlawful discrimination, including complaints of sexual, racial, and any other types of unlawful harassment. The Affirmative Action Office seeks to achieve a fair and prompt resolution of discrimination complaints and takes appropriate action when necessary. The Affirmative Action Office works cooperatively with departments and other units to provide training and information on unlawful discrimination and affirmative action issues to increase awareness throughout the University community. The office promotes the full participation, well-being, and equitable treatment of all students, faculty, and staff, regardless of age, race, color, religion, national origin, ancestry, sex, sexual orientation, disability, or protected Veteran status.

The Affirmative Action Office is located in the Keith Building, Room 1401; telephone (216) 687-2223. Maria J. Codinach, JD, currently serves as the Director of the Affirmative Action Office.

Sexual Harassment Policy

It is the policy of the University that no member of the University community shall engage in sexual harassment. Sexual harassment is a form of sex discrimination that is both reprehensible and unlawful. It is contrary to the most fundamental ethical canons of the academic community. The University will not tolerate sexual harassment because it creates an unacceptable or injurious working or educational environment.

Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitute sexual harassment when:

- 1) submission to such conduct is made either explicitly or implicitly a term or condition of instruction, employment, or participation in any University activity;
- 2) submission to or rejection of such conduct by an individual is used as a basis for evaluation in making a decision affecting instruction, employment, or other University activity;
- 3) such conduct has the purpose or effect of

unreasonably interfering with an individual's academic or work performance or creates an intimidating, hostile, or offensive University environment.

Copies of the University policy, including complaint procedures, may be obtained from the Affirmative Action Office, the Office of Minority Affairs and Community Relations, the Department of Student Life, and the Department of Human Resources Development and Labor Relations. Maria J. Codinach, JD, Director of the Affirmative Action Office, has primary responsibility for the investigation and resolution of sexual harassment complaints.

Educational Resources

Research Facilities

Basic and applied research is central to the University's mission and is an integral part of graduate and professional education. The purpose of research is to advance existing knowledge in a discipline, subject area, or field; to fill significant gaps in such knowledge; to devise new modes or means of expression; and to develop new perspectives in the sciences, arts, and humanities. Faculty members at Cleveland State University have built and continue to expand a solid reputation for quality research by attracting highly qualified graduate students and by garnering significant new external research funding. The University maintains that research and teaching are not only symbiotic but are also the focus of quality graduate education.

To encourage student and faculty research, the University provides a complete range of support facilities, including a University Library with a strong emphasis on computerized information services, microcomputer and computer-access laboratories, access to the Ohio Supercomputer Center, animal care facilities, a DNA-sequencing facility, and specialized research facilities within academic departments. Descriptions of other specialized equipment and major analytical instrumentation facilities are included under the headings of the respective graduate programs.

Research Collaborations

The University maintains a variety of research links with the Northeast Ohio community. Local and regional businesses and institutions share financial resources, personnel, and/or facilities with Cleveland State faculty and students for the purpose of research. The University's ties to the institutions below are important examples of partnerships that enhance specific graduate degree programs:

- **The Cleveland Clinic Foundation's Lerner Research Institute** is an equal partner in the research offerings and administration of three Cleveland State University doctoral programs: the Ph.D. in Regulatory Biology, the Ph.D. in Clinical-Bioanalytical

Chemistry, and the Doctor of Engineering specialization in Applied Biomedical Engineering. This strategic inter-institutional partnership provides doctoral students with access to major analytical instrumentation facilities in biochemistry, immunology, and molecular biology, as well as to the federally funded laboratories of world-renowned scientists.

- **The NASA-Glenn Research Center** annually sponsors millions of dollars of basic and applied research at Cleveland State, while the University provides off-campus graduate programs in engineering and computer and information science at the Center.
- **The Cleveland MetroHealth Medical Center** is a partner with Cleveland State University in the education of graduate students in the speech pathology program, as well as in the Clinical-Bioanalytical Chemistry Ph.D. program.
- **Case Western Reserve University's** formal agreement allows for collaboration in the areas of biomedical research, development of cooperative doctoral and professional graduate programs, and faculty enrichment opportunities. The agreement includes reciprocal library privileges for faculty and students at both universities.
- **The Ohio Urban University Program.** Cleveland State University is the flagship member of the Northeast Ohio Research Consortium which is a cooperative initiative of Northeast Ohio's public universities, providing research and technical assistance to the region, as well as numerous opportunities for graduate student research in public administration and urban studies programs.

University Library

Library Collections and Services

The University Library supports Cleveland State's instructional and research programs through resources and services made available to students both in-house and online. Located on the first eight floors of Rhodes Tower, the Library contains more than 900,000 volumes of print

resources, 30,000 serial subscriptions (both online and in-print), over 180 online research databases, 670,000 microforms, and substantial holdings of sound recordings, curriculum materials, art slides, films, videotapes, and multimedia products. The Library provides more than 150 public computers connected to the Internet for access to online resources to conduct research. Information regarding library holdings is available online through SCHOLAR from any computer via the Internet at scholar.csuohio.edu/. The Library also includes an Adaptive Technology Lab in which students with disabilities will find hardware and software programs especially designed for their use.

The Library facilitates the integration of information technology into the instructional program by offering information literacy seminars, Internet training, course-related instruction when requested by faculty, and research assistance to students and faculty. Subject librarians are available to instruct graduate students on research methodology in their disciplines and to get them started with research projects. Students may visit the Reference Center for assistance Monday through Thursday, 9 a.m. – 10 p.m.; Friday, 9 a.m. – 5 p.m.; Saturday, 10 a.m. – 5 p.m.; and Sunday, noon – 6 p.m. An appointment may be made with a subject librarian by visiting the Reference Center or by calling (216) 687-5300. When classes are in session, library hours are typically Monday through Thursday, 7:30 a.m. to 10 p.m.; Friday, 7:30 a.m. to 5 p.m.; Saturday, 8 a.m. to 5 p.m.; and Sunday, noon to 6 p.m. Changes to hours are posted in the Library and on the Library's Web site at www.ulib.csuohio.edu/hours.shtml.

Electronic Information

Providing access to information twenty-four hours a day, to users both on and off campus, is a high priority. The University Library implemented the first Electronic Course Reserve (ECR) service in Ohio. This service provides the full text of selected reserve materials online both from inside the Library or remotely from any computer with Internet access. In addition, this system now allows audio materials such as CDs, cassettes, and LPs to be digitized

and then accessed by CSU students via ECR. The Library also makes information resources and services available from its home page at www.ulib.csuohio.edu. This page provides links to a multitude of Web sites via the Electronic Reference page or the various Subject Portals, which offer quick links to research resources. Although this is a partial depository for printed federal government documents, much government information is available online from the Political Science Subject Portal. Distance learners are further served from the Distance Library Services Web page at html.ulib.csuohio.edu/dl/.

Resource Sharing, OhioLINK, and Beyond

The University Library's in-house collections are complemented by retrieval and delivery services made possible through resource-sharing networks, traditional interlibrary loan, document delivery, and OhioLINK. OhioLINK, a statewide academic network reporting to the Ohio Board of Regents, provides the Cleveland State community with access to forty-five million library items statewide. Through its retrieval and delivery services, OhioLINK delivers print materials, upon request, to other libraries within a few days. Other services also are available that provide users with access to information from sources around the world, often in a matter of days, sometimes quicker.

Special Collections

Special Collections at the Cleveland State University Library focus on primary research materials for the study of the economic, cultural, social, and political history of Cleveland, Northeastern Ohio, and the Great Lakes region. Of special interest are the *Cleveland Press Collection*, the *Cleveland Union Terminal Collection*, the *Watson Bridge Collection*, the *Great Lakes Industrial History Collection*, and the *Sacred Landmarks of Cleveland Collection*. The Cleveland Memory Web site, at www.clevelandmemory.org, represents a major effort to digitize these collections. Additional information about the Library's Special Collections is available on the Library's Special Collections

Web page at web.ulib.csuohio.edu/SpecColl/.

University Archives (Rhodes Tower, Room 310)

The archives are the University's official repository for records, publications, audio-visual materials, and artifacts pertinent to Cleveland State's history and development. Materials are available to users under controlled conditions and are non-circulating. The archives' electronic indexes to the meeting minutes of the University Board of Trustees, Faculty Senate, and Graduate Council are available to users online at www.ulib.csuohio.edu/vrd/csu.shtml. The University Archivist, Bill Becker, is available to answer questions and assist students in their research. Hours are Monday through Friday, 10 a.m. – noon. and 1– 3p.m. and by appointment. Bill Becker can be reached at (216) 687-3529 or at w.becker@csuohio.edu.

Writing Center

The Writing Center is located in the Library in Rhodes Tower 105. The Writing Center provides assistance to all members of the university community, including graduate students. Through consultations, tutoring, and workshops, the Center can respond to any questions about writing, including generating ideas, drafting and revising papers, improving writing styles, and handling technical details of grammar, documentation, and formatting.

Systems and Instructional Media Services

Systems and Instructional Media Services (IMS), a division of the University Library, is primarily devoted to assisting Cleveland State University faculty with the production and utilization of media materials and facilities. Experienced staff work closely with faculty members to plan and develop quality materials for the enhancement of teaching. IMS also provides cutting-edge equipment and facilities.

Services include media consultation/production with an emphasis on cre-

ative applications of multimedia in the teaching- learning process; media equipment loan with or without operator assistance; assistance with media equipment maintenance and installation; distribution of programming through a media retrieval system; satellite teleconferencing; and distance learning facilities. IMS offers a full range of production services such as computer graphics; broadcast quality audio and video production; and multimedia production.

For loan purposes, IMS holds an inventory of portable media equipment, including video projectors, video monitor or playback equipment (3/4" and VHS), computer combo units, and more.

Cleveland State students who need to use instructional media materials will find a full range of media services on the third floor of the University Library, including various types of audio and video equipment. In addition, instructors may place materials on reserve for student review outside of class.

The Main Office for Library Systems and Instructional Media is located in Rhodes Tower, Room 807. Equipment loan centers are located in Rhodes Tower, Room 705, Main Classroom Building, Room 201A, and Business Building, Room 18.

Law Library

The Law Library has a strong tradition of service designed to meet the research and instructional needs of students and faculty. The Law Library's service mission is supported by a collection of over 500,000 volumes, a federal government document depository, 3,100 periodical subscriptions, and an array of online research tools, including numerous legal and general databases, CD-ROM titles, the OhioLINK catalog and database sources, and Internet resources. These resources, with interlibrary loan arrangements and cooperative resource sharing through the Ohio Regional Consortium of Law Libraries, provide Law Library users with access to a wide spectrum of legal research materials.

Information Services and Technology

The Department of Information Services and Technology is an educational and research facility for faculty, staff, and students; additionally, it supports the data-processing requirements of the administrative offices at Cleveland State.

Services for Students

Through the use of technology, students can explore faster and better ways to find books, do research with the help of the Internet, and communicate with others around the world. The following is a brief description of the many services that are available to students.

Cleveland State University Web Site

The Cleveland State University Web site at www.csuohio.edu is full of useful information. Anyone who has a personal computer and access to the Internet has access to information about the University. General data about the University is available to everyone. In addition, each student can use CampusNet, a secured system that provides grades, unofficial transcripts, course offerings, and more.

A wide variety of information is available on the Web site, including an international student guide, a student admissions guide, a campus map with photos of all buildings, directories on how to reach Cleveland State and where to park, and even weather information. In addition, each college has its own home page, which includes a general description, course offerings, information about faculty members and special programs, and more. Many individual departments and professors also have Web pages.

Useful Web Sites:

- Resources for classes, research, and other academic pursuits: www.csuohio.edu/ats/stu.html
- Cleveland State University Call Center for computer-related questions/issues: www.csuohio.edu/ist/
- Computer Labs, equipment and hours, and other useful information: www.csuohio.edu/ats/campuslabs
- IS&T Information/Services: www.csuohio.edu/ist/

Free Internet Access

Cleveland State University provides students with an Internet-access account that provides 320 hours per month of free dial-up Internet access from home. To use the Internet

account, a dial-up connection needs to be added to the student's home computer. Instructions are available online at www.csuohio.edu/ist and on paper from Rhodes Tower, Room 1104. Students also can contact the Call Center for instructions at (216) 687-5050.

The Internet Access account logon name is the student's Cleveland State ID number. The password is the student's CampusPass. Students who do not know their ID or CampusPass can contact the Call Center for assistance.

Free Virus-Scanning and Internet-Related Software

IS&T provides free virus-scanning software on CD and access to free weekly updates. The CD is available from Rhodes Tower, Room 1140 and includes instructions for set-up and use. In addition, IS&T provides several freeware and shareware packages through IAP (Internet Access Pack). Students can download IAP for free from the Web site at <http://www.csuohio.edu/iap/>. A copy of the software also is available on a free CD in Rhodes Tower, Room 1104.

Electronic Mail (E-mail)

Every applicant and registered Cleveland State student—part-time, full-time, graduate, undergraduate, and law—has an account on the campus e-mail system. Students who prefer to forward their Cleveland State University e-mail to another e-mail address can do this in CampusNet or by contacting the Call Center at (216) 687-5050. Since many student-specific announcements are sent via e-mail, students are encouraged to check their Cleveland State University e-mail regularly or forward their Cleveland State University e-mail to another e-mail address.

For help accessing e-mail, call the Call Center at (216) 687-5050 or follow the links on the Web site at www.csuohio.edu/ist.

E-mail is available from any networked PC. Access to e-mail is available from a link on the Cleveland State home page or by visiting www.csuohio.edu/ist/email.shtml. E-mail also can be accessed via Outlook, Outlook Express, Eudora, or other POP mail clients. The student labs also provide access to student e-mail. Instructions for using Eudora and Outlook are available from the Cleveland State University IS&T Web page at www.csuohio.edu/ist.

Campus Net

CampusNet is a user-friendly student information system available for students. CampusNet is available from any computer with an Internet connection, including home computers, on-campus kiosks, and campus networked computers. The Internet address for the CampusNet system is <https://campusnet.csuohio.edu/index.jsp>.

Using CampusNet, students can register for classes, add and drop classes, and pay their tuition and fees. In addition, CampusNet provides commonly requested student information. A student may view and print his or her tuition and fees balance, registration schedule and course list, financial aid award amount, student record information, unofficial transcript, and personal information, such as address and e-mail address.

CampusNet is accessible with the student's Cleveland State ID and CampusPass password. Students who do not know their ID or CampusPass password can contact the Call Center at (216) 687-5050.

Computer Use on Campus

Laptop loaners through the Mobile Campus: The Mobile Campus, located in University Center, first floor, provides free laptop loaners to students for up to four hours per loan. These laptops may include either a floppy or CD/RW/DVD drive. There is no cost to either sign up for the program or to borrow the laptops. More information, including open hours, is available at www.csuohio.edu/ist.

Student laptop use on campus:

Students may use their own laptops on campus or may borrow a wireless laptop from the Mobile Campus in University Center.

Wireless: A student who wants to use his or her own laptop and a wireless connection will need a Cisco or compatible wireless card (available in the bookstore) configured for Cleveland State University, and the Cleveland State University ID number and CampusPass, which are available from the IS&T Call Center at (216) 687-5050. Students who do not have Cisco wireless cards should check the IS&T Web site for compatibility. The entire campus is wireless. A map and more information about WoWnet, the Cleveland State wireless network, is available online at www.csuohio.edu/ist.

Network requirements: A student who wishes to connect his or her laptop to the Internet on campus, using an Ethernet card, will need:

1. An Ethernet card set up for the Cleveland State University environment. Instructions are available in campus computer labs and Rhodes Tower, Room 1104.
2. A Cleveland State University ID number and CampusPass, which are available from the IS&T Call Center at (216) 687-5050.
3. A plug-in port, available in each General Purpose Lab, the Library, the Law Library, and areas of Urban Studies.
4. A network cable.

Campus Connection Lounge: The University Center Campus Connection Lounge is available for casual computer use. Over fifty computers, including Macs, are available and are equipped with MS Office, Internet access, e-mail access, and more. To use a lounge computer, a student will need his or her Cleveland State University ID number and CampusPass, which are available from the Call Center at (216) 687-5050. The lounge provides free printing. A schedule of hours is available at www.csuohio.edu/ist.

General Purpose Labs: General Purpose Labs are located in Rhodes Tower, Room 403 (in the Main Library), Stilwell Hall, Room 128, Main Classroom, Room 446, and the basement of Ahuja Hall. The General Purpose Labs are quiet study areas that provide free printing and scanning. The Stilwell Hall lab also has two group work areas in which four to five students can use a PC together. A list of hours, software, and equipment is available at www.csuohio.edu/ist.

In the labs, students can use software such as the current Microsoft Office Suite of products and SAS and SPSS statistical software, search the Internet, and check e-mail. Lab assistants are available to answer questions and help with problems.

To use the labs, students will need to sign in, using their Cleveland State University ID number and CampusPass, available by calling (216) 687-5050.

College Computing Labs: In addition to the General Purpose Labs, many colleges also maintain student labs. A list of college labs and information

about equipment and hours may be found at www.csuohio.edu/ats/campuslabs/.

Software Training: An extensive library of free online courses and books on a large variety of computer topics is available at www.csuohio.edu/training. Use your CSU ID and CampusPass to access courses and books, chat with an expert, prepare for certification, etc. Topics range from Word and PowerPoint to Rational Rose and Dreamweaver. In addition, graduate assistants are available in BU 24 for help with Word, PowerPoint, and Excel.

IS&T Call Center: The IS&T Call Center at (216) 687-5050 provides technical and software assistance to students, staff, and faculty. The IS&T Call Center can assist with Internet access, e-mail, and many other problems.

Contact the IS&T Call Center by:

- Accessing the Web site at www.csuohio.edu/ist,
- Visiting Rhodes Tower, Room 1104,
- E-mailing a question to call.center@csuohio.edu, or
- Calling (216) 687-5050.

The IS&T Call Center's usual hours during fall and spring semesters are 8 a.m. to 5 p.m., Monday through Friday. Phone hours are 7:30 a.m. to 10 p.m., Monday through Thursday; 7:30 a.m. to 5:30 p.m., Friday; and 9 a.m. to 5:30 p.m., Saturday. Vacation, holiday, and summer hours are posted on the Web site.

System News

IS&T also maintains a phone line with a recording that lists any current system outages. The System News line is updated each weekday; telephone (216) 687-5252.

Distance Learning

Some classes use WebCT to enhance or replace traditional classrooms instruction. Each professor using WebCT or other Web-accessed course materials will provide students with directions for access and use. Once students have accessed WebCT, they can contact the Call Center for password changes.

IS&T Communications

IS&T provides a monthly newsletter online at www.csuohio.edu/ist/whats_happening/infonewsletters/info.htm.

Students can e-mail specific questions to the vice president of IS&T at ask.vp@csuohio.edu.

General questions can be directed to call.center@csuohio.edu.

Campus Mailbag

Students can view special events and other announcements by selecting Campus Mailbag at www.csuohio.edu.

Discounts on Computer-Related Purchases

Students may purchase Gateway computers at significant discounts by following the links at www.csuohio.edu/ist. Apple computers also are available at an educational discount rate from this Web site.

Microsoft Office: Through a special contract with Microsoft, the University offers a significant discount on most Microsoft products to students, staff, and faculty. For information about available products, contact the IS&T Call Center at (216) 687-5050. The Microsoft special deals include Microsoft Office (Word, Excel, Access, Outlook, and PowerPoint) and Front Page, as well as other specialized products.

Center for Teaching and Learning

The Center for Teaching and Learning provides training and assistance to faculty and teaching assistants to bring improved and innovative teaching methods to the classroom. Goals of the Center include helping instructors achieve effective teaching styles, incorporating innovative technologies into classrooms, and improving student learning and comprehension by means of more participative and interactive teaching methods. The Center conducts workshops on various topics and administers the Teaching Enhancement Award Program. For additional information, contact William A. Beasley, Director of the Center for Teaching and Learning, Rhodes Tower, Room 203; telephone (216) 687-5583.

Continuing Education

The Division of Continuing Education provides learning opportunities for individuals who seek to improve their careers and further their personal development. Each year, more than 10,000 adults from throughout Northeast Ohio enroll in the Division's seminars, workshops, short courses, and conferences. The Division offers non-credit

programs in such fields as business and management, computers and information technology, engineering and construction, hazardous materials management, emergency preparedness, and nursing and health professions. These programs enable adults to keep current in their work, develop new skills, acquire new knowledge, and enter new careers.

Designed and scheduled to meet the needs of adult learners, continuing education programs are offered on- and off-campus; during the day, evening, and on weekends; and online. The Division also offers customized training programs for business, industry, government, health, and community organizations at their choice of locations.

The Joseph E. Cole Center for Continuing Education offers state-of-the-art education and conference facilities. The Cole Center features hands-on computer laboratories, seminar rooms, an 850-seat auditorium, and a 150-seat lecture hall, all specifically designed to meet the needs of the adult learner. Spacious lounges, meeting rooms, and dining areas supplement the educational facilities, making the Cole Center an ideal conference location, available for use by outside groups.

Continuing education programs are open to all adults. The Division awards Continuing Education Units (CEUs) for participation in its programs. In addition, the Division offers certificate programs in several specialty areas. Program brochures and catalogs are published throughout the year. For further information, call the Division of Continuing Education office at (216) 687-4850, e-mail conted@csuohio.edu, or visit the Web site at www.csuohio.edu/ce/.

Cooperative Education

Graduate students may elect to participate in the Cooperative Education Program. Students in the Co-op Program can choose either part-time semesters or full-time alternate semesters of paid, career-related employment that allows them to apply academic theory to on-the-job problems. In addition to enabling students to gain practical, career-related experience in a field, the co-op experience can assist in financing graduate studies. Students interested in this program should contact the Career Services Center, located on the second floor of Rhodes Tower (West Wing); telephone (216) 687-2233.

Biomedical and Health Institute (BAHI)

The Biomedical and Health Institute (BAHI), formed in 2002, is a cross-collegiate structure that provides coordination and support for research, application, and education in the areas of biomedicine and health science, service, management, and policy. Under the leadership and direction of its director, BAHI serves as the single point of contact for broad ranges of collaborative research and programs in this arena, including biotechnology and its applications, health-related research and policy development, and biomedical initiatives.

Cleveland State's long-standing excellence in these areas places it in a unique leadership role for related economic development. By providing Northeast Ohio with greater access to the research and educational resources at Cleveland State, the University increases the success of business and industry already in the region and attracts new biotechnology, biomedical, and health science-related companies. Cleveland State is poised to make significant contributions to sustain and expand a knowledge-based, biotech economy, since University research laboratories generate cutting-edge ideas that create new processes and products, and its degree programs produce highly trained professionals.

Cleveland State offers a range of degree opportunities in health-related fields, including Doctoral degree programs in Regulatory Biology, Clinical/Bioanalytical Chemistry, Applied Biomedical Engineering and Pharmacy (in conjunction with the University of Toledo); a Molecular Medicine Specialization option in the three noted doctoral programs; and numerous Master's degree programs, including Biology, Chemistry, Nursing, Health Sciences, Public Health, Health Care Administration, Occupational Therapy, and Physical Therapy.

Additional information is available at www.csuohio.edu/bahi.

Center for Healing Across Cultures

The mission of the Center for Healing Across Cultures is to foster understanding of Healing traditions in various cultures and engage in applied studies of those healing traditions. To accomplish this mission, the Center develops

approaches to collect information about the health and wellness belief systems and techniques of different age-old healing traditions for the benefit of contemporary and future generations and provides opportunities for interdisciplinary investigations and collaborative programs for faculty, students, and the community at large. Additional information is available at www.csuohio.edu/bahi/chac/index.html.

Center for Health Equity at Cleveland State University

The mission of the Center for Health Equity at Cleveland State University is to provide leadership to advance the understanding of health disparities and their resolution through interdisciplinary research, community partnerships, and multidisciplinary education; and to develop and implement strategies that promote health and well-being for residents of Greater Cleveland.

Specifically, its goals are to foster a community of interdisciplinary researchers to understand the determinants of health disparities and their resolution; develop community-based partnerships that improve community health and reduce disparities; enhance the understanding of health disparities through multidisciplinary education and cultural competency training; recruit and educate minorities into professions that can improve people's health and wellbeing; engage community residents in understanding their responsibilities and advocating for their healthcare needs; and inform public policies aimed at improved health and health equity. Additional information is available at www.csuohio.edu/bahi/che/.

Environmental Institute

Cleveland State University places a high priority on providing leadership in the area of environmental education and research in Northeast Ohio. In keeping with this institutional focus, in 1995, the Institute was established under the name, Center for Environmental Science, Technology and Policy (CESTP) to help position the University as a critical regional resource in support of environmental education, research, and service for Cleveland, Northeast Ohio, and the Midwest region.

The staff and faculty of the Environmental Institute play important roles in the coordination and implementation of

many environmental educational and research activities. For example, the Environmental Institute coordinates several environmental degrees under the Environmental Academic Studies Program (EASP), including a BS in Environmental Science, a BA in Environmental Studies, an MS in Environmental Science, an MA in Environmental Studies, an MS in Environmental Engineering, and a JD/MAES. In addition, environmental options are offered in several doctoral programs.

Another major activity of the Environmental Institute involves the Woodlake Environmental Field Station in the Cuyahoga Valley National Recreation Area (CVNRA). The Station represents a unique partnership between Cleveland State, John Carroll University, and the National Park Service. The field station facilitates environmental and ecological research, particularly research utilizing the ecosystems in the CVNRA. It also is used for teaching undergraduate and graduate field courses, special summer courses, and workshops.

The Environmental Institute's primary mission is to improve the region's problem-solving capabilities regarding environmental questions by:

- Facilitating the development of multidisciplinary research teams;
- Coordinating the development of environmental curricula available to Cleveland State students, including environmental systems, science, engineering, technology, policy, law, ethics, and management;
- Improving the effectiveness and coordination of teaching of environmental issues at all levels; and
- Increasing collaboration between industry, government, and universities.

The Institute strives to be the main regional resource and focal point for information and research on environmental issues for government, industry, and the general public. Additional information is available at <http://www.csuohio.edu/ei/>.

Center for Research in Electronics and Aerospace Technology

The Center for Research in Electronics and Aerospace Technology (CREATE), housed in the Fenn College of Engineering, is a collaboration among universities, government, industry, and other

organizations with the purpose of advancing the state of the art of power technology and introducing this technology into the private sector. The goals of CREATE are to:

1. Assist in maturing aerospace technologies to levels that show potential for commercialization or application for space exploration or national defense;
2. Develop the means for capturing and disseminating the knowledge produced during technology-development activities in a productive and efficient manner so as to effectively transfer the technology to the private sector;
3. Integrate CREATE activities with the educational program so students gain hands-on experience through these projects.

Faculty from the Electrical and Computer, Mechanical, and Industrial and Manufacturing Engineering Departments participate in a variety of research projects under the auspices of CREATE. Numerous opportunities exist for graduate students to conduct master's and doctoral research on CREATE projects.

Cleveland Center for Mass Spectrometry

The Cleveland Center for Mass Spectrometry allows scientists to identify and characterize biological compounds, such as proteins, peptides, lipids, DNA, and drugs, to aid in the understanding of many disease processes. The Center supports the research and teaching activity of undergraduate and graduate students, post-doctoral fellows, and faculty at Cleveland State University. The Center utilizes state-of-the-art mass spectrometry instruments located in the Department of Chemistry at Cleveland State.

The Cleveland Center for Mass Spectrometry employs technology to determine chemical composition at the molecular level. It allows scientists to examine minute structural details at a level previously unattainable. The impact of this technology on biomedical research is significant. Many diseases are characterized by defects in protein, DNA, or other molecules. Mass spectrometry analysis plays a critical role in determining the structure of defective molecules. The use of mass spectrometry has resulted in advances in the understanding of disease mechanisms

and the early detection of disease markers. It also aids in designing more effective drugs and treatment strategies.

Mass spectrometry is being used to study diabetes, heart disease, cancer, Alzheimer's disease, kidney diseases, birth defects, and infectious diseases such as AIDS.

DNA Analysis Facility

The Cleveland State University DNA Analysis Facility provides DNA sequencing and DNA fragment analysis services in support of research efforts at Cleveland State University and other Northeast Ohio-area organizations. The facility's services include DNA sequencing of double- or single-stranded DNA plasmids and PCR products, as well as DNA fragment analysis. The mainstay of the facility is a Beckman Coulter CEQ 8000 Genetic Analysis System, which uses state-of-the-art capillary gel electrophoresis and laser-induced fluorescence technologies, in combination with a comprehensive, scientifically accepted software package for detailed results analysis. This instrument is capable of providing greater than 98 percent accurate sequence information on 600 to 800 bases routinely, with the potential of 1,000 bases. It also can analyze DNA fragments up to 600 bases with single-base accuracy.

Research collaborations are encouraged between Cleveland State faculty, researchers at other institutions, and industrial partners. Information about the Cleveland State DNA Analysis Facility can be found at www.csuohio.edu/uored/dna/index.html.

The Maxine Goodman Levin College Research, Public Service, and Training Centers

Research and Public Service

The Maxine Goodman Levin College of Urban Affairs provides applied research and outreach services to the community through a number of integrated centers and initiatives. The collective mission of these research centers is to serve as a source for the investigation of issues and challenges facing urban communities and to apply the College's resources to solutions.

Students have opportunities to work with faculty and staff in the research, public service (including training), centers, programs, and related initiatives of

the Levin College. These include major programs in economic and neighborhood development, public finance, public management, and capacity-building training. These activities support the academic programs of the Department of Urban Studies by providing opportunities for graduate and undergraduate students to participate in ongoing research, training, technical assistance, and database development projects.

Center for Economic Development

The Center for Economic Development encompasses research and technical assistance activities aimed at furthering the development potential of the Cleveland region. It concentrates on the analysis of federal, state, and local public policies and their impact on the economic functions, growth, and development of Cleveland and the region. Areas of expertise include industrial restructuring, industry clusters, labor force development, and urban tourism and redevelopment of cities.

Center for Housing Research and Policy

The Center for Housing Research and Policy promotes studies of critical housing supply-and-demand issues. In addition to undertaking a comprehensive inventory and analysis of the region's housing stock and its conditions, the program identifies and analyzes housing directions and trends useful for neighborhood and regional revitalization.

Center for Neighborhood Development

The Center for Neighborhood Development provides assistance to nonprofit, neighborhood-based development organizations, helping them implement a broad range of housing and economic development projects. The Center also directs the Neighborhood Leadership Cleveland program.

Center for Nonprofit Policy and Practice

The Center for Nonprofit Policy and Practice supports and fosters the health of the nonprofit sector in the region through training and technical assistance. It supports the role of nonprofits in civil society, scholarly and applied research, and undergraduate and graduate education in the leadership and management of nonprofit organizations.

Center for Public Management

The Center for Public Management is a multi-disciplinary applied Research Center that provides technical assistance, policy analysis, research, organizational and staff development, and training services to a broad clientele of federal, state, and local government and not-for-profit clients. The mission of the Center is to serve as a resource for Ohio's state and local governments and not-for-profit organizations by providing services to increase the efficiency and effectiveness of governance and public policy. The Center addresses its mission through work in five substantive areas—Economic and Fiscal Analysis; Performance and Efficiency Measures; Tax and Revenue Strategy; Organizational Development; and Economic Development Strategy.

Center for Sacred Landmarks

The Center for Sacred Landmarks provides information about Cleveland's religious structures and organizations and their past and present roles in strengthening and maintaining communities within the Cleveland metropolitan area.

Great Lakes Environmental Finance Center (GLEFC)

The Great Lakes Environmental Finance Center (GLEFC) is one of nine university-based applied research and technical assistance centers established by the United States Environmental Protection Agency to help create sustainable environmental systems in the public and private sectors. The mission of the GLEFC is to assist communities in building innovative, cost-effective and high-quality strategies for environmental improvement and sustainable economic development. GLEFC services include providing financial and economic analysis and strategies, policy analysis and planning, brownfields community advisory services, and research and information services.

Levin College Forum

The Levin College Forum is a focal point and catalyst for thoughtful public debate, innovative thinking, new ideas, and timely action addressing the critical urban issues that impact Northeast Ohio, the state, and the nation. All Forum programs are open to the community and Cleveland State University students, faculty, and staff.

Northern Ohio Data Information System

The Northern Ohio Data Information Service (NODIS), is a Census Bureau affiliate. It provides census and other data resources to the public. It also provides mapping and GIS services, data, and training. Services include standard and customized community profiles, demographic analysis, census tract look-up guides, demographic and environmental mapping, geocoding, and database and Web site development. GIS training includes ESRI certified instruction, as well as MapInfo workshops and customized training. Named as one of the three regional data centers in the state by the State of Ohio and the U.S. Bureau of the Census in 1981, NODIS has more than twenty years experience in demographic and geographic data dissemination and analysis.

Ohio Center for the Advancement of Women in Public Service

The Ohio Center for the Advancement of Women in Public Service is a new initiative founded to promote the advancement of careers of women in public service within the executive, legislative, and judicial branches of government at the national, state, and local levels. Key functions of the Center include research on the state of women's careers in public service, identifying barriers to the movement of women into positions of authority and leadership, and devising strategies to address these barriers.

Ruth Ratner Miller Center for Greater Cleveland's Future

Named in honor of Ruth Ratner Miller's lifelong commitment to and vision for Greater Cleveland, the Center utilizes the intellectual capital of the region to develop alternative strategies for the metropolitan area. The Center produces information and analysis to advance Greater Cleveland's economic and social future and collaborates with private and nonprofit organizations and governments to drive the growth of the region.

Unger Center for Local Government Leadership

The Unger Croatia Center for Local Government Leadership is a collaborative effort between the Levin College

and the Faculty of Economics at the University of Rijeka. The goal of the Center is to respond to the training, research, and educational needs of local government leaders by providing workshops, courses, and literature that focus on concepts and ideas underlying improved practices, as well as perspectives on the pragmatic day-to-day policy concerns that confront government officials. The Center is a repository of information on best practices in local government and develops case studies and research projects for use by administrators, managers, and supervisors throughout Croatia. The core activity of the Center is an annual or bi-annual public administration program held in Croatia and a two-week seminar at the Levin College.

Urban Child Research Center

The Urban Child Research Center (UCRC) brings a multidisciplinary approach to addressing risk factors for urban children and youth. The UCRC provides the expertise of academia to the community, using the perspectives of the social and behavioral sciences, education, and health care to research issues that affect urban children and families.

Campus Services and Programs

Student Affairs

The Division of Student Affairs and Minority Affairs is committed to student learning, achievement, and success. A wide array of programs, services, and activities support student leadership. Co-curricular opportunities enrich learning, apply leadership skills, and foster engagement.

A partial list of Division services and offices that may be of value and interest to graduate students includes Student Life programming, student organizations and publications, leadership development, wellness education, and volunteer opportunities; stress-management and other workshops; the Career Services Center; the Office of Services to Persons with Disabilities; the Counseling and Testing Center; and University Health and Wellness Services.

Student leaders meet with the President and Vice President of Student Affairs and Minority Affairs on a monthly basis and serve on administrative committees and task forces. Two student representatives serve on the University Board of Trustees.

Student Activities and Cultural Programs

The University sponsors a wide variety of student activities and cultural programs to enrich the collegiate experience. Programs are designed to appeal to students, faculty, staff, and the community.

Seminars, lectures, plays, and other presentations offered by the Department of Student Life, academic departments, and support units are open to the public. National and international authorities are brought to campus to discuss topical issues and the arts.

The Office of Minority Affairs and Community Relations presents cultural programming, diversity training and conferences, topical study circles, and community outreach and service activities, including retention initiatives for underrepresented populations.

Cleveland State offers a rich array of cultural opportunities to the campus community and general public.

Prominent poets visit the campus under the auspices of The Poetry Center, which also sponsors a Creative Writing Contest each semester for tuition reimbursement for Cleveland State students. The Dramatic Arts program presents numerous plays during the year.

The Cleveland State Dance Program presents concerts, master classes, and summer intensive workshops featuring faculty and nationally recognized guest artists. Performances include the Cleveland State University Modern Dance Company, a student and alumni repertory ensemble, and The Dance/Theater Collective as well as informal showings of dance students' works.

The Cleveland State University Art Gallery, located in Room 101 of the Art Building, is one of the finest art galleries in downtown Cleveland. It hosts shows by local, regional, and national artists and features an annual juried exhibition of works by Cleveland State University art students.

The Black Studies Program operates an African American Cultural Center located in Room 103 of University Center. The Cultural Center displays a permanent collection of African art; contemporary and traditional works of African American artists; and revolving exhibits of the art, culture, and history of peoples of the African Diaspora. Formal and informal colloquia, films, video recordings, and programs designed for student retention are presented in the Cultural Center. It is a place where students are cordially invited to relax, engage in discussions, study, and receive tutoring. The African American Cultural Center is available for meetings held by students, faculty/staff groups, and organizations, as well as community organizations and groups.

Student Life

The Department of Student Life provides a variety of quality services and programs to enhance the University experience and complement Cleveland State University's academic mission. A highly trained staff of professionals is available to support students from their first day on campus to the completion of their academic goals. Services

include new student orientation, a mentoring program, leadership training, support of recognized Cleveland State University student organizations, judicial affairs, campus activities, and many other programs and services that support the successful matriculation of all students. Students are welcome to share issues, concerns, and ideas. The Department of Student Life is located in University Center, Room 102; telephone (216) 687-2048; e-mail student.life@csuohio.edu. Visit the Web site at www.csuohio.edu/student-life.

Campus Activities

The entire campus community, including students, faculty, and staff, is provided with an array of campus-wide social, educational, and cultural programs throughout the year. These activities, sponsored by the Department of Student Life, the Campus Activities Board, and other groups across campus, include social events, lectures, dances, holiday celebrations, and musical activities. Events include Welcome Week, the Awards and Recognition Ceremony, Springfest, Homecoming, and many more. Students interested in volunteering to help plan these events, or who want more information about attending them, should contact the Student Life staff at (216) 687-2048 or e-mail student.life@csuohio.edu. Most events are free and open to the campus community.

Volunteer Programs

The Department of Student Life Volunteer Program is designed to serve as a campus-wide clearinghouse for volunteerism, community service, and service learning opportunities available to all Cleveland State University students, faculty, and staff. The primary goal is to assist members of the Cleveland State University community to develop or strengthen interest in service to others. Please contact the Volunteer Program Coordinator in Student Life, University Center, Room 102, or visit the Web site at www.csuohio.edu/studentlife/volunteer for more information about short- and long-term service opportunities and other programs.

The City is Our Campus Ticket Program

Through developing partnerships with a variety of organizations, the Department of Student Life offers opportunities for Cleveland State University students to experience all that Cleveland has to offer—often at a discounted (sometimes free) price. Free venues include the Museum of Contemporary Art, Cleveland Museum of Natural History, Cleveland Botanical Gardens, and the Western Reserve Historical Society with a CSU student ID. Updated information about The City is Our Campus program is available on the bulletin board in the University Center Atrium and on the Web site at www.csuohio.edu/student-life/activities/citycampus.html. Students also can sign up to receive e-mail updates by emailing activities@csuohio.edu.

Judicial Affairs

The Judicial Affairs Office provides a safe environment for the entire campus community, through the Board of Trustee-approved policies called the Student Conduct Code. The Student Conduct Code thoroughly explains the due process procedures for incidents that violate University policies. A copy of the Code is available in the Department of Student Life, located in University Center, Room 102, or at www.csuohio.edu/student-life/SCC.

Leadership Programs

Programs help students explore various leadership competencies. Events range from hour-long roundtables to daylong retreats. Program topics include leadership styles, communication, group dynamics, delegation, and creativity. Students attending at least sixteen roundtables over the course of the year can receive Leadership Certification. There is also a free Leadership Consultation Service for student groups. A wide variety of leadership resources are available, including leadership portfolio, free leadership assessment, and developmental plan. Additional information, including a listing of upcoming programs, is available from the Student Life Office in University Center, Room 102; telephone (216) 687-2048. Visit the Web site at www.csuohio.edu/student-life/leadership.

Gay, Lesbian, Bisexual, and Transgender Student Services

GLBT Student Services provide innovative programming to the Cleveland State University community and serve as a resource and information center for gay, lesbian, bisexual, transgender, and questioning students and their allies. The Safe Space program allows faculty and staff to show support for GLBT students by displaying a Safe Space card. There is also a Safe Space program for students who wish to show their support. A student listserv keeps students informed and connected. More information on GLBT Student Services and its programs is available by calling (216) 687-2048, e-mailing glt@csuohio.edu, or visiting www.csuohio.edu/studentlife/GLBT.

Student Organizations

There are more than 100 recognized student organizations on the Cleveland State campus, providing students with opportunities for involvement, campus decision-making, leadership experience, and networking. These organizations invite students to join and participate in academic, social, professional, and recreational activities through their many campus events. Organizations are open to all students. Other developmental opportunities include involvement in the Student Government Association, Campus Activities Board, Student Bar Association, fraternities and sororities, and student media organizations (newspapers, literary magazine, and radio station). The Student Organization Directory in the Department of Student Life includes information on the many student groups available to complement students' academic and career goals. The Department of Student Life assists in establishing new organizations in response to students' initiatives.

Campus Activities Board

The Campus Activities Board (CAB) is a student organization whose primary function is to plan and facilitate cultural, social, recreational, and educational events. CAB is responsive to student interests, with a primary goal of fostering campus community and unity. CAB offers leadership opportunities in event

planning, promotions, budget management, and team development. CAB features five student officer positions (Director, Assistant Director, Business Manager, Events Coordinator, and Promotions Coordinator). A variety of intern, volunteer, and committee opportunities are available for those interested in campus event planning.

Student Bar Association

The Student Bar Association (SBA) represents and advocates the interests of the student body in matters pertaining to the Cleveland-Marshall College of Law. The SBA allocates funds to duly recognized student organizations of the College of Law and coordinates and promotes programs and activities for students of the College of Law. SBA consists of a Senate of five Executive Officers and Student Senators from each of the law divisions. The Student Bar organizes activities such as the annual Barrister's Ball, fund raisers such as the T-shirt Sale and Book Sale, and various educational and social opportunities for law students. Elections are held annually at the end of the spring semester. SBA is located in the Law Building, Room 28; phone (216) 687-2339.

Student Media Organizations

Student publications provide excellent opportunities for experience in writing and editing a literary magazine or newspaper, as well as on-air and behind-the-scenes radio experience. These media are financed, in part, by general fees and are run by students, who are selected by the respective media staff. The media organizations include: *The Cauldron*, published weekly and pledged to provide information and opinions about the campus, the Cleveland community, and beyond (phone (216) 687-2270); *The Vindicator*, published twice a month with special interest in presenting the news as it relates to multicultural issues and diversity (phone (216) 687-2118); *Whiskey Island Magazine*, a literary magazine published two times a year, featuring selected prose, poetry, graphic arts, and photography (phone (216) 687-2056); *The Gavel*, published six times a year by and for the interest of students enrolled in the Cleveland-Marshall College of Law (phone

(216) 687-4533); and *WCSB Radio Station*, a University-owned, 1,000-watt, non-commercial FM station operated by Cleveland State University students. WCSB can be found at 89.3 on the radio dial and offers a wide variety of programming (phone (216) 687-3523).

Fraternities and Sororities

Cleveland State University is home to eight nationally recognized fraternities and seven sororities, as well as local fraternities and sororities. Faculty and chapter advisers guide these Greek-letter organizations. The Coordinator of Greek Affairs also provides assistance with fall recruitment for the sororities, Greek Games, Greek Council, Greek Alumni Council, and Homecoming activities in which the members participate. Greek-letter organizations provide opportunities for brotherhood/sisterhood, involvement in philanthropic events, social activities, scholarship, and leadership. Membership in a Greek-letter organization provides students with a wide array of transferable skills useful in life and future careers.

Intramural Sports Program

The Intramural Sports Program at Cleveland State provides a variety of leagues and tournaments throughout the year. These contests emphasize mental, social, and physical well-being. The Intramural Sports Program is all inclusive. Every student registered for classes is eligible to participate. The program is also available to CSU faculty, staff, and alumni. Intramurals seek to build community through friendly competition. Good sportsmanship is valued above all else.

Student Government

The Cleveland State University Student Government Association (SGA) provides an open forum for students to formulate their beliefs and voice their concerns to the University Board of Trustees, administration, and faculty. Student Government is composed of two branches. The Executive Branch consists of the president, vice president, treasurer, and secretary; the legislative branch (the Senate) is composed of elected student delegates, who represent each class and each college at Cleveland State. Elections are held during the spring term. Student Government offices are located in University Center, Room 160A; telephone (216) 687-2262.

Campus411

Campus411 provides information and assistance with registration, academic records, student billing, and financial aid. Cleveland State's comprehensive approach to providing student services is based on a "one-stop" philosophy: provide a central office to serve the University community effectively and efficiently. Campus411 is located on the first floor of University Center, Suite 162.

VIKINGCARD

New Cleveland State students may obtain valid identification cards for as long as they attend the University. To obtain a card, a student must present his or her current semester registration schedule and driver's license at the VIKINGCARD Office, located in University Center, Room 272B.

Normal office hours are:

Monday-Thursday-Friday 8 a.m. to 5 p.m.

Tuesday-Wednesday 8 a.m. to 6 p.m.

Updates are available on the Web site at www.csuohio.edu/vcard.

Counseling and Testing Center

Cleveland State University offers a wide range of counseling services to students. The licensed counselors and psychologists who staff the Counseling Center help students with selection of majors, study skills, vocational choice, blocks to learning, personal concerns, stress management, test anxiety, assertiveness, relationship concerns, drug and alcohol dependence, sexual issues, and relaxation training. Support groups and workshops are offered on many of these topics.

Testing services include interest, ability, and personality tests. Widely used entrance examinations, such as the CLEP and PRAXIS examinations, the Miller Analogies Test, and many others, are given. Test scoring for faculty also is available.

Counseling services are offered free of charge to students. Faculty and staff are seen for assessment and referral. Appointments can be made for both day and evening hours by calling (216) 687-2277, or by visiting the Counseling Center, located on the second floor balcony in University Center, Room 254B.

Career Services Center

The Career Services Center, located on the second floor of Rhodes Tower West, provides graduate students and alumni with a full range of services in the career development process, including the programs listed below. For more information, visit the Career Services Web site at www.csuohio.edu/career/.

Career Preparation Workshops for Graduate Students

Career workshops are specifically designed for graduate students. The workshops provide career insight, job readiness, and fulfill the requirements for participation in the Cooperative Education Program. A schedule of workshops is available in the Career Services Center.

The Career Resources Library

The Career Resources Library contains reference materials that include industry and corporate directories; information and literature on local, national, and international companies; a videotape collection on career and professional development; a collection of publications concerning career assistance; and computer access to career and employer data. The library also contains a reference section featuring recently posted job notices and internships.

Career Conversations

Students have the opportunity to conduct informational interviews with alumni and other professionals to better understand how academic studies and career development work hand-in-hand. Students should contact their Career Coordinators for more information.

Job Location and Development

Job Location and Development is a federally funded program designed to help all Cleveland State students find part-time and seasonal work while still in school. A Career Services Coordinator can assist students in locating these opportunities.

Career Counseling

One-to-one career exploration and career development counseling is available to all graduate students at Cleveland State. Career Coordinators are assigned to specific majors, for which they have developed competencies. Students should call the Career Services Center to make appointments with Career Coordinators who specialize in their majors.

Echoices

This computer-based program enables students to explore and assess their interests, skills, aptitudes, and values. By using this system, along with a follow-up meeting with the Career Coordinator, students learn how their choices relate and how understanding personal characteristics will help them begin to make an informed career decision.

Sloan Career Cornerstone Series

The Sloan Career Cornerstone Series is a program designed to assist students interested in engineering and other technical programs with their career development process. By participating in the Sloan program, students learn more about the differences in various technical careers, along with the various skills and specializations they may wish to develop.

On-Campus Employment

Excellent opportunities exist for part-time student employment on campus. Students employed on campus can develop valuable skills and have the convenience of working flexible hours. Both federal work-study and non-work-study positions are available. Jobs are posted at www.csuohio.edu/career/jobpostings.htm#job.

Cooperative Education

Students in the co-op program can choose either part-time or full-time alternate semesters of paid, career-related employment that allows them to apply academic theory to on-the-job problems. In addition to enabling students to gain practical, career-related experience in their chosen field, the co-op experience can assist in financing graduate studies. Career Services Coordinators can provide details to graduate students interested in participating in this program.

Senior and Alumni Services

The Career Services Senior Office provides career implementation programs to graduate students in all academic areas. All full-time and part-time graduate students are eligible to register for assistance at no cost.

All graduate students registered with the Career Services Center can access the employment community through employers that recruit on campus, employers that participate in Cleveland State University career fairs and

programs, and employers that post opportunities on the CSU Career Line System.

The full range of placement services also includes:

- A video-taped Mock Interview program;
- Access to the Web-based recruitment system, CSU Career Line; and
- Individual career counseling.

For additional information, call or visit the Career Services Center, Rhodes Tower West, Room 280; telephone (216) 687-2233.

Women's Comprehensive Program

Cleveland State University's Women's Comprehensive Program (WCP), located in University Center, Room 363, enriches campus life through a series of lectures and cultural events pertinent to women. Each semester, the Re-Entry Women's Project offers a series of orientation sessions for students whose educational goals have been delayed or deferred, as well as a range of other services for women.

The WCP administers an undergraduate interdisciplinary major and a minor in Women's Studies, as well as offering a course on Women in Corporate America in conjunction with the Cleveland business community. A list of Women's Studies courses that can be taken for graduate credit is available from the WCP Office.

Health and Wellness Services

Convenient ambulatory health care is available for Cleveland State University students, faculty, and staff. Nurse practitioners and a University physician provide services. Appointments are required and can be made by calling (216) 687-3649. The Health and Wellness Center is located in the Science and Research Building, Room 153. Hours are Monday and Tuesday from 8 a.m. to 5:30 p.m., and Wednesday through Friday from 8 a.m. to 5 p.m. during the academic year. During the summer and during semester breaks, hours are Monday through Friday from 8 a.m. to 5 p.m.

The Health and Wellness Center provides the following services:

- Physical examinations and treatment for common illnesses such as sore throats, upper respiratory infections, urinary tract infections, and conjunctivitis.
- Laboratory testing for cholesterol levels, anemia, throat cultures, pregnancy, sickle cell, HIV, Chlamydia, sexually transmitted infections, and more.
- Health prevention and promotion, education, and counseling to support individuals and groups in maintaining wellness.

There is no charge for most office services. There is a minimal charge for complete physical examinations, laboratory tests, and medications.

For additional information, visit www.csuohio.edu/health.

Students with Disabilities

The University is committed to providing equal opportunity to all of its students, including those with disabilities, who may need extra help or specialized assistance. This program is designed to address the personal and academic issues of students with disabilities as they participate in campus activities. A full range of services, including Braille writers, sign language interpreters, special computer equipment, and specialized test administration, is offered. The Cleveland State University campus is significantly barrier free. Interested students should contact the Office of Services for Persons with Disabilities, University Center, Room 304; telephone (216) 687-2015.

Graduate Student Housing

Viking Hall and Fenn Tower are Cleveland State's on-campus housing communities. Both communities cater to graduate students through private accommodations, a great location, quiet graduate areas, and other wonderful amenities that create the right environment for academic success.

The historic **Fenn Tower** features a restored entry lobby and several remodeled ballrooms and common areas. Each apartment is fully furnished and equipped with kitchenettes, cable television, and high-speed internet. Outside the units, community amenities, such as a game room with billiards and big-screen television, fitness center, theater room, laundry center, and retail space, merge the building's classic design with modern-day function.

Viking Hall is located in the heart of the campus and can accommodate 475 students in large, spacious, furnished units with carpeting, high-speed internet, cable television, and much more. The community offers private or shared rooms. Different floors are designated for graduate and law students. Community amenities include a computer lab, fitness center, 24-hour security, laundry facilities, television lounge, on-site convenience store, and more.

All residents participate in a food service plan, which provides a variety of options. Both communities provide a convenient, full-service, meal plan program.

Requests for information and applications for on-campus living are available in the Department of Residence Life Office. For more information, call (216) 687-5196, e-mail reslife@csuohio.edu, or visit www.csuohio.edu/reslife or www.fenntower.com.

Safety at Cleveland State

The University Police Department works to prevent crime through vehicular, bicycle, and foot patrol, surveillance operations, investigations staffed with plain-clothes officers, and community-based crime prevention programs. For general information concerning the Police Department and services, telephone (216) 687-2020.

Safety Escort Service: The University Police Department maintains a 24-hour escort service for the security of students, faculty, and staff. To request an escort to or from any location on or near campus, telephone (216) 687-2020. The Escort Service also may be reached by dialing 2020 on any campus phone.

CAMPUS WATCH Program: CAMPUS WATCH, founded in 1981, is a community-based crime prevention program tailored to meet the needs of the campus community. It is an innovative application of the highly successful block watch program. Campus Watch members attend a one-hour training session on safety issues, actively participate in quarterly business meetings with speakers on safety, and receive *The Watcher*, a monthly newsletter that provides information on campus crime incidents, as well as crime prevention. Campus Watch members are eligible for training seminars and routinely receive information on campus safety via the broadcast system.

Emergency Phone System:

Emergency "blue light" telephones are located throughout the campus and in parking facilities. By picking up the receiver on most phones, the caller is in immediate contact with the University Police Dispatch.

Campus Awareness and Security

Act of 1990: Cleveland State is in compliance with the Campus Awareness and Security Act of 1990. Updated annually, published statistics on crimes committed at Cleveland State University are distributed to all students, faculty, and staff.

Parking

Parking is available to day and evening students who obtain a parking hangtag. The hangtag entitles students to park in designated lots or garages. With the daily hangtag, students pay a daily fee each time they park. With the prepaid hangtag, students prepay for parking for the entire semester at a discounted rate. To obtain a parking hangtag and information about parking lots and garages, students must register at the Office of Parking Services, located in the Chester Building Annex, Room 128. The student's license plate number, a photo ID, and a computer print-out of the individual's schedule are required in order to register a vehicle. Students are responsible for observing the regulations governing parking on campus. A parking guide and campus map are issued to each person when registering his or her vehicle.

The Office of Parking Services also provides emergency road service for vehicles that are legally parked on campus. By calling the department at extension 2023 from any campus telephone, students can 1) have a car jumpstarted; 2) temporarily repair a flat tire with an aerosol can; 3) use a department gas can to get gas at the nearest service station, with free transportation provided; 4) get into a locked car, by special arrangement with the University Police, upon proof of ownership.

The Parking Services office maintains hours from 8 a.m. to 5 p.m. Monday through Friday. Office hours are extended the first week of each semester.

Study Abroad Programs

Cleveland State University offers a number of international educational

activities for Cleveland State students through the Center for International Services and Programs (CISP). CISP is located in University Center, Room 302; telephone (216) 687-3910; e-mail: studyabroad@csuohio.edu.

Study abroad activities include the following:

Faculty-Led Short-Term Programs

Every summer, CISP facilitates study abroad opportunities offered by several Cleveland State academic departments in different areas of the world. Programs include study in India (Social Work); Guatemala (Health Science); France, Spain, and Mexico (Modern Languages); China (Political Science); England (Marketing); and Germany (Computer and Information Sciences). Interested students should contact the relevant department or CISP's study abroad coordinator for more information.

International Internships

CISP offers paid internships in Germany for Social Work, Business, and Engineering majors. German-language competency is preferred. Unpaid internship opportunities are available around the world. Additional information is available from CISP.

Independent Programs

CISP provides a resource area featuring current study abroad program materials in University Center, Room 302. Students should make an appointment with the CISP Cleveland State study abroad coordinator to discuss plans and learn about requirements for the transfer of credit, financial aid, and registration.

Scholarships

Students can apply through CISP for study abroad scholarships. Awards range from \$200 to \$1,000. The Office of Minority Affairs and Community Relations also offers study abroad scholarships of up to \$500 for minority students.

Fellowships

Annual competitions are held for Fulbright Grants and NSEP Fellowships. These fellowships facilitate research and study abroad in a variety of fields and countries. Planning should begin at least six months before the campus application deadline. Information on this and other scholarship competitions is available on the CISP Web site at www.csuohio.edu/internet. Students should contact the Cleveland State study abroad coordinator for campus deadlines and advising.

Community service is a cornerstone of Cleveland State University athletics. Viking student athletes, led by the University's Student-Athlete Advisory Council, participate in a variety of volunteer activities, ranging from tutoring to adopt-a-school programs.

University Center

University Center, which is located on Euclid Avenue between East 21st and East 22nd streets, is the center of student activities and services at Cleveland State University. Campus411, the Financial Aid Office, Office of the University Registrar, Treasury Services, and Disability Services also are located in University Center. Student Government, student publications, and student organizations are housed in the Center, as well. The Center also features lounges, a game room, an ATM, a full-service food court, a convenience store, and a restaurant.

Dining on Campus

Dining options in the University Center include a full-service Food Court on the second floor, with grab-and-go sandwiches and salads, sushi, pizza, and hot entrees. The Market at UC in the University Center Atrium provides convenience-store needs, while Tortilla Fresca, on the lower level, serves lunch and dinner, as well as beer and wine coolers. Dining in the University Center is available beginning at 7:30 a.m. Other food service venues are located in Ahuja Hall, the Law School lounge, Rhodes Tower lobby, and Stilwell Hall.

Bookstore

The Bookstore is located at 2400 Euclid Avenue, across from Fenn Tower. It stocks new and used textbooks, books related to various disciplines, reference books in professional fields, bargain books, school and office supplies, Cleveland State sportswear and souvenirs, special occasion cards, gifts, and gift wrapping. The store is open Monday through Thursday from 9 a.m. to 6 p.m., Friday from 9 a.m. to 5 p.m., and Saturday from 10 a.m. to 2 p.m.

Athletics

Cleveland State University Viking sports teams compete in the National Collegiate Athletic Association (NCAA)

Division I. The University sponsors programs for seventeen intercollegiate sports — nine for women and eight for men. The Vikings are members of both the Horizon League and Eastern Wrestling League, which gives Cleveland State student athletes the chance to regularly compete against some of the best athletes in the country. Student athletes represent the university community at local, regional, national, and international competitions, including the NCAA Championships and the Olympics. More than forty Viking student athletes have been selected as All-Americans in their respective sports.

Viking student athletes learn some of life's most valuable lessons — sacrifice, preparation, teamwork, competition, and resiliency — while representing Cleveland State in the classroom and the community. In the classroom, the cumulative grade point average for Cleveland State's more than 250 student athletes is consistently near 3.0. University teams regularly rank among the nation's academic best, with many having been named Academic All-Americans. Cleveland State's Athletic Academic Advising Office coordinates an extensive support system, including study halls and tutoring.

Recreation Center

The much anticipated 110,000-square-foot Cleveland State Recreation Center, located at 2420 Chester Avenue, will open fall semester, 2006. The building houses a main gym, a multipurpose gym, a fully-equipped weight training area, a fitness area outfitted with a variety of cardio equipment, multipurpose rooms, racquetball and squash courts, and a three-lane indoor running track. A juice bar and an underground fifty-space garage for metered, short-term parking are also part of the facility's amenities.

The new Recreation Center is connected to the current Physical Education Building, providing convenient access to the swimming pool in Busbey Natatorium. All Cleveland State students who have paid the activity fee to support the Recreation Center will have membership without any additional charge. All other students will be charged for membership.

Cleveland State faculty and staff will be able to purchase a Recreation Center membership, and membership programs for alumni and the community will be developed in the first year of operation.

The Center will be home to all University intramural programs such as flag football, basketball, volleyball, dodge ball, kickball, soccer, tennis, badminton, and table tennis. Sports clubs will also be able to use the facility for their events.

Operational management will be provided by a company under contract to the University.

Child Care Center

In support of faculty, staff, and students who balance the demands of education and family life, the University is committed to providing a high-quality, affordable, on-site child care center. Full- and part-time child care services will be available to Cleveland State students, faculty, and staff who are parents or legal guardians of children ages six weeks to twelve years. The program will offer care, supervision, and early education of children, and will ensure the optimal physical, social, emotional, and intellectual development of each child, based on the standards set forth by the National Association for the Education of Young Children accreditation system.

The Child Care Center will be housed in the University's new Recreation Center at 2420 Chester Ave. Operational Management will be provided by an organization under contract to the University.

Enrollment preference will be given to enrolled, Cleveland State students, and the Center will accept vouchers as payment.

Alumni Association

The Department of Alumni Affairs and the Cleveland State University Alumni Association provide services to Cleveland State University alumni. Approximately 85 percent of the 90,000 Cleveland State graduates live in the Northern Ohio area. Located in Mather Mansion, the Department of Alumni Affairs assists the Alumni Association Board of Directors and its constituent organizations in the development and implementation of professional and continuing education programs, career networking opportunities, endowment of student scholarships, and recognition of outstanding alumni, as well as a varied blend of social, athletic, and student-related activities. For more information, call the Department of Alumni Affairs at (216) 687-2078, e-mail alumassoc@csuohio.edu, or visit www.csuohio.edu/alumni.

The College of Graduate Studies

Admission to the College of Graduate Studies

Enrollment Regulations

Academic Regulations

Expenses and Financial Aid

The College of Graduate Studies

History and Mission

Cleveland State University has been authorized by the Ohio Board of Regents to offer graduate programs since the fall of 1967. In October of 1968, the Cleveland State University Board of Trustees created the College of Graduate Studies to facilitate the operation of graduate degree programs and to assist in the development of new programs.

As a metropolitan institution, Cleveland State University has special obligations and opportunities. First and foremost, however, Cleveland State is a university. Its basic mission—central to all universities—is to preserve existing knowledge, seek new knowledge, and profess both. This is accomplished through the triad of teaching, research, and service. The University's urban location imposes an obligation to reach out to all citizens in the community with the offer of educational opportunities and services.

Within this context, the mission of the College of Graduate Studies is to provide service and support to graduate students, faculty, and academic programs that promote high quality and diverse advanced study opportunities for the betterment of Cleveland State University, the citizens of the State of Ohio, and the world.

The Dean of the College of Graduate Studies, in collaboration with the elected faculty members of the University Graduate Council, reviews all graduate programs, provides leadership in the development of new graduate offerings, maintains a centralized graduate admissions system, and monitors standards for graduate student admission and graduation.

Graduate Faculty

Most graduate courses are taught by faculty who are members of the University Graduate Faculty. These faculty hold terminal degrees in their fields (usually the doctoral degree) and meet the College of Graduate Studies' standards of sustained scholarship or creative activity or, alternatively, are recognized for their accomplishments as practitioners in their disciplines. An

up-to-date roster of the University Graduate Faculty may be found at <http://graduatestudies.csuohio.edu/Graduate/rosters/faculty.html>.

Cleveland State University, Kent State University, the University of Akron, and Youngstown State University observe a reciprocal Graduate Faculty agreement where by members of the Graduate Faculty at each of the other three institutions may, with appropriate approvals, teach graduate courses and serve on thesis and dissertation committees for Cleveland State University graduate students.

Graduate Degree Programs

The University offers doctoral degrees in biology, business administration, chemistry, engineering, urban education, and urban studies.

Master's degrees are offered in forty academic areas and provide a comprehensive representation of the arts, sciences, and professions.

The College of Graduate Studies also offers a joint JD/MBA program in conjunction with the Cleveland Marshall College of Law and the Nance College of Business Administration; a joint JD/MS Program in Environmental Science; and joint JD/MPA, JD/MAES, and JD/MUPDD programs in conjunction with the Cleveland Marshall College of Law and the Maxine Goodman Levin College of Urban Affairs for students interested in earning graduate degrees in business administration, public administration, or urban planning and design while concurrently earning a degree in law. In addition, the College of Graduate Studies offers a joint MSN/MBA program in conjunction with the College of Business Administration and the School of Nursing.

Graduate Certificate and Licensure Programs

The University offers a variety of graduate certificate programs that range from nine to eighteen credit hours. Students may either complete a graduate certificate program while working simultaneously on a graduate degree or pursue a certificate only.

In addition, the University offers a variety of programs to accommodate individuals who wish to pursue State of Ohio teaching licensure. Teacher licensure programs are available to graduate degree-seeking students and to those solely interested in qualifying for state licensure.

Academic and Scientific Integrity

The University relies on the academic and scientific integrity of its faculty and students as it carries out its mission to preserve, advance, and disseminate knowledge. Academic and scientific integrity fosters credibility within the institution, the Greater Cleveland community, and higher education as a whole.

Cleveland State University is committed to maintaining academic and scientific integrity. It is the duty and responsibility of both faculty and students to conduct themselves, their educational pursuits, and their research in a manner consistent with the highest standards of honesty and professionalism. This commitment includes honesty in such tasks as taking examinations, writing papers, theses, and dissertations; recording research data; submitting proposals for external funding; and publishing the results of research. The ethical conduct of all members of the Cleveland State University community ensures the honor of the University and the trust of those within this academic community. The Graduate Dean is responsible for administering the University's Policy for Responding to Allegations of Academic Research Misconduct that was approved by Cleveland State University's Board of Trustees on February 12, 1997, as well as the University's Policy for Managing Conflicts of Interest, which was revised and approved by the Cleveland State University Board of Trustees on May 27, 2003.

Research Involving Human Subjects

Students planning to conduct research involving human subjects must submit a proposal to the Institutional Review Board (IRB), prior to project

commencement, through the IRB Coordinator at the Office of Sponsored Programs and Research (OSPR). The proposal must include, at a minimum, an application for project approval, a project description, and an informed consent statement. Proposal submission instructions, a proposal requirement checklist, and an application for project approval can be obtained from the OSPR in the Keith Building, Room 1150, or online at <http://www.csuohio.edu/uored/POLICIES/irbforms/members.html>. Proposals should be submitted as early as possible in order to allow sufficient time for review and to avoid a schedule delay, should revisions be requested by the IRB. Cleveland State University will not accept any research projects that have failed to receive approval from the IRB in fulfillment of degree, Certificate, or Licensure requirements.

Cleveland State's human subjects policy requires that all research involving human subjects be submitted in proposal format to the IRB for review in accordance with federal regulations (45 CFR 46.101(c)(d)), which authorize the IRB to exercise jurisdiction over all human subjects research. The IRB will determine whether proposed research is exempt from further review, requires full Board review, or is appropriate for expedited review, under the applicable regulations and institutional policies. Research investigators are not authorized, at any time, to independently determine that proposed research is exempt from IRB consideration and oversight. The IRB reserves the right to render a final determination, and research investigators are responsible for complying with all IRB decisions, conditions, and requirements.

Applicable federal regulations governing the IRB review and approval process are available online, including:

- Title 45, Code of Federal Regulations, Part 46—www.nih.gov/grants/oprr/humansubjects/45cfr46.htm
- The Belmont Report, Ethical Principles and Guidelines for the Protection of Human Subjects of Research—www.nih.gov/grants/oprr/humansubjects/guidance/belmont.htm

Questions concerning the IRB review and approval process should be

directed to the OSPR/IRB staff at (216) 687-3630.

College of Graduate Studies

The College of Graduate Studies is located on the 11th floor of the Keith Building, which is on the corner of East 17th Street and Euclid Avenue; telephone (216) 687-9370. The College of Graduate Studies will be relocating to the newly remodeled Parker Hannifin Hall in the Spring of 2007. The address is 2258 Euclid Ave. At this location, graduate students can obtain assistance with petitions, graduate assistantship contracts, transfer credit requests, transient applications, and thesis/dissertation format instructions and approvals.

Office of Graduate Admissions

The Office of Graduate Admissions maintains a central admissions file system for graduate applicants for all graduate degree, certificate, licensure, and non-degree applicants. As admission materials are received by the office, photocopies of the documents (application forms, transcripts, letters of recommendation, tests scores, and related materials) are forwarded to the appropriate Graduate Program Director, who creates a departmental file for the applicant. Once the department file is decision-ready, the Program Director submits an admission recommendation to the Office of Graduate Admissions. The Graduate Admissions Director transmits the admission action and supporting materials to the applicant. Applicants are encouraged to contact the Office of Graduate Admissions and their Graduate Program Director regarding the status of their application for graduate admission.

The Office of Graduate Admissions is located in Rhodes Tower West, Room 204; telephone (216) 687-5599. At this location, graduate students may obtain a Graduate Catalog, information about admission examinations, and assistance with admissions.

International Admissions

Any individual who is on a non-immigrant visa (student visa), or who will be applying for a non-immigrant visa and is interested in enrolling in a graduate degree, certificate, or licensure program must apply for admission through the Center for International Services and Programs (CISP). The Center is located in University Center, Room 302; telephone (216) 687-3910 or fax (216) 687-3965. CISP also provides visa application information. Students who are permanent residents must apply through the Office of Graduate Admissions.

Admission to the College of Graduate Studies

Degree Admission

Individuals with a baccalaureate degree from a college or university with full academic accreditation and who present satisfactory evidence of the ability to pursue graduate study can be considered for admission. A baccalaureate degree earned outside the United States must be equivalent to a four-year United States degree. International student applicants should consult the admission requirements section for "International Students" in this Catalog for information on application procedures.

Masters degree applicants may be considered for regular degree admission if they meet one or more of the following conditions:

1. The individual has a grade-point average for the bachelor's degree of at least 2.75 (A = 4.0), with a higher average in the major field. Some graduate programs require a higher GPA. Consult individual program admission requirements in this Catalog.
2. The applicant scores at the 50th percentile or above on average across the areas of a standardized admission examination.
3. The person has completed twelve or more graduate credit hours at Cleveland State University as a non-degree graduate student and has a grade-point average of 3.0 or above. Please note that some programs require higher grade-point averages for admission (see program descriptions).

The institution from which the student received the bachelor's degree determines a student's undergraduate grade-point average. For those with post-baccalaureate studies, both undergraduate and graduate grade-point averages are considered in determining eligibility for admission.

Admission requirements for doctoral students is higher. See individual program requirements.

Endorsement of the graduate program is necessary for admission to a graduate degree, certificate, or licensure program. The Office of Graduate Admissions finalizes acceptance of an applicant for admission after a recommendation for

admission by the appropriate graduate committee.

Admission to Multiple Graduate Degree Programs

Individuals may apply for admission to pursue simultaneously two graduate degree programs. Applicants must meet College of Graduate Studies admission requirements, and the admission requirements of each degree program.

Dual program students have six years concurrently to complete the two degree programs. Extension of the six-year limit for either degree via petition requires the approval of the respective graduate program committee(s). With the approval of each program, dual degree students may apply up to a maximum of ten graduate credits taken to meet requirements for one program, to also meet degree requirements for the second program. The ten dual-counted credits do not need to be for the same courses. Dual-counted courses must carry a grade of B or above.

Dual-graduate students who wish to withdraw from one of their degree programs must notify, in writing, both Graduate Program Directors and the College of Graduate Studies.

English Language Proficiency

All non-native English speakers must demonstrate proof of English language proficiency. The options for doing so and test score reporting requirements are detailed under the sub-heading "English Language Proficiency" which appears on page 27 of this Catalog. Individuals who have earned a bachelor's (or higher) degree from a United States institution, in which the primary language of instruction is English, are not required to take an English-language proficiency examination.

Admission Examinations

Many graduate programs require a standardized admission examination (e.g., GRE, GMAT, Miller Analogies Test). Consult individual program descriptions in this Catalog for specific admission examination requirements. In addition, the College of Graduate

Studies requires that official results of a standardized admission examination be submitted to the Graduate Admissions Office if the applicant:

1. Has an undergraduate grade-point average of less than 2.75 or a GPA below the minimum GPA required by the academic program for graduate admission,
2. Has a graduate grade-point average of less than 3.0, if prior graduate work has been taken, or
3. If the individual's undergraduate degree was awarded six or more years prior to the application date.

A graduate program director can recommend to the College of Graduate Studies that the admission examination requirement be waived for an individual who:

1. Earned the baccalaureate degree six or more years prior to application, but who has an undergraduate grade-point average of 3.0 or above, or
2. Has completed twelve or more graduate credits at Cleveland State University as a non-degree, certificate, or licensure student, and has a graduate grade-point average of 3.0 or above.

When an admission examination is required by the College of Graduate Studies, applicants must score on average at the 50th percentile or above across the sections of the examination to qualify for degree, certificate, or licensure admission. Importantly, some graduate programs require higher admission examination scores to qualify for admission. All applicants should consult individual program descriptions in this Catalog for specific admission examination requirements. In addition, international applicants should consult the admission examination requirement table, which appears on page 28 of this Catalog.

Only examination results (which are not more than six years old at the point of application) received directly from the appropriate testing service are considered official and valid. Admission examination information is available from the Office of Graduate Admissions, Rhodes Tower West, Room 204, and the University Testing Center, University Center, Room 253B.

(See Addenda revised 11/2007)

Admission Procedures for Graduate Degree Applicants

To complete admission procedures, graduate degree applicants must submit the following:

1. **Application:** A completed application must be submitted not less than six weeks prior to the term of desired entrance. Consult the admission requirements in individual program descriptions in this Catalog for further information.

To facilitate the admission process, it is strongly recommended that applicants use the online application system. An application form may be downloaded from

www.csuohio.edu/gradcollege. The processing time for paper application forms is longer than that for online applications. For a listing of programs with earlier application deadlines, consult the chart on page 26.

2. **Official Transcripts:** At the time of application, applicants should request that every college or university previously attended send one official transcript to the Office of Graduate Admissions (the Graduate Admissions Office will obtain official Cleveland State University transcripts). For graduate applicants who earned their undergraduate degree from Cleveland State University, and those who received undergraduate transfer credit for work taken at another institution, the Graduate Admissions Office will secure the applicant's undergraduate transcripts from the Cleveland State University Registrar, if the transfer credit was awarded since 2002. The Registrar cannot guarantee the availability of undergraduate transfer credit transcripts from prior to 2002. Graduate applicants who were granted Cleveland State University undergraduate transfer credit prior to 2002 need to request that all Colleges and Universities attended previously send official transcripts to the Office of Graduate Admissions. For applicants who have not yet been awarded their baccalaureate (or higher) degree, a second official transcript with the degree posted also must be submitted to the Graduate Admissions Office before an admitted student will be permitted to register for classes. Transcripts must be received in the Graduate Admissions Office directly from the originating institutions.

3. **Letters of Recommendation:** Not required by all programs. Applicants should consult program descriptions. When required, provide recommendation forms (download from www.csuohio.edu/gradcollege/forms.htm) to individuals serving as references. Usually, at least one of the recommendations should come from a college professor familiar with the applicant's academic work.

Applicants to the Doctor of Business Administration (DBA) program and the Master of Social Work (MSW) program, and those pursuing initial licensure in Curriculum and Instruction—Urban Secondary Teaching must submit three letters of recommendation.

Most other programs require two letters of recommendation.

The following master's degree programs do not require letters of recommendation:

- Accountancy (MAcc)
 - Business Administration (MBA)
 - Computer and Information Science (MCIS)
 - Education (MEd) (except Counseling programs)
 - Labor Relations and Human Resources (MLRHR)
 - Mathematics (MA and MS)
 - Mechanical Engineering (MS)
4. **Official Test Scores:** Submit results of the appropriate admission examination, as required by the College of Graduate Studies and/or the graduate degree program. Examination results over six years old at the time of application are not considered valid and will not be accepted. Only official test scores received directly from the testing service will be accepted.

5. **Applicants whose native language is other than English,** who have received their undergraduate degree from an institution where English is not the language of instruction, are required to take a standard English language proficiency examination. Proficiency examination options are detailed in this Catalog.
6. **Application Fee:** Submit payment for the required, non-refundable \$30 Graduate Application Fee. The Master of Occupational Therapy, Master of Physical Therapy and Nursing programs have a \$55 application fee. Admission decisions will not be rendered until the fee is paid.

No application fee is required of applicants who have paid an application fee earlier for admission as a graduate degree, certificate, licensure, or non-degree student.

Submission of Materials

Graduate degree-seeking applicants who are U.S. citizens and permanent residents should submit all application materials and a check or money order drawn on a U.S. bank for the graduate admission application fee, directly to:

Office of Graduate Admissions
Rhodes Tower West, Room 204
Cleveland State University
2121 Euclid Avenue RTW 204
Cleveland, Ohio 44115-2214

Telephone: (216) 687-5599
Toll Free: 1-888-CSU-OHIO (ask for the Graduate Admissions Office)
Fax: (216) 687-5400
E-mail: graduate.admission@csuohio.edu

International degree, certificate, or licensure applicants should consult the "International Students" section of this Catalog for instructions on submitting application materials.

The Graduate Admissions Office maintains a central admissions system for all domestic (U.S. citizens and Permanent Residents of the U.S.) graduate applicants. As admission materials are received in the Graduate Admissions Office, copies of the documents (application form, official transcripts, letters of recommendation, official score reports, and related materials) are forwarded to the appropriate graduate program director, who forms a departmental file for the applicant. Once the departmental file is decision-ready, the graduate program director submits an admission recommendation to the Graduate Admissions Office. The Director of Graduate Admissions transmits the admission decision and supporting materials to the applicant.

Applicants are encouraged to contact the Graduate Admissions Office [E-mail: graduate.admissions@csuohio.edu; telephone (216) 687-5599] and their Graduate Program Director to check on the status of their applications. Contact information for graduate program directors may be found at the beginning of each program description in this Catalog.

Graduate Admission Application Deadlines See Addenda Dec 2007

In general, the Application for Graduate Admission to degree, certificate, and licensure programs, and all supporting materials (e.g., official transcripts, test scores, letters of recommendation) should be on file in the Office of Graduate Admissions at least six weeks prior to the start of the academic term of desired admission.

Intended Enrollment	2006-2007 Academic Year		2007-2008 Academic Year	
	Application Deadline	Classes Start	Application Deadline	Classes Start
Fall	July 17, 2006	August 26, 2006	July 16, 2007	August 25, 2007
Spring	December 4, 2006	January 13, 2007	December 3, 2007	January 12, 2008
Summer	April 9, 2007	May 19, 2007	April 7, 2008	May 17, 2008

For non-degree graduate admission, the application deadline is 10 business days prior to the start of the term. Non-degree applicants are encouraged to apply well in advance of the deadline to avoid possible delays.

Programs with Earlier Application Deadlines

Program	Deadline (Completed files)	Comments
Accelerated MBA	June 1 & November 1	Fall and spring admission respectively
Chemistry (Ph.D., MS)	January 15	
Computer and Information Science (MCIS)	March 15 & May	International applicants summer and fall respectively
Doctor of Business Administration (DBA)	February 1	Fall admission only
Education Counseling Specialization	August 31st	Spring admission only
Executive MBA	June 15	Fall admission only
Nursing	March 1	Consult Nursing section of Catalog
Occupational Therapy (MOT)	May 15	Fall admission only
Physical Therapy (MPT)	November 1	Spring admission only
Physics	April 1	
Psychology:		
Clinical/Counseling Psychology	February 15	Fall admission only
Consumer/Industrial Research	February 10	Fall admission only
Diversity Management	May 31	Fall admission only
Experimental Research	March 1	Fall admission only
Psychology Specialist (PsyS)	February 10	Fall admission only
Public Health (MPH)	January 15	Fall admission only
Social Work (MSW)	February 28	Fall admission only
Speech Language Pathology	March 1	Fall admission only
Urban Education (Ph.D.)	First Monday in February	Fall admission only
Urban Studies and Public Affairs (Ph.D.)	January 15	Fall admission only

Graduate Certificate and Licensure Admission

1. An individual with a baccalaureate degree and a grade-point average of 2.75 or higher from a college or university with full academic accreditation can be considered for graduate certificate or licensure admission. A baccalaureate degree earned outside the U.S. must be equivalent to a four-year U.S. degree. International student applicants should consult the Admission Requirements section for "International Students" in this Catalog for information on application procedures. Official transcripts from all colleges and universities previously attended must be submitted by the originating institutions to

the Cleveland State Office of Graduate Admissions. The Graduate Admissions Office will obtain copies of official Cleveland State University transcripts. In addition, for graduate applicants who earned their undergraduate degree from Cleveland State University and received undergraduate transfer credit for work taken at another institution, the Graduate Admissions Office will secure the applicant's undergraduate transcripts from the Cleveland State University Registrar, if the transfer credit was awarded since 2002. The Registrar cannot guarantee the availability of undergraduate transfer credit transcripts from before 2002. Graduate applicants who were granted Cleveland State

University undergraduate transfer credit pre-2002 need to request that all Colleges and Universities attended previously send official transcripts to the Office of Graduate Admissions. For applicants who have not yet been awarded a baccalaureate (or higher) degree, a second official transcript with the degree posted also must be submitted to the Graduate Admissions Office before an admitted student will be permitted to register for classes. Transcripts must be received in the Graduate Admissions Office directly from the originating institutions.

2. Applicants must submit the results of a standardized graduate admission examination (e.g., GRE, MAT, GMAT, LSAT) and score at the 50th

percentile or above. Only official test scores received directly from the testing service, and which are not more than six years old at the time of application, are considered official and valid. The applicant may be exempt from the admission examination requirement by the program if:

- a. The baccalaureate degree is less than six years old at the time of application AND the undergraduate cumulative grade-point average was at least 2.75; OR
 - b. The baccalaureate degree is more than six years old at the time of application AND the undergraduate cumulative grade-point average is at least 3.0; OR
 - c. The student has completed twelve or more semester hours of Cleveland State University graduate course work AND received a grade of B or better in each course; OR
 - d. The student has successfully completed a master's or doctoral degree from an accredited U.S. institution; OR
 - e. For Graduate Certificate applicants only: The student provides written documentation of requisite professional experience and professional competency in the area.
3. A graduate admission application fee of \$30 is required unless the applicant previously has paid the fee as a graduate applicant. The fee is not refundable.

Acceptance of a graduate certificate or graduate licensure applicant for admission is finalized by the Office of Graduate Admissions after a recommendation for admission by the appropriate departmental or college graduate committee is received in the Graduate Admissions Office.

4. Upon admission, graduate certificate and licensure students must meet with an advisor to prepare a program of study.

Submission of Materials

All application materials for graduate certificate and graduate licensure programs for U.S. citizens and Permanent Residents of the U.S. must be submitted directly to:

Office of Graduate Admissions
Rhodes Tower West, Room 204
Cleveland State University
2121 Euclid Avenue
Cleveland, Ohio 44115-2214

Telephone: (216) 687-5599
Toll Free: 1-888-CSU-OHIO (ask for the Graduate Admissions Office)
Fax: (216) 687-5400

Application materials for international students should be submitted to the Center for International Services and Programs (see "International Students" section of this Catalog).

The Graduate Admissions Office maintains a central admissions system for Cleveland State University graduate domestic (U.S. citizens and Permanent Residents of the U.S.) certificate and graduate licensure applicants. As admission materials are received in the Graduate Admissions Office, copies of the documents [application form, official transcripts, letters of recommendation and official score reports (as required), and related materials] are forwarded to the appropriate graduate program director, who forms a departmental file for the applicant. Once the departmental file is decision-ready, the graduate program director submits an admission recommendation to the Graduate Admissions Office. The Graduate Admissions Director transmits the admission action and supporting materials to the applicant.

Applicants are encouraged to contact the Graduate Admissions Office regarding the status of their application.

International Students

An international student is an individual who holds a visa while enrolled at Cleveland State University. These students must submit applications for graduate study to the Center for International Services and Programs, University Center, Room 302.

A permanent resident is a person who has been granted permanent resident status in the U.S. or refugee status. **Permanent residents should apply through the Graduate Admissions Office, Rhodes Tower West, Room 204.**

Admission Requirements for International Students and Permanent Residents

Academic: Baccalaureate degrees earned outside the U.S. must be equivalent to baccalaureate degrees earned in the U.S.

Examinations: In general, a standardized admissions examination (e.g., GRE, GMAT, Miller Analogies Test) is required for any applicant who does not hold a bachelor's degree (or

higher) from a U.S. institution. See the Admission Examination Requirements chart on page 28 in this Catalog for individual program requirements.

English Language Proficiency: The University requires all non-native English speakers to demonstrate proof of English-language proficiency. Any individual who has earned a bachelor's (or higher) degree from a U.S. institution, in which the primary language of instruction is English, is not required to take an English language proficiency examination. The options and minimum score requirements are as follows:

1. TOEFL (Test of English as a Foreign Language) score of at least 17 in Reading, Speaking, and Listening and a minimum score of 14 in writing on the internet-based TOEFL (iBT), or 525 on the paper-based test (197 for the computer-based TOEFL). Please note that the Educational Testing Service (ETS) will not provide test takers or third parties (including Cleveland State University) with TOEFL reports for test scores that are over two years old. If required, the TOEFL must be taken again if the applicant's most recent scores are over two years old, OR
2. Pass the IELTS test (International English Language Testing System) with a minimum score of 6.0; OR
3. Pass the MELAB (Michigan English Language Assessment Battery) with a minimum score of 77; OR
4. Achieve a score of C (Pass) or better on the A and O levels of the General Certificate of Education (GCE or GCSE) Test; OR
5. Achieve a score of C (Pass) or better on the Cambridge Certificate of Advanced English (CAE); OR
6. Complete English language studies (Level 112) from any of the ELS Language Centers; OR
7. Complete course work at a C or better level for the equivalent of the CSU freshman English requirements at a U.S. regionally accredited college or university, OR
8. Receive a Program Certificate of Completion from Cleveland State University's Intensive English Language Program, indicating successful completion of the Advanced level with a grade of B or better and a COMPASS ESL score of 80 or higher.

Admission Examination Requirements for International Students (See Addenda Effective Fall 2006)

Graduate Degree Program	Examination	Score Requirement
Accountancy	GMAT	See program description
Biology (MS and Ph.D.) No minimum required*	GRE	General plus Subject (Biology or Biochemistry);
Business Administration (MBA and DBA)	GMAT	See program description
Chemistry (MS and Ph.D.)	GRE	No minimum required*
Communication	GRE or MAT	50th percentile General, GRE; 50th percentile MAT
Computer and Information Science	GRE or GMAT	See program description
Economics	GRE	No minimum required*
Education:		
MEd	GRE or MAT	50th percentile General, GRE; 50th percentile MAT
Ph.D.	GRE	See program description
Engineering:		
Doctoral Program (DEng)	GRE	80th percentile Quantitative
Chemical Engineering (MS)	GRE	80th percentile Quantitative
Civil Engineering (MS)	GRE	80th percentile Quantitative
Electrical Engineering (MS)	GRE	80th percentile Quantitative
Engineering Mechanics (MS)	GRE	80th percentile Quantitative
Environmental Engineering (MS)	GRE	80th percentile Quantitative
Industrial Engineering (MS)	GRE	See program description
Mechanical Engineering (MS)	GRE	80th percentile Quantitative
English	No examination requirement; writing sample required	
Environmental Sciences (MS)	GRE	50th percentile General
Environmental Studies (MA)	GRE	50th percentile General
Health Sciences	GRE	50th percentile General
History recommended	GRE	50th percentile General required, and Subject
Labor Relations and Human Resources	GRE or GMAT	See program description
Music	GRE	50th percentile Verbal only
Nursing	GRE or MAT	See program description
Occupational Therapy	GRE	50th percentile General
Philosophy	GRE	General recommended but not required
Physical Therapy	GRE	See program description
Physics	GRE	50th percentile General and Subject
Psychology:		
Clinical Counseling	GRE	No minimum required*
Consumer Industrial	GRE	No minimum required*
Diversity Management	GRE	General and Subject if undergraduate GPA below 2.75
Experimental Research	GRE	Verbal and Quantitative must total 1,000 or more points
School Psychology Specialist (Psy S)	See program description	
Public Administration	GRE	50th percentile General
Public Health	GRE	See program description
Social Work	No examination requirement	
Sociology	No examination requirement	
Spanish	GRE	See program description
Speech Pathology	GRE or MAT	50th percentile General
Urban Planning, Design, and Development	GRE	50th percentile General
Urban Studies:		
MS	GRE or MAT	No minimum required*
Ph.D.	GRE	Combined score of 1050 on Quantitative and Verbal

*The program requires the admission examination noted, however, no specific minimum score is required to be considered for admission.

Exam key:

GMAT – Graduate Management Admissions Test GRE – Graduate Record Examination MAT – Miller Analogies Test

Submission of Materials

International applicants must submit:

1. Application form,
2. All official original-language transcripts,
3. Official translation of non-English-language transcripts,
4. Proof of all degrees earned (diplomas),
5. TOEFL or alternative English Language Proficiency test score report,
6. Appropriate standardized admission examination,
7. Financial verification documentation, and
8. Application fee (non-refundable).

Submit all documents to:

Center for International Services and Programs (CISP)
Cleveland State University,
University Center 302
2121 Euclid Avenue
Cleveland, Ohio 44115-2407 USA
Phone: (216) 687-3910
FAX: (216) 687-3965
E-mail: appstatus@csuohio.edu
www.csuohio.edu/internat/admiss.html

The Center for International Services and Programs (CISP) assembles admission files for all international graduate degree applicants. Once an admission file is complete and decision-ready, the file is reviewed by CISP staff to determine degree equivalency and a grade-point average conversion is calculated. The original file is sent to the Graduate Admissions Office, and a copy of the file is forwarded to the appropriate graduate program director. (CISP also keeps a copy of the file.) After review by the appropriate faculty body, the graduate program director submits an admission or denial recommendation to the Graduate Admissions Office for consideration. The Director of Graduate Admissions reviews the request, and when there is agreement, the admission/denial recommendation letter is sent to the CISP office, which communicates the admission action and supporting material to the applicant.

Application Deadlines for International Students

Fall Semester—May 15
Spring Semester—November 1
Summer Term—March 15

Financial Requirements: All international students must supply to the

Center for International Services and Programs proof of adequate financial resources before I-20 (F-1) or IAP-66 (J-1) documents can be issued to obtain the appropriate visa to enter the United States to study. For further details, contact the Center for International Services and Programs at (216) 687-3910 or go to its website at <http://www.csuohio.edu/internat/adm-finreq.html>.

The only financial aid for which international students may qualify are graduate assistantships and graduate tuition grants. Students should contact their academic departments directly for details.

Health and Medical Requirements:

International students attending Cleveland State University are required to present results of a tuberculosis test before being permitted to register at the University. All international students on an F-1 or J-1 visa must show proof of adequate health insurance before they are allowed to register. For further details, please contact the Center for International Services and Programs at (216) 687-3910 or visit its website at <http://www.csuohio.edu/internat/ss-health.html>.

Degree, Certificate, and Graduate Licensure

Admission Classifications

See *Addenda 12/2007*
The academic status of a graduate degree-seeking, certificate, or licensure applicant is determined after a review of admission credentials. Graduate Program Committees, in concurrence with the Office of Graduate Admissions, may recommend admission of applicants as Regular graduate students, Conditional graduate students, or Provisional graduate students.

Regular Graduate Students

Regular Graduate Students have satisfied all requirements for admission to the College of Graduate Studies and to a departmental program, including submission of all documents (see the sections on Admission and Admission Procedures in this Catalog). A Regular Graduate Student may also be a person who was previously admitted to the University as a Provisional, Conditional, or a Non-Degree graduate student and is in good academic standing (with a GPA of 3.0 or above) at the time of application to Regular degree-seeking, certificate, or licensure status.

Conditional Graduate Students

There are two types of Conditional Graduate Students:

1. International applicants who meet College of Graduate Studies and Program grade point and admission examination (GRE, GMAT, MAT, etc.) requirements, but fall short of meeting College of Graduate Studies English Language proficiency requirements. These requirements, and test scores that are typically expected, are detailed under the Admission Requirements for International Students and Permanent Residents section of this Catalog. For such applicants, the University ESL Coordinator will evaluate the student's English language skills, and when appropriate, prescribe an ESL program of study for a maximum of two semesters. Depending upon the English language skill level of the applicant, a program of ESL and academic course work may be created, in consultation with the involved Graduate Program Director. By the end of the student's second semester of study, all ESL requirements for Regular Admission must be met. Otherwise, such students will not be allowed to continue their graduate studies.
2. Applicants who fail to meet all College of Graduate Studies and program requirements for Regular Admission (GPA, test score performance, etc.), but still show strong promise of being successful in their chosen graduate program. For this group of applicants, a Conditional Admission may be proposed for a maximum of two semesters, during which time the student will be given the opportunity to demonstrate that he or she can complete a graduate program.

The involved Graduate Program Director must propose Conditional Admission, in writing, to the Graduate Dean. The request must present a compelling case for why the applicant should be admitted and an academic game plan for the student to achieve Regular Admission Status. If these students meet the conditions of their Conditional Admission within the two terms, their status will be changed to Regular Student. If they are not successful in meeting these conditions, they will be dismissed from the graduate program.

Provisional Graduate Students See Addenda 12/2007

A Provisional graduate student is one who has failed to submit all necessary application materials, but who meets the University's minimum grade point and/or admission test score requirements. An official transcript showing receipt of a baccalaureate degree must be provided to qualify for Provisional admission. The Student admitted provisionally is not permitted to register for classes until outstanding materials are received in the Graduate Admissions Office. Upon receipt of outstanding admission credentials, the graduate program concerned will consider the student for Regular Graduate Student status.

Upon being accepted for graduate study on a Regular, Conditional, or Provisional basis, the graduate student should confer with the appropriate departmental advisor to plan a program of study. Subsequent changes to the plan of study should be made only with advisor approval.

Transient Student Admission

See Addenda 12/2007

There are two categories of transient students: 1) those enrolled in a graduate program at another college or university who wish to undertake a limited amount of graduate work at Cleveland State University; and 2) those enrolled in a graduate degree program at Cleveland State who wish to do a limited amount of graduate work at another institution. At Cleveland State University, a transient student is subject to the same academic regulations that govern Cleveland State degree, certificate, and licensure students.

1. A student from outside Cleveland State University seeking transient status at Cleveland State must complete the home institution's Graduate Transient Application form and receive approval from the home institution to enroll for specified courses. The approval form and a check for \$15, (non-refundable) payable to Cleveland State University, should be forwarded to the Cleveland State University Graduate Admissions Office. Admission as a transient student is valid for one semester only; a new application (no additional fee) is required prior to registration, if the student wishes this status to be extended for another academic term.
2. A Cleveland State student who wishes to attend another institution is required to consult with his or her

program advisor and/or department chair and complete a Cleveland State University Graduate Student Transient Approval form. Only students who are in good academic standing in their degree programs qualify for transient student status. Forms may be downloaded at www.csuohio.edu/gradcollege and also are available from the College of Graduate Studies, Keith Building, Room 1150, and the Office of Graduate Admissions, Rhodes Tower West, Room 204.

Non-Degree Admission

see Addenda 12/2007

The University provides an opportunity for individuals who hold a baccalaureate (or higher) degree to enroll in graduate courses without admittance to a graduate degree, certificate, or licensure program. Non-Degree status is designed for those who want to take graduate courses for professional growth and/or personal enrichment, or who wish to take a limited amount of course work to explore the possibility of later entering a graduate degree, certificate, or licensure program. (Note: Students with graduate Non-Degree status are not permitted to enroll in Cleveland State University graduate certificate or licensure programs.)

Admission Requirements for Non-Degree Students

1. Receipt of an earned baccalaureate degree from a fully accredited academic college or university. Baccalaureate degrees earned outside of the United States must be equivalent to baccalaureate degrees earned in the United States. International applicants and Permanent Residents of the United States who received their undergraduate (and graduate) degrees outside of the United States must submit official transcripts and diplomas for evaluation to be considered for Non-Degree graduate admission.
2. The University requires all non-native English speakers to demonstrate proof of English-language proficiency. Any individual who has earned a bachelor's (or higher) degree from a U.S. institution, in which the primary language of instruction is English, is not required to take an English-language proficiency examination. English-language proficiency test options and score requirements appear in the

International Students section of this Catalog.

3. Submit a completed application form to the Graduate Admissions Office. Applicants are strongly advised to submit an online application to facilitate processing their requests for Non-Degree admission. Applicants submitting paper application forms must allow additional processing time for their requests.
4. There is a non-refundable \$30 Graduate Application fee for Non-Degree admission. However, if the Non-Degree student later requests admission to a graduate degree, certificate, or licensure program, no additional application fee is required. The student must submit an updated application for the degree, certificate, or licensure program and all required admission materials to the Graduate Admissions Office before an admission decision will be rendered.

Application Deadline

For Non-Degree graduate admission, the application deadline is ten business days prior to the start of the term. However, Non-Degree applicants are encouraged to apply well in advance of the deadline to avoid possible delays.

Submitting Non-Degree Application Materials

Office of Graduate Admissions
Rhodes Tower West 204
Cleveland State University
2121 Euclid Avenue
Cleveland, Ohio 44115-2214
Telephone (216) 687-5599
Fax (216) 687-5400
E-mail: graduate.admissions@csuohio.edu
www.csuohio.edu/gradcollege

Visiting Graduate Students

The University provides an opportunity for individuals who hold a baccalaureate (or higher) degree to enroll in graduate courses without admittance to the University. The Visiting Student status is designed for those who want to take graduate courses for professional growth and/or personal enrichment. Visiting graduate students are not permitted to enroll in Cleveland State University graduate degree, certificate, or licensure programs.

Enrollment Conditions

1. Receipt of an earned baccalaureate degree from a fully accredited academic college or university. An official transcript showing receipt of a baccalaureate (or higher) degree is not required.
2. Submit a completed Visiting Graduate Student Enrollment Request form to the Office of the University Registrar.
3. Students must meet course prerequisites unless waived by the instructor. In some cases, program authorization is also required.
4. Students are permitted to enroll (with permission and space permitting) only in those courses specifically designated as open to Visiting Students. A listing of open courses may be found at <http://www.csuohio.edu/gradcollege/admit/procedures/opencourses.htm>.
5. Visiting Students are graded on a letter grade basis unless otherwise dictated by individual programs. Exceptions are made only if the student requests Audit or S/U status at the time of registration or within the first week of classes. Students must perform at the B or better level to receive an S grade.
6. Visiting Students may not earn a graduate degree, certificate, or license awarded by the University. A Visiting graduate student who wishes to be considered for admission to a graduate degree, certificate, or licensure program must complete a Graduate Admission Application form and submit all credentials required for admission to the graduate degree, certificate, or licensure program. To be considered for degree, certificate, or licensure admission, the Visiting Student must have a Cleveland State University graduate grade-point average of at least 3.0.
7. Visiting graduate students are not eligible for Graduate Assistantships or Graduate Tuition Grant awards.

A Visiting Graduate Student who at a later time is admitted as a degree-seeking student may be permitted, with program approval, to apply a maximum of four graduate credits of Visiting student course work toward fulfillment of degree requirements. A student may not petition for an extension of the four credit limit.

Enrollment Regulations

Each term, students select courses, receive required advising and complete registration forms, and pay the appropriate fees to be officially enrolled in classes. Graduate degree, licensure, and certificate students must receive advisor approval to register for classes. Graduate non-degree and visiting students are restricted by some programs to enroll in only selected courses. Non-degree graduate enrollment conditions appear at the end of this section. Students may not attend class unless they have an official registration in CampusNet.

Students may elect to enroll online, or in person at Campus411, or at specific department offices, in some instances. Details regarding these options are available on the University Registrar's Web site at www.csuohio.edu/registrar.

Enrollment Deadlines

Students are responsible for adhering to specific enrollment deadlines and procedures each term. This information is located on the University Registrar's Web site. Enrollment/withdrawal deadlines vary for summer sessions and for special alternate sessions during any term.

Changes to Enrollment

A student may enroll in a course by the end of the first week of classes in fall and spring terms or before the posted deadline for summer sessions without permission. After the first week and up to the end of the second week of the term for fall and spring, or until the last day to enroll/add with permission for summer term, enrollment may only occur with the permission of the instructor via the Late Registration/Late Add form. After the 15th day of the fall and spring terms or the last day to add with instructor permission, a student may enroll only with the approval of the instructor and the graduate program director of the program. Non-degree students should consult the Late Enrollment Form for special regulations. Late Registration/Late Add forms may be downloaded from the College of Graduate Studies Web site at www.csuohio.edu/gradcollege/forms.htm. Forms are also available at Campus411.

Official University Withdrawal Regulations

A student may withdraw from a course without permission up to the 10th week of the fall and spring terms or before the published deadline for summer sessions. Students may withdraw from classes online, or in person at Campus411, or in specific department offices, in some instances.

A withdrawal prior to the 15th day of fall and spring semester or before the published summer session deadline will not result in a grade on the student's transcript. A withdrawal after the 15th day up through the withdrawal deadline will be indicated on the University official academic record by a W.

Non-attendance does not constitute an official withdrawal from a course.

Students are strongly encouraged to consult their Graduate Program Advisors and Campus411 prior to dropping/withdrawing from classes in the current term or retroactively via petition.

Administrative Withdrawal

The University has the authority to withdraw students from classes. Such withdrawals can occur upon the request of instructors or academic departments for various reasons, including lack of prerequisite course work or inappropriate placement results. Additionally, the University may cancel a student's enrollment for lack of payment or payment arrangements.

Attendance Requirements

Students are expected to attend class. If a student expects to be absent for an extended period of time, notification should be given to the course instructor. Non-attendance does not constitute a withdrawal.

Enrollment Conditions for Non-Degree Students

See Addenda 12/2007

The following conditions must be met by non-degree graduate students:

1. Students must meet course prerequisites unless waived by the instructor. In some cases, program authorization is also required.

2. Students are permitted to enroll in classes on a space-available basis. Priority is given to graduate degree, certificate, and licensure students when enrollment is limited.
3. Non-degree students are graded on a letter-grade basis. Exceptions are made only if the student requests Audit (N/C) or Satisfactory/Fail (S/F) status at the time of registration or within the first week of classes. Students must perform at the B or better level to receive a Satisfactory grade.
4. Non-degree students may not earn a graduate degree, certificate, or license awarded by the University.
5. Non-degree graduate students are not eligible for Graduate Assistantship or Graduate Tuition Grant awards.

A non-degree graduate student who wishes to enroll in a graduate degree, certificate, or licensure program must submit an updated graduate admission application form, submit all credentials required for admission to a graduate degree, certificate, or licensure program, and meet all requirements thereof. A student who has an undergraduate grade-point average of less than 2.75, but who has completed twelve or more graduate credit hours with a 3.0 or better grade-point average as a non-degree graduate student at Cleveland State University, may be exempted from taking a graduate admission examination. Such exemptions require the approval of the graduate program that the student wishes to enter.

Non-degree graduate students with a Cleveland State University graduate grade-point average below 3.0 are not eligible for admission to a graduate degree, certificate, or licensure program. To be considered for degree, certificate, or licensure admission, the graduate GPA must be raised to at least 3.0.

A student who changes from non-degree to degree status may be permitted, with program approval, to apply a maximum of twelve graduate credits of non-degree course work toward fulfillment of master's degree requirements. A student may petition for an extension of the twelve-credit limit. If approved by

the graduate committee, such requests do not require the review and approval of the College of Graduate Studies Petitions Committee. However, if denied at the departmental level, requests for an extension of the twelve-credit limit may be submitted to the College of Graduate Studies Petitions Committee for review and disposition.

Not more than eight credits of graduate work taken on a satisfactory/fail basis may be applied toward graduate degree requirements.

Unless otherwise noted elsewhere in this Catalog, a non-degree student is subject to the same academic regulations that govern degree-seeking students.

Return from Leave of Absence

Students who interrupt their enrollment in the University for three or more consecutive semesters, including summer, are placed on a voluntary Leave of Absence. In order to return to active status, students must submit and have processed a Request to Return from their Leave of Absence form, which can be found at: <http://csuohio.edu/registrar/forms/reenroll.pdf>.

A former student who has attended another institution since leaving Cleveland State University, or who has not attended Cleveland State University for six or more years, must contact the graduate program director and request permission to register for classes. Academically dismissed students must file a petition for re-admission, or obtain admission to a new graduate program (please see the Re-admission section of this Catalog) in order to register.

Academic Regulations

The University reserves the right to amend its rules and regulations within the limits commonly accepted by colleges and universities. Students must keep themselves informed of amendments.

Credit Hour Load

In order to qualify as full-time graduate students, individuals must register for at least eight graduate credit hours. For the summer term, a full-time load is six credit hours per six-to-eight-week session, with a maximum of eight credit hours. All students who wish to take more than sixteen credit hours may do so only by completing an overload request approved by their program advisors and their Graduate Program Directors.

Grades

The grades for graduate courses are as follows:

- A** Superior graduate attainment. Valued at 4.0 quality points.
- A-** Valued at 3.7 quality points.
- B+** Valued at 3.3 quality points.
- B** Acceptable graduate attainment. Valued at 3.0 quality points.
- B-** Attainment below graduate standards. Valued at 2.7 quality points.
- C** Attainment below graduate standards. Valued at 2.0 quality points.
- F** Failure. Valued at zero quality points.
- U** Unsatisfactory performance by a graduate student in selected courses. Grades of U do not influence a graduate student's grade-point average, nor are U grades considered in the University's academic warning and dismissal regulations for graduate students.
- I** Incomplete. A non-credit grade indicating course work has not been completed. An "I" grade must be removed within a maximum of one semester (by the last day of instruction of the next semester) or it converts to a grade of F, whether or not the student enrolls the next

term. An instructor may require course work to be completed earlier. Incomplete deadline dates are noted on the University Registrar's Web page.

An "I" grade may be assigned by the instructor when the following conditions are met:

1. The student has the potential to pass the course.
2. The student has not completed all requirements for reasons deemed justified by the instructor.

It is highly recommended that a contract be developed between the student and the instructor delineating when and how final course requirements will be met.

- T** Temporary non-credit grade. The T grade can be given only in courses for which the offering department and the Dean of the College of Graduate Studies have authorized its use. It is given for specialized training, independent study, or thesis/ dissertation research that is progressing satisfactorily. Work that is given a T grade must be validated by a subsequent grade to count for graduate credit. T grades are not included in the calculation of the grade-point average.
- S** May be used only for courses authorized by the Dean of the College of Graduate Studies. S grades indicate satisfactory completion of a course at the grade level of B or better. Although credit is granted for all courses with an S grade, the S grade is not included in the calculation of the grade-point average.
- N/C** No Credit audit grade for graduate courses. Not included in the calculation of the grade-point average.
- NS** Progress that is Not Satisfactory in a thesis, dissertation, or alternate exit project. This grade may be given only in courses authorized by the Dean of the College of Graduate Studies. NS is a permanent grade designation. No credit is given for this grade, and it is not included in the calculation of grade-point average.

W Authorized Withdrawal. A grade of W is recorded when a student withdraws from a course following the University Registrar's procedures or those outlined in the Withdrawal Policy section below, during the period extending from the beginning of the third week of the semester to the final date for withdrawal.

X A grade assigned by an instructor when a student has not completed all assignments for reasons that cannot be determined. An X also will be assigned by the University Registrar when no grade is submitted by an instructor. If a grade change is not submitted by the end of the following semester, the X becomes an F.

Note: *There is no grade of D for graduate (500 to 899) courses. However, a D is a possible grade for graduate students enrolled in courses numbered 100 through 499.*

Withdrawal Policy

During the academic year, a student may withdraw from a course through the end of the tenth week of the semester. Withdrawal deadlines can be found online at <http://www.csuohio.edu/registrar/dates.html>.

After the final date for withdrawal, a student may officially withdraw from a course only by means of a petition approved by the College of Graduate Studies Petitions Committee (see the Exceptions and Petitions section of this Catalog).

Please note that the University Graduate Council has determined that poor academic performance on a midterm examination or in other course requirements does not constitute sufficient grounds for granting a student a late withdrawal from a course.

Withdrawal from a course without approval, as indicated above, constitutes a failure, and a grade of F will be recorded on the student's record.

Grade-Point Average

The academic standing of a graduate student is expressed as a cumulative grade-point average. This is determined at the end of each semester by dividing the total quality points (the summation of the credit hours multiplied by the point value for each class) by the total credit hours attempted in courses in which the student has received a grade of A, A-, B+, B, B-, C, or F. All grade-point averages are carried to two decimal places (unrounded). After being admitted to a graduate program and registering as a graduate student, grades for all 400- to 800-level courses taken are computed into a student's grade-point average.

Academic Standing

To be considered in Good Academic Standing, a graduate student must maintain a graduate grade-point average of 3.0 or above.

Repeating a Course

Repeating a graduate course does not eliminate an earlier recorded grade on the student's transcript. With the exception of courses designed to have variable content from semester to semester, repeating a graduate course does not affect the number of credit hours earned by a student.

Academic Support Courses

The courses listed below are graded on an S/U basis. Graduate students do not receive credit toward meeting degree requirements. A grade of U does not influence a graduate student's grade-point average, nor are U grades considered in the University's academic warning and dismissal regulations for graduate students.

English as a Second Language

ESL 095
ESL 096
ESL 097

Descriptions of these courses can be found at <http://www.csuohio.edu/undergradcatalog/courses/courindex/esl.htm>.

Mathematics

MTH 087
MTH 088

Descriptions of these courses can be found at http://www.csuohio.edu/math/course_descriptions.htm#prep.

Change of Grade See Addendum

Once the Office of the University Registrar receives a letter grade, a faculty member may change it only because of an error in computation, or due to a recording error. A change-of-grade request for a graduate course requires the approval of the Dean of the College of Graduate Studies.

Audit of Courses

The grade of No Credit (N/C) is given when a student audits a course. A student who audits a course pays regular tuition but does not receive a letter grade or credit for the course. Only a student registered in the course may audit it.

An Authorization to Audit form must be presented when registering. It must include the signature of the student's program advisor. A student may not change his or her grading status in a course from audit to a regular grade basis, or vice versa, after the first week of classes.

Credit by Examination

A graduate degree, certificate, or licensure student may request to receive credit by examination for a course with departmental approval and with the permission of the Dean of the College of Graduate Studies. The grading of such examinations is conducted by a faculty member or committee from the department in which the student takes the examination. Performance must be at the B level or better to receive credit by examination. The student must pay a \$20 fee for each examination. Graduate Credit by Examination forms are available online at <http://www.csuohio.edu/gradcollege/student/pdf/creditbyexam.pdf> in the College of Graduate Studies Office (Keith Building, Room 1150) and the Graduate Admissions Office (Rhodes Tower West, Room 204).

Cross Registration

In June of 1998, Cleveland State University, The University of Akron, Kent State University, and Youngstown State University approved an agreement that allows graduate degree-seeking students to cross register for graduate courses at these Northeast Ohio universities. Cross registration is not permitted for certificate, licensure, or non-degree Cleveland State University graduate students.

In order to cross register for a course, a student must be in good standing, with

a grade-point average higher than 3.0, and be within the time limits for completion of the degree program.

Cleveland State University students must use the Approval for Acceptance of Graduate Course Work at Northeast Ohio Public Universities form that may be downloaded at <http://www.csuohio.edu/gradcollege/admit/pdf/crossreg.pdf> to apply to take graduate-level courses at one of the other universities in the program. The student takes the course at the host university by registering for a Cleveland State University Special Topics course with a title and course number corresponding to the course at the host institution [e.g., a special topics listing might be SOC 685 KSU Multivariate Time-Series Analysis (4-0-4)].

A student must receive approval at Cleveland State University for cross registration from the department chair, the Dean of the College of Graduate Studies, and the student's academic advisor, who determines whether or not the course work is appropriate to the student's degree program. The student must demonstrate that the course at the host institution is necessary for his or her program of study and that the course is not available at Cleveland State at a reasonable stage in the student's degree program. The student also must receive approval at the host institution from the course instructor, department chair, and the Dean of the College of Graduate Studies.

Students may not cross register for thesis, research, and dissertation credits.

Transfer Credit

Transfer credit is subject to departmental regulations and is not permitted without the approval of the Graduate Program Committee concerned. Departments may limit transfer credit to less than the maximum permitted by the College of Graduate Studies.

1. All transfer credit must be earned at an accredited graduate college or university and not have been utilized to fulfill a requirement for any other degree.
2. Transfer credit cannot exceed nine graduate hours for master's degree students, and one-third of the total graduate hours required for certificate, licensure, and doctoral degree students. Requests for an extension of the limit on transfer credit must be approved by the department/program graduate committee. Such requests do not require review and approval

by the College of Graduate Studies Petitions Committee.

3. All credits requested for transfer must carry a letter grade of A, A-, B+, or B in graduate courses. No S/F graded courses may be transferred. Petitions are not considered for an exemption from this requirement.
4. All transfer credit must be within the six-year statute of limitations on course work applicable to fulfillment of graduate degree, certificate, or licensure requirements at the time of program completion. Requests for an extension of the six-year limit on transfer credit must be approved by the departmental/program graduate committee. Transfer credits taken ten or more years previous to the anticipated point of degree completion also must be reviewed and approved by the College of Graduate Studies Petitions Committee.
5. Students seeking transfer credit must have Regular Graduate Student Status and be in good academic standing at both Cleveland State University and the school at which the credits were earned.
6. Students admitted to Cleveland State must receive prior approval to take courses elsewhere as Transient Students for transfer into their programs.
7. Credit awarded in transfer is not recorded on a transcript until the student has completed twelve hours of graduate (500- to 800-level) course work at Cleveland State University and has achieved a graduate grade-point average of 3.0 or better.

Graduate Credit Transfer forms may be downloaded at <http://www.csuohio.edu/gradcollege/student/pdf/graduatecredittransfer.pdf>. They are also available in the College of Graduate Studies and program offices.

Application of Credits Toward Multiple Advanced Degrees

A student who has earned either a master's or juris doctorate degree at Cleveland State University may apply toward a subsequent advanced degree a maximum of ten credits of graduate or law school course work earned toward the first degree under the following conditions:

1. The department granting the second degree has determined the acceptability of the credits;

2. The credits were earned with a grade of B or better; and
3. The credits were earned within the six-year statute of limitations on course work applicable to fulfillment of graduate degree requirements at the time of graduation from the second degree program. Work over ten years old at the anticipated point of degree completion also must be reviewed and approved by the College of Graduate Studies Petitions Committee.

Petitions to extend the time period to complete the second degree at Cleveland State University must receive the approval of the departmental/program graduate committee. If approved by the departmental/program graduate committee, petitions to extend the time period to complete the second degree do not require review and approval by the College of Graduate Studies Petitions Committee unless the work is ten or more years dated at the anticipated point of degree completion.

Undergraduate Courses Taken for Graduate Credit

With program approval, a registered graduate student may use a maximum of eight 400-level credits taken to meet master's degree requirements. These courses may not be offered by the department/program in which the graduate degree would be awarded. No 400-level courses taken by a student as an undergraduate may be used for graduate credit.

A graduate student may not use courses below the 400 level to meet graduate degree, certificate, or licensure requirements, although the student may take such courses for remedial purposes or to remove deficiencies.

Undergraduate Students Taking Graduate Courses

An undergraduate student who is pursuing a baccalaureate degree at Cleveland State University may take one or more (maximum of nine credit hours) graduate courses, at the 500 level only, if the student meets all of the following conditions:

1. The student must be within thirty credits of graduation;
2. The student must have an overall grade-point average of 2.75 or better through the preceding semester;

3. The student must have a 3.0 or better grade-point average in the major field.
4. The student must obtain permission from his or her advisor, the instructor of the course, and the department chair, via signatures on the Undergraduate Request for Graduate Course form which can be found at <http://www.csuohio.edu/gradcollege/student/pdf/UndergradStudentPermission.pdf>.

An undergraduate student who is deficient in any of the above conditions may not take a graduate course unless the request is approved by the Dean of the College of Graduate Studies.

Credit for these courses—up to a maximum of nine credits for courses in which the grade received is B or above—may be applied at a later point to a graduate degree program provided that the credit was not used to satisfy baccalaureate degree requirements. Internal transfer of credit is subject to transfer credit regulations and procedures.

Post-baccalaureate students who are enrolled at the undergraduate level but are not pursuing a second bachelor's degree may not register for graduate-level classes. Post-baccalaureate students who are pursuing a second bachelor's degree at Cleveland State University may register for 500-level courses as long as the above four noted conditions are met.

Course registration will be canceled for students who do not meet these requirements.

Graduate Program Transfer

An admitted and enrolled graduate student may request to transfer to another graduate degree program. The individual should meet with his or her current graduate advisor and Graduate Program Director, and the Graduate Program Director of the "new" graduate program, before submitting a Program Transfer Request Form to the Graduate Admissions Office (for domestic students) or the Center for International Programs and Services (for international students).

After consulting with his or her advisor and the two Graduate Program Directors, the student should complete this form fully and submit it. The form should be submitted at least six weeks before the desired term of transfer. Once the form is received, a copy of the student's admission file will be

submitted to the Graduate Program Director of the "new" program. The transfer is not effective until the "new" program renders a favorable decision, and the Graduate Admissions Office or the Center for International Services and Programs approves admission to the new program.

The Graduate Program Transfer Request form is available at <http://www.csuohio.edu/gradcollege/admit/pdf/progtrans.pdf>.

Academic Warning and Dismissal

Optional dismissal from, or continued participation with academic warning in a graduate degree, certificate, or licensure program, are recommended by the graduate committee of the program.

Optional Dismissal

If, in 400- to 800-level courses, a student receives:

- a. one grade of F, or
- b. two grades of less than B, or
- c. two grades of NS,

then the individual **MUST** be reviewed by the Graduate Program Committee to determine his or her ability to continue in graduate school. If the Graduate Program Committee determines that dismissal is in order, this recommendation is made to the Dean of the College of Graduate Studies for review and notification of the student.

Academic Warning

If it is determined that the student may continue in the graduate program, the Graduate Program Committee will notify the Dean of the College of Graduate Studies and the student, in writing, regarding the grounds under which continuation is possible. In addition, an "Academic Warning" notice will be recorded on the student's official grade report for that semester.

Mandatory Dismissal

If, in 400- to 800-level courses, a student receives:

- a. two F grades, or
- b. accumulates a total of nine credit hours of less than B grades and has a cumulative grade-point average below 3.0,

then the student will be dismissed automatically from the program by the Dean of the College of Graduate Studies.

Re-Admission (See addendum Effective Summer 2006)

An academically dismissed degree, certificate, or licensure student who has been separated from the University for twelve or more months may request permission to be re-admitted to his or her prior program. Such requests are reviewed and acted upon by the Graduate Program Committee of the unit.

An academically dismissed student who has been separated from the University for less than twelve months may petition for early re-admission. To be considered for early re-admission, a petition must be submitted to the unit's Graduate Program Committee. The committee shall act on the petition and present its recommendations to the College of Graduate Studies Petitions Committee, whose decision shall be final.

An academically dismissed non-degree student must petition the College of Graduate Studies Petitions Committee for re-admission consideration. Petition forms may be downloaded from the College of Graduate Studies Web site at <http://www.csuohio.edu/gradcollege/student/pdf/PetitionForm.pdf>. They are also available from the College of Graduate Studies and the Graduate Admissions Office (Rhodes Tower West, Room 204).

These re-admission procedures do not apply to students who seek admission to a program other than the program from which they were academically dismissed. In these cases, the student is considered a new applicant. To initiate consideration of admission to a new program, a student must submit an application for admission to the new graduate program. The Graduate Admissions Office will forward a copy of the student's admission file to the Program Director of the new program.

Academic Reassessment Policy

A degree-seeking graduate student enrolled in the College of Graduate Studies may petition for academic reassessment for prior graduate course work taken at Cleveland State University. For individuals who wish to return to the same graduate degree program, there must be a three-year absence from the University before a reassessment petition can be submitted. The absence from the University can be voluntary on the part of the student or as the result of an academic dismissal. For

students who wish to enter a different graduate degree program, and for former non-degree, certificate, and licensure graduate students who wish to enter a graduate degree program, there must be a one-year absence from the University before a petition for academic reassessment can be submitted. Academic reassessment is not available to students who are currently enrolled on a graduate certificate, licensure, or non-degree basis.

If academic reassessment is granted, all previous courses taken and grades received at Cleveland State University as a graduate student, and all transfer and transient credit granted while a graduate student at the University, will not be counted toward:

- 1) the number of credit hours taken and earned,
- 2) the cumulative grade-point average, and
- 3) the provisions for academic dismissal.

All previous academic work remains on the student's graduate transcript, followed by an "Academic Reassessment" notation.

Academic reassessment petitions must have departmental/program-level support in order to be considered by the College of Graduate Studies Petitions Committee. Academic reassessment petitions that do not have departmental/program support are considered by the University Graduate Council. An academic reassessment petition may be granted only once during a student's graduate career at the University.

Exceptions and Petitions

Students seeking exemption from program requirements and/or regulations must petition their Graduate Program Committee, which acts on such requests and informs the student, the University Registrar, and the Dean of the College of Graduate Studies of its decision. Petitions concerning University and College of Graduate Studies requirements and regulations should be initiated through the graduate program advisor and graduate committee for recommendation. They are then forwarded to the Petitions Committee of the College of Graduate Studies for action. Once the College of Graduate Studies committee makes a decision, the student, the program advisor, and the program director are notified, and a notation is placed on the student's academic record.

Before filing a petition with the College of Graduate Studies, the student should thoroughly review all applicable regulations, so that the presentation is complete and accurate.

Petition Guidelines

The following guidelines must be followed so that petitions can be presented in a way most likely to correctly inform the College of Graduate Studies Petitions Committee. This body conducts the final review of graduate petitions.

When referring to a course, include the course number, title, semester taken, and the instructor's name. Any petition requesting an exemption from a course requirement, a late withdrawal, an extension of an Incomplete grade, or a change in grading status must include an instructor's dated statement. The instructor's statement **MUST** include:

1. information on the student's attendance and performance in the course;
2. whether or not the student's request is supported by the instructor; and
3. the instructor's rationale for supporting, or not supporting, the petition.

All requests for action on the grounds of medical, personal, legal, or work-related difficulties, either previous or ongoing, **MUST** include written documentation of the situation and a dated and signed statement on official letterhead from the appropriate person (attorney, doctor, dentist, employer, etc.). The documentation provided **MUST** address directly how the difficulties noted had an adverse effect on the student's academic performance. Without this information/documentation, petitions will be returned to the student without Petitions Committee action.

Please note that the University Graduate Council has determined that poor academic performance on a midterm examination or in other course requirements does not constitute sufficient grounds for granting a student a late withdrawal from a course.

If questions arise in preparing a petition, contact the College of Graduate Studies at (216) 687-9370.

Late Registration

During the first eleven weeks of the fall and spring terms, graduate students may register late for courses with instructor and program advisor approval, using the Graduate Student Late Registration/Late Add Form. After the

eleventh week of the fall and spring terms, late registration requests will only be considered by the Graduate College Petitions Committee.

Students who have had their course schedule cancelled by the University due to non-payment of fees may reinstate their schedules through the eleventh week of fall and spring terms with course instructor and graduate program director approval on the Graduate Student Enrollment Reinstatement Request Form. After the eleventh week of the fall and spring terms, requests to restore a cancelled schedule will only be considered by the Dean of the College of Graduate Studies in cases in which students can demonstrate that the University was responsible for their registration being cancelled. After the last day of the term, students must petition the Graduate College Petitions Committee.

For the summer term, there are multiple sessions with different late registration and reinstatement deadlines. All deadline dates may be found on the forms required to process these requests.

Late Registration and Re-Enrollment forms are available at the Office of the University Registrar, the College of Graduate Studies, and the Graduate Admissions Office. The forms also may be downloaded from www.csuohio.edu/gradcollege/forms.htm.

Thesis/Dissertation

Degree programs determine whether or not a thesis/dissertation is required for a graduate degree. A thesis/dissertation may take any of several forms, such as a scholarly essay, research report, or a creative artistic work. The format of such presentations does not need to conform to traditional standards of style where such standards are not appropriate. However, theses/dissertations that take the form of traditional research reports should follow standard manuals of style, with any supplementary guides used by the various disciplines acceptable to the departmental graduate committee. A copy of the Thesis and Dissertation Format Guidelines is available at www.csuohio.edu/gradcollege/student/thesis/thesis.htm and from the College of Graduate Studies. Students are strongly encouraged to review the guidelines before preparing their theses or dissertations.

A student cannot be admitted to degree candidacy, or register for thesis/dissertation work, until the student is a Regular Graduate Student. Doctoral and master's students must complete the Thesis/ Dissertation Proposal Approval form (download from the College of Graduate Studies Web site) and obtain the required signatures prior to thesis/dissertation registration. Once a student registers for thesis/dissertation credit, he or she must register for thesis/dissertation credit each semester during the academic year (fall and spring terms) until the completion and defense of the project. (See T Temporary non-credit grades, under Grades.) The number of thesis/dissertation credits required is a departmental matter. However, the student must register for a minimum of one thesis/dissertation credit each semester until the completion of the thesis/ dissertation, acceptance by the program committee, and submission for final approval to the College of Graduate Studies.

Acceptance of the thesis/dissertation requires that the signatures of the advisor and at least two other Graduate Faculty committee members appear on the document. One committee member external to the degree program must be included on all doctoral dissertation committees. The advisor and at least two other committee members must be voting members of the Graduate Faculty in order for the thesis/dissertation to be accepted by the College of Graduate Studies.

All doctoral dissertations require a public defense, announced to the University community with sufficient notice.

Once the thesis/dissertation has been approved by the committee, the student must submit the final draft of the thesis/dissertation for format review and approval to the College of Graduate Studies. The submission for format approval should take place not less than one week prior to the end of the semester in which the student plans to graduate. A preliminary format examination is strongly suggested for the thesis/dissertation prior to printing of the final deposit copies. However, a preliminary check does not guarantee the acceptability of the final copy. To allow ample time for completing the final copies, students are advised to schedule a format check well in advance of the deposit deadline. Once all the final unbound deposit copies receive Graduate Studies approval, the student then delivers all unbound

copies, receipt of payment for binding, and a copy of the signed Notice of Completion form to the University Library, for binding and retention in the Archives and the Circulation Department. Prior to binding, all doctoral dissertations are forwarded to University Microfilms International for publication in *Dissertation Abstracts International*.

Discontinuation of a Thesis, Dissertation, or Alternate Exit Project

Should a student wish to discontinue a thesis/dissertation or an alternate exit project after receiving one or more T grades for previous registrations, the individual may request of the College of Graduate Studies Petitions Committee that W grades replace the T grades.

Students who decide to switch from the thesis option to an alternate exit project, or vice versa, are not permitted retroactively to change, via petition, their registration in previous thesis or project course work.

University Graduate Degree Requirements

1. A student has a period of six years from date of entry into the College of Graduate Studies to complete requirements for a master's degree. Only course work, including transfer credit and credit by examination, completed within the immediate past six-year period will apply toward the master's degree. Petitions to extend the time period to complete a master's degree must receive the approval of the departmental/program graduate committee. Petitions to extend the time period to complete a master's degree up to ten years do not require review and approval by the College of Graduate Studies Petitions Committee. However, if a petition for an extension to up to ten years is denied at the departmental level, the student may appeal the denial to the College of Graduate Studies Petitions Committee for review and disposition. A petition to extend a master's degree period beyond ten years must be submitted to the College of Graduate Studies Petitions Committee for review and disposition. Such petitions must show compelling reasons for the extension, and must document course-by-course the currency of the work beyond the ten-year statute of limitations.
2. A student entering a doctoral program, either having received a master's or professional degree from another institution or having interrupted his or her studies at Cleveland State University upon receipt of the master's degree for more than one year, must complete doctoral degree requirements within ten calendar years from the date of entry into doctoral studies. Petitions to extend the ten-year period to complete a doctoral degree must receive the approval of the departmental/program graduate committee and must be submitted to the College of Graduate Studies Petitions Committee for review and disposition. Such petitions must show compelling reasons for the extension, and must document course-by-course the currency of the work beyond the statute of limitations.
3. A student who enrolls consecutively in a master's then doctoral program without interruption of at least one academic year following receipt of the master's degree must complete doctoral requirements within ten calendar years from the date of admission to the doctoral program. Petitions to extend the ten-year period to complete a doctoral degree must receive the approval of the departmental/program graduate committee and must be submitted to the College of Graduate Studies Petitions Committee for review and disposition. Such petitions must show compelling reasons for the extension, and must document course-by-course the currency of the work beyond the statute of limitations.
4. A student who is a candidate for a master's degree must fulfill the College of Graduate Studies' residence requirement of having earned at least sixteen credit hours of acceptable graduate credit (with course grades of B or better) while enrolled in the College of Graduate Studies at Cleveland State University.
5. Of the minimum thirty credit hours required for graduation with a master's degree, only eight credit hours of 400-level courses can be used to meet graduation requirements. The 400-level courses may not be offered by the department or program in which the master's degree would be awarded. No 100- to 300-level courses may be applied toward a graduate degree. The remainder of the course requirements must be graduate-level (500-to-800-level) courses.
6. Subject to departmental approval, nine graduate credit hours of transfer credit may be applied toward the requirements of a master's degree, and no more than one-third of the total graduate hours required for the doctoral degree may be transfer credit for doctoral students. (See Transfer Credit and Credit by Examination policies earlier in this section of the Catalog.) Petitions to extend transfer credits should be submitted to the departmental/program graduate committee. If approved by the departmental/program graduate committee, such requests do not require review and approval by the College of Graduate Studies Petitions Committee. However, petitions for acceptance of more than nine hours of transfer credit, which are not approved at the departmental/program level, may be submitted to the College of Graduate Studies Petitions Committee for review and disposition. Not more than one-half of a student's total graduate degree program may be a combination of transfer credit and credit by examination.
7. Achievement of at least a 3.0 cumulative grade-point average for all courses taken as a graduate student, including 400-level undergraduate courses, is required for graduation. All grade-point averages are carried to two decimal places (unrounded). The University Graduate Council has determined that the minimum 3.0 grade-point average required for graduation cannot be waived via petition.
8. A maximum of six credit hours of 500- to 800-level work graded on an S (satisfactory) basis may be used to meet degree requirements. Excluded from this requirement are courses that are graded only on an S/U or S/F basis.
9. A maximum of eight credit hours of work at the C-level for 400-level and above courses may apply toward graduate degree requirements.
10. A student must be registered for at least one graduate credit during the semester of graduation. For example, if the student plans to graduate at the end of the spring semester, he or she must enroll during the spring term.

Application for Graduation

In general, degree candidates should apply for graduation two semesters before their expected graduation date. Specific graduation application deadline dates may be found at www.csuohio.edu/registrar/graduation.html. Graduation applications can be obtained from the Graduation Office, University Center, Room 400; telephone (216) 687-3870.

Participation in Commencement

The University holds a Commencement ceremony in May for individuals who have completed all degree requirements by the end of the spring semester, and in December for those who have completed all degree requirements by the end of the summer and fall semesters.

Students are encouraged and expected to attend Commencement. Those choosing not to attend should notify the University Graduation Office.

Doctoral students may not participate in the University commencement ceremony unless they have completed all of their required course work and have successfully defended their doctoral dissertation prior to the commencement exercise.

In order for a Master's Degree student to participate in the University commencement ceremony, he or she must have completed all course work required to fulfill degree requirements and have defended the thesis or completed any required exit project, capstone course, or other exit requirement for the degree.

Completion of Certificate and Licensure Programs

1. A student has a period of six years from date of entry into the College of Graduate Studies to complete requirements for a graduate certificate or graduate licensure program. Only course work, including transfer credit and credit by examination, completed within the immediate past six-year period will apply toward program completion.
2. A maximum of one-third of graduate certificate or graduate licensure program requirements may be satisfied with Cleveland State University course work taken at the 400-level. Only 400-level courses taken from a department or program other than the one awarding the certificate or

licensure may be used to meet completion requirements. No 400-level courses taken by a student as an undergraduate may be used to meet graduate certificate or licensure requirements.

3. Subject to departmental/program approval, a maximum of one-third of the requirements for a certificate or licensure program may be satisfied via transfer credit. (See the Transfer Credit Policy earlier in this section of the Catalog.)
4. Subject to departmental/program approval, not more than one-third of the requirements for a graduate certificate or licensure program may be satisfied via Credit by Examination. (See the Credit by Examination Policy earlier in this section of the Catalog.)
5. No 400-or-above-level course work with a grade of C may be used to meet graduate certificate program requirements. A maximum of six credits of 400-or-above-level course work with a grade of C may be used to meet licensure program requirements.
6. Not more than 50 percent of the required credits for a graduate certificate or licensure program can be satisfied by a combination of:
 - a. 400-level courses;
 - b. graduate transfer credit; and
 - c. credit by examination for 500-and-above-level courses.
7. No course work taken on an S/F, S/U, or audit basis may be used to satisfy graduate certificate or licensure program requirements.
8. A minimum grade-point average of 3.0 for all 400-and-above-level work is required to satisfy licensure program requirements. A minimum grade-point average of 2.75 is required to be awarded a graduate certificate. Individual graduate certificate programs, however, may set the minimum GPA requirement at a higher level for the completion of their particular graduate certificate programs.

Licensure Students: College of Education and Human Services graduate licensure students must submit a completed State of Ohio Licensure packet to the Cleveland State University Education Student Services Center. Licensure packets are available from the Education Student Services Center, Rhodes Tower, Room 1401; telephone

(216) 687-4625. Completed packets should be submitted upon completion of program.

Graduate Certificate Students:

Graduate Program Directors complete and submit to the College of Graduate Studies [telephone (216) 687-9370] Graduate Certificate Completion forms. Forms should be submitted at the beginning of the semester of the anticipated date of program completion. Graduate Certificate Completion forms may be downloaded from the College of Graduate Studies Web site at www.csuohio.edu/gradcollege/. They are also available from the College of Graduate Studies.

The College of Graduate Studies will notify the Graduate Program Director and the involved student when Certificate program requirements are met, as well as instructing the University Registrar to record the Certificate award on the student's academic record.

University Regulations for Student Conduct

Cleveland State University has adopted policies concerning the rights and responsibilities of all students. The Cleveland State University Student Handbook, available through the Department of Student Life (University Center, Room 102), outlines these policies under the heading "Student Conduct Code." The handbook provides an overview of the role of the student as a participating member of the University community, defining students' responsibilities, while protecting their right to pursue legitimate educational goals.

Student Academic Responsibility

Each graduate student is personally responsible for completing all University, College, and department degree requirements. It is the student's responsibility to be informed of these requirements. A student's advisor may not assume this responsibility, nor may the advisor substitute, waive, or exempt the student from any established requirement or academic regulation.

Academic Misconduct

The University Policy on Academic Misconduct exists to resolve problems such as plagiarism, cheating on examinations, papers completed by someone other than the registered student, theft, mutilation of library materials, etc. The Policy, which details procedures for

resolution of matters of conflict, channels of appeal, and penalties imposed, can be found in the Cleveland State University Student Handbook. Copies are available from the Department of Student Life, University Center, Room 102.

Plagiarism Policy

Plagiarism is the act of presenting as one's own the ideas, opinions, writings, or work of another person without appropriate scholarly attribution. This act is a form of academic dishonesty and is a serious incident of academic misconduct.

Ideally, situations of plagiarism should be handled between the faculty member and the student. Any student who disagrees with the instructor's decisions should follow standard channels of communication, going first to the department chairperson and then, if still not satisfied, writing to the academic dean of the college in which the course is offered. The Review Committee of the Faculty Senate decides the matter if it cannot be settled within the college. The committee is composed of two faculty members of the University, nominated by the Faculty Senate Steering Committee and elected at large by the faculty, and one student member of the University Judiciary, elected by the members of the body. The decision of the Review Committee is final. If the student is found guilty, the instructor or the committee informs the appropriate academic dean. A record of the decision is placed in the student's academic file until the student graduates or separates from the University. A second infraction shall be cause for further action by the academic standards committee in the appropriate college.

Grade Dispute Procedure See Addendum

In disputing a course grade, the burden is on the student to demonstrate that an error has occurred or that a non-uniform standard was applied in the assignment of the course grade.

If a student feels that an instructor's assignment of a course grade is improper, the student should discuss the matter with the instructor within forty-five days following completion of the semester in which the course was taken.

If resolution does not result from this meeting, the student should promptly write to the chairperson of the instructor's department (or an appropriately designated substitute), stating the nature of the dispute and its justification. The

chairperson will provide the course instructor with a copy of the student's statement and any additional documents submitted. The instructor should promptly respond, in writing, and a copy must be provided to the student. Further statements and documentation may be collected, if necessary, by the chairperson.

Once the written record is complete, the chairperson meets with the student and instructor in a three-way conference to try to resolve the dispute. Any student who is not satisfied with the outcome of the meeting with the instructor and the department chairperson may continue the dispute by petitioning the College of Graduate Studies Grade Dispute Committee. In such cases, the chairperson must promptly transmit a photo copy of all submitted documents, including the chair's recommendation concerning the dispute, to the College of Graduate Studies Grade Dispute Committee. The Committee will:

- 1) inform both the student and the instructor of the Committee's membership;
- 2) send both parties copies of all written documents received and any additional materials gathered by the Committee;
- 3) allow both parties to respond in writing to any new materials assembled; and
- 4) schedule a hearing inviting both the student and instructor to present their positions on the dispute. Both the student and the involved faculty member are expected to be present at the hearing.

The recommendation of the College of Graduate Studies Grade Dispute Committee, along with a copy of the entire grade dispute file, is forwarded for final decision to the University Admissions and Standards Committee, which limits its review to the determination of the following of due process. The decision of the University Admissions and Standards Committee is transmitted in writing to both the student and the instructor. There is no further appeal within the University from the Admissions and Standards Committee's decision.

Family Educational Rights and Privacy Act (FERPA)

Cleveland State University is required to give annual notice to students, or parents of students, of the rights granted by the Family Education Rights

and Privacy Act (FERPA) of 1974. In accordance with this Act, students are notified of the following:

Right to Consent

Students have the right to consent to disclosures of personally identifiable information contained in educational records, except to the extent that FERPA authorizes disclosure to University officials with legitimate educational interests.*

*A University official is a person employed by the University in an administrative, supervisory, academic or research, or support staff position (including law enforcement and health staff); a person or company with whom the University has contracted (such as an attorney, auditor, or consultant); or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another University official in performing his or her tasks. A University official has a legitimate educational interest, if the official needs to review an education record in order to fulfill his or her professional responsibility.

Right to Inspect

Students have the right to inspect and review information contained in their educational records maintained by Cleveland State University.

Right to Request Amendment

Students have the right to request an amendment of an educational record that they believe to be inaccurate, misleading, or otherwise in violation of their FERPA rights. This includes the right to a hearing should the University decide not to alter a record in accordance with the student's request.

Right to Prevent Disclosure

Students have the right to restrict the release of information that may be disclosed on an unlimited basis by University personnel in response to oral or written requests. Certain petitions to this rule are specified in the Act.

Right to File a Complaint

Students have the right to file a complaint with the U.S. Department of Education concerning any belief they have that Cleveland State University has failed to comply with the provisions of FERPA. Written complaints should be directed to The Family Policy

Compliance Office, U.S. Department of Education, 600 Independence Avenue, SW, Washington, D.C. 20202-4604. Phone: (202) 260-3887; Fax: (202) 260-9001.

A copy of Cleveland State's institutional policies on access to student records may be obtained from Campus411, University Center, Room 162, or viewed on the Web site at www.csuohio.edu/registrar/csuprivacy.html. These policies set forth the procedures for inspection and amendment of educational records.

Student Rights Regarding the Release of Directory Information

The Family Education Rights and Privacy Act (FERPA) of 1974 as amended, prohibits Cleveland State University from disclosing or releasing a student's "education record" or personally identifiable information contained in that record without the student's consent. FERPA defines "education records" as "those records, files, documents and other materials which (i) contain information directly related to a student and (ii) are maintained by an educational agency or institution or by a person for such agency or institution.

One of the exceptions to FERPA permits the University to release or disclose "directory information" unless otherwise instructed by the student:

1. Student Name;
2. Participation in officially recognized activities and sports;
3. Height and weight of members of athletic teams;
4. Dates of attendance;
5. Degrees and awards (honors) earned.

Students who wish to restrict the release of the foregoing information can do so by submitting the Directory Information Restriction Request form to Campus411. The form can be found on the University Registrar's Web site under Downloadable Forms at www.csuohio.edu/registrar, or by coming in person to Campus411. This restriction will remain in effect until the student requests in writing that it be removed. However, even if such a request is filed, the University will release information as necessary, if it is determined that disclosure is permitted by FERPA without prior consent (e.g., in response to a subpoena, health, or safety emergency). Please be aware that if a student requests that the foregoing information

be withheld, it will be withheld from a variety of sources, including friends, relatives, prospective employers, insurance agencies, honor societies, and the news media. Students should carefully consider the consequences of withholding such information before they do so.

Institutional Policies on Access to Student Records

In compliance with the Family Education Rights and Privacy Act (FERPA) of 1974, Cleveland State University has established the following policies:

Access to Student Records

In accordance with federal law, University policy permits students to inspect their educational records. A student wishing to see his or her records may make a request, in writing, to the University Registrar at Campus411, University Center, Room 162. The University is forbidden to share student record information with third parties unless the student grants permission in writing to do so, or in response to a court order or subpoena.

Students attending Cleveland State University have the right to know who has had access to their records and the reason for that access. Accordingly, University offices with students' education records must maintain a record listing the names of all parties, other than University officials with a legitimate educational interest, who have requested or obtained access to and/or copies of student records. This record must be shown to students requesting such information.

Right to Review Records

Students attending Cleveland State University have the right to review educational records that consist of official records, files, and data directly related to them that are maintained by a University department, college, or office. Personal files maintained by faculty or staff are excluded from coverage under this policy.

Medical and counseling records maintained by professional or paraprofessional physicians or counselors that may be used in treatment or counseling with a student are deemed confidential and need not be shared with a student. A physician or other appropriate professional of the student's choice may review such records.

Financial aid records and files are confidential and need not be shared with students. Files maintained by the University Police Department are confidential, except that the student involved in the incident may view the record known as the incident report.

- A. Students may request the opportunity to review their records.
 1. The request should be made to the administrator in charge of the University office in which the records are on file.
 2. The University office may require the request to be in writing.
- B. A student request to inspect and review a record will be granted within a reasonable period of time. Such time shall not exceed forty-five days after receipt of the request.
- C. Records must be inspected and reviewed by the student in the presence of the administrator in charge, or a designee.
 1. The student shall be advised of the right and procedure to challenge any portion(s) of a school record.
 2. Records may not be changed or portions deleted during inspection and review.
 3. Upon written request, the student shall be provided with a copy of any portion(s) of the school record, subject to a fee.

Hearing to Challenge the Content of Records

Students have an opportunity for a hearing to challenge the content of their school records to ensure that the records are not inaccurate, misleading, or otherwise in violation of the privacy or other rights of students, and to provide an opportunity for the correction or deletion of any such inaccurate, misleading, or otherwise inappropriate data contained therein.

- A. A student may request, in writing, a hearing to challenge the content of his or her school record.
 1. A request should be made to the President of the University or the President's designee.
 2. A request must:
 - a. Identify in specific terms the portion(s) of the record being challenged;
 - b. State the reason(s) for challenging the portion(s) of the record so identified;

- c. State the remedy sought (e.g., the addition, alteration, or deletion of specific information under challenge).
 3. The written challenge is maintained as part of the record or file in question until the conclusion of the hearing.
- B. Hearing Procedures**
1. The President or President's designee conducts the hearing.
 2. The hearing will be granted within fifteen working days after receipt of the request.
 3. Prior to the hearing, the hearing officer shall notify the student and the University official representing the record of the time, place, and date of the hearing and of the specific portion(s) of the student's school record to be challenged in the hearing.
 4. The University official or designee responsible for the student record under challenge shall represent that record in the hearing.
 5. The hearing shall be limited to a consideration of the specific portion(s) of the student's school record being challenged.
 6. The student has the right to be assisted by an advisor of his or her choice.
 7. The burden of sustaining the challenge rests with the student.
 8. The student and the University official have the right to present evidence and witnesses directly related to the portion(s) of the student's record being challenged.
 9. The hearing officer shall keep a taped record of the hearing.
 10. The hearing officer must provide the student with written notification of the disposition of the challenge, including the reason(s) for the disposition.

C. Findings

1. The record stands.
2. The record is corrected.
3. The record is deleted.

Challenge to Grades

The Family Education Rights and Privacy Act (FERPA) of 1974 does not cover challenges by students to course grades.

Student Records Maintained at Cleveland State University

University Admissions Offices (Graduate and Undergraduate)

- Admissions Files

(Records submitted by applicants are not available for inspection until admittance and registration of the student.)

Alumni Office

- Degree information for alumni
- Names and addresses of alumni

Treasury Services

- Financial Aid

College Departmental Offices

- Student Files

**College of Education and Human Services—
Education Student Services Center**

College of Education and Human Services student records will be maintained in this office rather than in the Education College Dean's Office. Under the Family Education Rights and Privacy Act (FERPA) of 1974, confidential materials submitted prior to January 1, 1975 are not available. Records that are available include: (undergraduate) academic records, transfer credit evaluations and program checklists; (graduate) applications, transcripts, GRE test results or Miller Analogies Test results, and letters of recommendation.

College of Urban Affairs – Office of Student Services

College of Urban Affairs student records will be maintained in this office rather than in the Urban College Dean's Office.

College of Law—Dean's Office

- Admission files
- Placement files
- Student files

Judicial Affairs—Department of Student Life

- University Judiciary Reports and Conduct Records

University Police

- Incident Reports/Crime Log

Office of the University Registrar

- Academic Records
- Student Schedules
- Residency Petitions
- Change of Name Records
- Transcript Request Files
- Transient Records
- Graduation Application Files
- Registration/Enrollment Materials
- Veterans' Certification Files

Expenses and Financial Aid Treasury Services' Information

Fee Information

Please note: **Fees are subject to change without notice by action of the Board of Trustees.**

Please refer to the Office of Treasury Services' Web site at www.csuohio.edu/cashier/ for updated information regarding fees, payment methods for checks and credit cards, and refunds.

Students can easily manage their course registration, tuition, and fees through CampusNet, the University's online student-services Web site at <https://campusnet.csuohio.edu/index.jsp>. Students who need assistance with their University IDs and CampusPass password, should call the Information Services and Technology Help Desk at (216) 687-5050.

Course registration begins several months prior to each term. Students are notified via e-mail of their registration appointment times and dates. Tuition bills are available online through CampusNet about three to four weeks prior to the start of each term. Registration Invoices (tuition bills) also are mailed to all students at that time. Payment is due PRIOR to the start of the term. This includes making payment arrangements through financial aid, assistantships, sponsors, and/or joining Cleveland State's Budget Payment Plan. Students who do not make adequate payment arrangements prior to the start of the term will be subject to late fees and cancellation of classes. It is very important to make sure tuition is paid, even if it will be completely covered through financial aid.

Miscellaneous Fees

Graduate Admission Application Fee: \$30 (\$55 for Physical Therapy, Occupational Therapy and Nursing Programs)

Transient Student Admission Application Fee: \$15

Credit by Examination Fee: \$20

Graduation Application Fee: \$25

The deadline dates and fee amounts for the following miscellaneous fees can be found at www.csuohio.edu/cashier/fees.html:

- Returned Check Fee
- Collection Fee
- Late Registration Fee
- Late Add Fee
- Re-Instatement Fee after Cancellation, Prior Term Add, and Prior Term Registration
- Late Payment Fee

Miscellaneous fees are not refundable and are subject to change without notice by action of the Board of Trustees.

Student Financial Responsibility

Students are responsible for meeting their financial obligations to the University. Students with outstanding debts to Cleveland State University may be denied all University services, including registration, diplomas, and transcripts.

Payment Methods

Budget Payment Plan

The Cleveland State University Budget Payment Plan allows students the flexibility of spreading certain fees over the semester instead of making a single, full payment at the start of the term. The first payment of 25 percent of the total fee and \$30 service fee are due by the Payment Due Date indicated on the University Invoice. The remaining balance is broken down into three additional payments. These payments will be 25 percent of the outstanding balance. The student receives a University Invoice before each payment is due.

For the summer semester, the Budget Payment Plan is broken down into only three installments.

Fees for the Budget Payment Plan per term are:

Service Fee: \$30

Late Fee: \$25

Complete descriptions and applications are available on the Web at: <http://www.csuohio.edu/cashier/bpp.html>, at the Express Payment Center

(next to University Center, Room 460), or by calling (216) 687-3615. This program and the fees listed herein are subject to change.

Cash Payments are accepted at the Cashier's Office, University Center 460. To avoid lines, payments by check may be deposited at the Express Payment Center, outside the University Center, Room 460 lobby.

Check Payments should be made payable to "Cleveland State University" and returned to the Treasury Services' Office by the Payment Due Date along with the remittance portion of the University Invoice. Students must include the Student ID number on checks. Postdated checks will not be accepted. The fee for a dishonored check is \$35 plus Late Fees. A returned check does not cancel a student's registration.

Credit Cards. MasterCard and Discover are the only credit cards accepted by the University. Credit card payments may be made on the Cleveland State University Web site. ~~If paying by mail, the charge form, which appears at the bottom of the University Invoice, must be completed and deposited into the Express Payment depository or mailed to the Treasury Services' Office. Credit card payments may also be faxed to (216) 687-3619. The credit card number and expiration date must be included. The fee for a dishonored charge is \$35 plus Late Fees. A returned charge does not cancel a student's registration.~~

Fee Authorization Program forms may be obtained from the University Web site or from Human Resources Department in the Keith Building, Suite 1300. The completed form must be returned by the Payment Due Date as full or partial payment. Other fees must also be paid by the Payment Due Date.

Fee /Tuition Reimbursement—The Tuition Reimbursement Deferred Payment Plan is a deferred payment plan for students who have a tuition reimbursement benefit from their employer. This plan is available to any student who is in good standing with the University. The completed application, employer verification, and payment

must be submitted to the Treasury Services' Office by the Payment Due Date that appears on the University Invoice.

Financial Aid requires that all processing be completed and eligibility requirements met before the Payment Due Date for funds to transfer into a student's account in order to avoid late fees.

1. If the financial aid is more than the amount owed the University, fees will be paid in full and the credit balance will be refunded to the student.
2. If the financial aid is less than the amount owed the University, the student must submit payment for the balance by the Payment Due Date.
3. If a student's financial aid is not available by the Payment Due Date, he or she must pay fees by another method. After financial aid is applied to the account, any credit balance will be refunded to the student by check.

Perkins Loan students are required to sign for their loan advances in University Center, Room 460, before registering. Funds will be credited to the student's account by the Payment Due Date. If the loan is less than the required payment, the balance must be paid by another method by the Payment Due Date.

Staff Development is available to faculty and staff. Staff Development covers eight credit hours or the dollar equivalent up to eight undergraduate credit hours for continuing education courses. The form may be obtained from the Cleveland State University Web site or from the Human Resources Department, Keith Building, Suite 1300. Faculty and staff must return the completed form by the Payment Due Date as full or partial payment. Other fees must be paid by the Payment Due Date by another method.

Third Party Sponsors—A letter of authorization (on company letterhead), purchase order, or agreement must be submitted to the Treasury Services' Office by the Payment Due Date.

The document must include the student's name, social security number, third party's federal tax ID number, and conditions of payment (e.g., maximum credit hours or dollars to be billed). If the document is for more than one term, a copy must be submitted to the Treasury Services' Office each term. The student is responsible for any charges not paid by the sponsor by the Payment Due Date. Submit payment

with the bottom portion of the University Invoice. If the sponsor fails to honor the University's invoice in full, the student will be billed for the amount due and charged Late Fees.

Tuition Grant Recipients and Graduate Assistants must pay any additional fees (e.g., technology fees, lab fees, student health insurance, applied music fees) not covered by the Tuition Grant or Graduate Assistantship. Payment must be submitted with the bottom portion of the University Invoice by the Payment Due Date.

Refund of Fees

Credit hour fees will be refunded based on the Official Date of Withdrawal. The failure to attend classes due to business or personal reasons does not change the refund schedule. The Official Date of Withdrawal, which is the date the course change is presented to the Office of the University Registrar, will be the basis for computation of the refund. Canceled courses are dropped by individual departments at 100 percent refund. Refunds for courses that do not fall into the regular session are prorated on the basis of the course length and based on the Official Date of Withdrawal. After dropping a workshop or intensive course, students must complete the required forms, which are available in the Treasury Services' Office, University Center, Room 460.

Students who drop Saturday classes must notify the Treasury Services' Office during weekday business hours at (216) 687-3615 to ensure they receive the proper refund. Additional information about how to determine refunds may be obtained from the Treasury Services' Office.

For more information about refunds, please visit the University Web site or contact the Treasury Services' Office by e-mail at bursars.office@csuohio.edu or by phone at (216) 687-3615.

University Minimum Refund Policy

The University does not issue refund checks for less than \$3, unless requested by the student. Requests should be made to the Treasury Services' Office, University Center, Room 460, by the 10th week of the semester.

Ohio Board of Regents Residency Regulations

Ohio Residency

Ohio Board of Regents Intent and Authority

(A) Intent and Authority

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

(B) Definitions

For purposes of this rule:

- (1) "Resident" shall mean any person who maintains a twelve-month place or places of residence in Ohio, who is qualified as a resident to vote in Ohio and receive state public assistance, and who may be subjected to tax liability under section 5747.02 of the Revised Code, provided such person has not, within the time prescribed by this rule, declared himself or herself to be or allowed himself or herself to remain a resident of any other state or nation for any of these or other purposes. **(Students possessing B, F, J, K, M, N, NATO 1-7, Q, and V visas are NOT eligible for Ohio Residency for tuition purposes unless the students are spouses or dependents of U.S. citizens or persons with eligible visas who are also eligible for Ohio Board of Regents Residency Rules.)**
- (2) "Financial support" as used in this rule, shall not include grants, scholarships, and awards from persons or entities that are not related to the recipient.
- (3) An "institution of higher education" shall have the same meaning as "state institution of higher education," as that term is defined in Section 3345.011 of the Revised Code, and shall also include private medical and dental colleges, which receive direct subsidy from the State of Ohio.

- (4) "Domicile," as used in this rule, is a person's permanent place of abode so long as the person has the legal ability, under federal and state law, to reside permanently at that abode. For the purpose of this rule, only one domicile may be maintained at a given time.
- (5) "Dependent" shall mean a student who was claimed by at least one parent or guardian as a dependent on that person's Internal Revenue Service tax filing for the previous tax year.
- (6) "Residency Officer" means the person or persons at an institution of higher education that has the responsibility for determining residency of students under this rule.
- (7) "Community Service Position" shall mean a position volunteering or working for:
- (a) VISTA, AmeriCorps, City Year, the Peace Corps, or any similar program as determined by the Ohio Board of Regents

OR

- (b) An elected or appointed public official for a period of time not exceeding 24 consecutive months.

Ohio Board of Regents Residency Rules

- (C) Residency for subsidy and tuition surcharge purposes

The following persons shall be classified as residents of the State of Ohio for subsidy and tuition surcharge purposes:

- (1) A student whose spouse, or 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 twelve consecutive months or more immediately preceding the enrollment of such student in an institution of higher education.
- (2) A person who has been a resident of Ohio for the purpose of this rule for at least twelve consecutive months immediately preceding his or her enrollment in an institution of higher education and who is not receiving, and has not directly or indirectly received in the preceding twelve

consecutive months, financial support from persons or entities who are not residents of Ohio for all other legal purposes.

- (3) A dependent student of a parent or legal guardian, or the spouse of a person who, as of the first of day of a term of enrollment, has accepted full-time, self-sustaining employment and established domicile in the State of Ohio for reasons other than gaining the benefit of favorable tuition rates.

Documentation of full-time employment and domicile shall include both of the following documents:

- (a) A sworn statement from the employer or the employer's representative on the letterhead of the employer or employer's representative certifying that the parent, legal guardian or spouse of the student is employed full-time in Ohio.
- (b) A copy of the lease under which the parent, legal guardian or spouse is the lessee and occupant of rented residential property in the state; a copy of the closing statement on residential real property located in Ohio of which the parent, legal guardian, or spouse is the owner and occupant; or if the parent, legal guardian, or spouse is not the lessee or owner of the residence in which he or she has established domicile, a letter from the owner of the residence, certifying that the parent, legal guardian, or spouse resides at that residence.

Criteria Which May Be Considered in Determining Residency

- (D) Additional criteria which may be considered by residency officers in determining residency may include but are NOT limited to the following:
- (1) Criteria evidencing residency:
- (a) If a person is subject to tax liability under section 5747.02 of the Revised Code;
- (b) If a person qualifies to vote in Ohio;

- (c) If a person is eligible to receive Ohio public assistance;
- (d) If a person has an Ohio's Driver's License and/or Motor Vehicle Registration.
- (2) Criteria evidencing LACK of residency:
- (a) If a person is a resident of or intends to be a resident of another state or nation for the purpose of tax liability, voting, receipt of public assistance, or student loan benefits (if the student qualified for that loan program by being a resident of that state or nation);
- (b) If a person is a resident or intends to be a resident of another state or nation for any purpose other than tax liability, voting, or receipt of public assistance (see paragraph (D) (2) (a) of this rule).
- (3) For 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.

Petitions to the General Rules of Residency

- (E) Exceptions to the general rule of residency for subsidy and tuition surcharge purposes:
- (1) A person who is living and is gainfully employed on a full-time or part-time and self-sustaining basis in Ohio, and who is pursuing a part-time program of instruction at an institution of higher education, shall be considered a resident of Ohio for these purposes.
- (2) A person who enters and currently remains upon active duty status in the United States military service while a resident of Ohio for all other legal purposes, and his or her dependents, shall be considered residents of Ohio for these purposes 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/her employer beyond the territorial limits of the fifty 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 and 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 residents for these purposes provided such person has worked in Ohio at least four months during each of the three years preceding the proposed enrollment.
- (6) A person who was considered a resident under this rule at the time the person started a community service position as defined under this rule (see definitions), and his or her spouse and dependents, shall be considered residents of Ohio while in service and upon completion of service in the community service position.
- (7) A person who returns to the State of Ohio due to marital hardship, takes or has taken legal steps to end a marriage, and re-establishes financial dependence upon a parent or legal guardian (receives greater than 50 percent of his or her support from the parent or legal guardian), and his or her dependents, shall be considered residents of Ohio.
- (8) A person who is a member of the Ohio National Guard and who is domiciled in Ohio, and his or her spouse and dependents, shall be considered residents of Ohio while the person is in the Ohio National Guard service.

Procedures

(F) Procedures

- (1) A dependent person, classified as a resident of Ohio for these purposes under the provisions of paragraph (C) (1) of this rule and who is enrolled in an institution of higher education when his or her parents or legal guardian removes their residency from the state of Ohio, shall continue to be considered a resident during continuous full-time enrollment and until his or her completion of any one academic degree program.
- (2) In considering residency, removal of the student or the student's parents or legal guardian from Ohio shall not, during a period of twelve months following such removal, constitute relinquishment of Ohio residency status otherwise established under paragraph (C) (1) or (C) (2) of this rule.
- (3) For students who qualify for residency status under paragraph (C) (3) of this rule, residency status is lost immediately if the employed person upon whom the resident student status was based accepts employment and establishes domicile outside Ohio less than twelve months after accepting employment and establishing domicile in Ohio.
- (4) Any person once classified as a nonresident, upon the completion of twelve consecutive months of residency, must apply to the institution he or she attends for reclassification as a resident of Ohio for these purposes if such person in fact wants to be reclassified as a resident. Should such person present clear and convincing proof that no part of his or her financial support is or in the preceding twelve consecutive months has been provided directly or indirectly by persons or entities who are not residents of Ohio for all other legal purposes, such person shall be reclassified as a resident.

Evidentiary determinations under this rule shall be made by the institution, which may require, among other things, the submission of documentation regarding the sources of a student's actual financial support.

- (5) Any reclassification of a person who was once classified as a nonresident for these purposes shall have prospective application only from the date of such reclassification.
- (6) Any institution of higher education charged with reporting student enrollment to the Ohio Board of Regents for state subsidy purposes and assessing the tuition surcharge shall provide individual students with a fair and adequate opportunity to present proof of his or her Ohio Residency for purposes of this rule. Such an institution may require the submission of affidavits and other documentary evidence which it may deem necessary to reach a full and complete determination, under this rule.

Financial Aid

Graduate Assistantships

Cleveland State University provides three types of graduate assistantships: teaching, research, and administrative. Each type of assistantship is designed both to serve the needs of the University and to assist in the professional development of the student. Graduate assistantships are regarded as apprenticeships during which, through formal instruction, interaction with faculty, classroom, research, and administrative experience, students become more effective as members of their chosen professional fields. Graduate assistants are regarded by the University as students first and University employees second. Students interested in applying for graduate assistantships should contact their graduate program directors.

In addition to graduate assistantships, limited financial aid is available in the form of fellowships, student loans, research grants, Federal work-study, and non-work-study employment. Students seeking assistance should contact the Financial Aid Office and the academic department of the program that they plan to enter for additional information.

Note: Students who have applied for, or are receiving, federal student loans or other financial aid through the University may have their award eligibility adjusted if they receive a graduate assistantship or a graduate tuition grant.

Types of Assistantships

Teaching assistantships are provided to assist departments in carrying out their undergraduate instructional programs. Teaching assistants aid faculty members in assembling classroom materials, leading discussion groups, supervising laboratory sessions, evaluating student performance, and carrying out other related instructional activities. Only assistants holding master's degrees, with exemplary academic records, may be assigned primary responsibility for instruction of lower division (100- to 200-level) undergraduate classes.

Non-native English speaking teaching assistants may not be assigned direct instructional activities until they have been assessed and certified as proficient in spoken English.

Research assistantships are provided to assist faculty and staff members in conducting research. Whenever possible, research assistants are assigned to individuals working in a variety of areas in order to extend the research experience and professional development of the graduate student.

Administrative assistantships are provided to assist departments, divisions, institutes, colleges, and other offices of the University in managing their respective units. Administrative assistants are exposed to a variety of administrative experiences and tasks to prepare them for future professional roles.

Terms of Assistantships

1. Assistantships are awarded only to graduate degree-seeking students with superior academic records and who qualify at the time of their enrollment as regular graduate students, as defined in this Catalog. Students must have an undergraduate grade-point average of at least 3.0, a graduate grade-point average of at least 3.0 (where applicable), and a Cleveland-Marshall College of Law grade-point average of at least 2.5 (where applicable) to qualify for, and to retain, an assistantship.
2. Graduate assistants receive contracts with specific conditions and duties detailed, including stipend and tuition support.
3. Each contract is signed by the academic officer authorized to initiate the appointment of the graduate assistant and by the academic officer authorized to expend funds for assistantships.

4. Graduate assistants are provided a stipend and a tuition scholarship by the contracting unit. At the discretion of the unit, assistants who are not residents of the State of Ohio may, or may not, be responsible for the out-of-state portion of their tuition bill.
5. Graduate assistantships are awarded on a full-time, two-thirds-time, or half-time basis that require twenty hours, fifteen hours, or ten hours of University service per week, respectively, during the academic term. Students holding a twenty-hour assistantship may not hold any other form of employment, either within the University or off-campus, without receiving prior written approval from the Dean of the College of Graduate Studies.
6. The term of appointment for a graduate assistantship is normally for one or more academic term(s), with the employment period adhering to the official University calendar. When assistantships do not follow the academic term schedule, the beginning and ending dates must be stated in the graduate assistantship contract.
7. Graduate assistants are not required to work on University holidays when classes are not offered; nor are graduate assistants required to make up time for regularly scheduled service that falls on a University holiday when classes are not offered.
8. Full-time, two-thirds-time, and half-time graduate assistants must maintain a nine credit-hour minimum registration at, or above, the 500 level during the contract period for the academic term specified. Courses taken on an audit basis do not qualify in meeting the nine credit-hour minimum registration requirement. To waive the minimum registration requirement requires the written approval of the Dean of the College of Graduate Studies. Assistantship contracts are subject to cancellation if students do not meet the minimum registration requirement. Individual graduate degree programs determine whether the minimum registration must be nine or twelve credit hours per academic term. Prior approval by the Dean of the College of Graduate Studies is required for contracts for more than sixteen credit hours per term.
9. All graduate assistants are required to attend the University's Graduate Assistant Orientation Program (GAOP) during the first academic term of employment. GAOP information is available from the College of Graduate Studies.
10. Students may be retained as graduate assistants as long as they are currently registered for the appropriate number of credit hours, have earned less than a total of 173 semester hours of graduate credit, are in good academic standing (cumulative graduate grade-point average of at least 3.0, and Cleveland State University Law School grade-point average of at least 2.5, if applicable), are performing their duties to the satisfaction of the units in which they hold the appointment, and are making acceptable progress toward the completion of their graduate degree programs. The number of academic terms that a student may be retained as a graduate assistant is determined by the unit sponsoring the assistantship; however, master's degree students normally do not receive more than four semesters of assistantship support while doctoral students normally receive a maximum of twelve semesters of assistantship support, including all assistantship support received as master's degree students within any Cleveland State University program(s).
11. Minimum stipend levels for graduate assistantships, by the degree status of students, are determined by the Provost at the beginning of the fiscal year.

Graduate Tuition Grants

The Cleveland State University College of Graduate Studies administers a Graduate Tuition Grant Program, which provides graduate tuition support to qualified students. To be eligible to receive a Graduate Tuition Grant a student must have been admitted to a graduate degree program and have a minimum grade-point average of at least 3.0 in undergraduate work or graduate work (if applicable) and a GPA of 2.5 in course work taken in the Cleveland-Marshall College of Law (if applicable).

Graduate Tuition Grants are available to provide tuition support for one to sixteen graduate credit hours (500 level or above), as determined by each student's program director. At the discretion of the

department, tuition grant students may or may not be responsible for the out-of-state portion of their tuition bills. Graduate Tuition Grant recipients are required to provide service to the department. The maximum number of service hours to be provided to the department by Graduate Tuition Grant recipients cannot exceed ten per week. Work hours are prorated according to the number of credit hours of tuition support provided. Because Graduate Tuition Grants carry a service obligation for students, a portion of the Graduate Tuition Grant is subject to withholding of all applicable federal, state, and local taxes.

For additional information, contact the graduate program director or the College of Graduate Studies at (216) 687-9370.

Maximum Work Hours

All student employees of the University, including graduate assistants and tuition grant recipients, are limited to a maximum of twenty hours of service per week during the academic term. Graduate assistants and tuition grant recipients working ten hours per week must, therefore, limit other University employment to ten hours per week for a total work commitment not to exceed twenty hours per week. Graduate assistants and tuition grant recipients working fifteen hours per week must limit their other University employment to five hours per week. Graduate assistants on a full-time (twenty hours of service per week) contract may not hold other outside employment without written approval of the Dean of the College of Graduate Studies since a Graduate Assistantship is considered as full financial assistance.

Cleveland State University Administered Financial Aid Programs

Students interested in applying for University-administered financial aid programs should complete the Free Application for Federal Student Aid (FAFSA), or the Federal Renewal Application, after January 1 of each year. If selected for verification, calendar year tax returns and a Cleveland State University Verification form are required. Forms are available at www.csuohio.edu/fao/download.html.

Graduate students will be considered for Federal Aid programs based on the availability of funds and a minimum enrollment of six or more credit hours

per semester. Those who are registered for twelve or more credit hours are considered full-time students for financial aid purposes.

Federal Work Study Program

This is a federal, need-based employment program. Selected funds are available for community service positions.

Federal Perkins Loan Program

This is a federal, need-based, five-percent-interest loan program administered by the Financial Aid Office. Interest does not accrue, and no payment is required while the borrower is engaged in at least half-time study (six or more credit hours). There is a nine-month grace period. A minimum quarterly repayment of \$120 is required for new borrowers on loans made after October 1, 1992.

Federal Subsidized Stafford Loan Program

This is a federal loan program administered by local lending institutions. The federal government pays interest on the loan for students while they attend school on at least a half-time basis. Repayment begins six months after leaving school at a minimum of \$50 per month. Students may take a maximum of ten years to repay. The interest rate is variable and does not exceed 8.25 percent for loan periods beginning July 1, 1994.

Maximum loan eligibility for this program is as follows:

\$8,500 Annual Graduate Maximum for Federal Subsidized

\$10,000 Annual Graduate Maximum for Federal Unsubsidized

Federal Unsubsidized Stafford Loan Program

The terms and conditions of loans made under the Federal Subsidized Stafford Loan Program apply to Federal Unsubsidized Stafford Loans, except the borrower is responsible for the interest that accrues while the student is in school unless the student requests that interest be capitalized.

Students must complete a Free Application for Federal Student Aid and receive their maximum loan eligibility in the Federal Subsidized Stafford Loan Program before being considered for this loan.

Non-Degree Students

Non-degree graduate students may qualify for the Federal Stafford Loan Program if their course work is required as a prerequisite to qualify for admission to a graduate degree program. Eligibility for these loans continues for one consecutive twelve-month period. The maximum eligibility amounts are \$5,500 in the Subsidized Loan Program and \$5,000 in the Unsubsidized Loan Program. Students are required to register for at least six credit hours in order to be eligible for the loan. A non-degree verification form must be completed by the Graduate Program Director in the department where the courses are offered each semester to determine eligibility. The Free Application for Federal Student Aid (FAFSA) must be on file with the Financial Aid Office in order to be considered for the Federal Stafford Loan programs. A student who has not been admitted as a Regular Graduate Student before the conclusion of the twelve-month period will not be eligible for additional Stafford Loan assistance.

Notification

The processing time for financial aid applications varies for students. Students should allow a minimum of six weeks for processing. Award Notifications are mailed directly to the student. All awards are based on full-time enrollment (twelve or more credit hours).

Students who receive financial aid (including loans) and later receive an assistantship or other resources that exceed their cost of attendance will have their aid adjusted accordingly, in order to comply with federal financial aid regulations.

Student Enrollment Changes That Can Reduce Financial Aid Eligibility

There are three types of enrollment changes after aid has been disbursed that may reduce a student's financial aid eligibility. They are:

1. **Dropped courses** (the course will not appear on the transcript),
2. **Official withdrawal** (W grade) from ALL courses in a term, and
3. **Unofficial withdrawal** from ALL courses within a term; student does NOT RECEIVE ANY earned grades. Student has not withdrawn officially.

Note: If a student withdraws (receives a W) from some, but not all, of his or her courses, aid adjustments are not required. However, students must be actively enrolled in at least six hours at the time a Stafford or PLUS loan is disbursed. For example, if a student originally enrolls for six hours, but withdraws (W grade) from one of his or her three-hour courses before the Stafford is posted to the student account, the loan cannot be disbursed. If the loan was disbursed prior to the student's withdrawal from the three-hour class, the University is not required to return the funds to the lender.

1. Dropped courses

When a course is dropped, it will not appear on the student's academic transcript. On the transcript, it will appear as if the student was never enrolled for the course. Drops normally occur during the stated "drop period," but can occur retroactively, as in the case of a withdrawal required due to a medical condition.

Regardless of when the course drop occurs, dropping courses can affect the aid types listed below (and may affect others). If the award reduction/return of funds creates a balance due on the student account, the student will receive a bill from the University.

Federal Stafford and PLUS loans—Students must be enrolled at least half-time (six or more hours) to be eligible for a Stafford or PLUS loan. If the course drop results in a student being enrolled for less than six hours, all Stafford and PLUS loan funds must be returned to the lender.

Perkins Loans, Federal Work Study—University regulations require that students be enrolled at least half-time (six or more hours). If the course drop results in a student being enrolled for less than six hours, all Perkins funds must be returned. All FWS earnings must be transferred to University employment.

2. Official withdrawal from the University

When a student requests and receives a "W" in ALL courses, he or she is considered to have officially withdrawn from the University. Students who withdraw prior to completing sixty percent of the term have not "earned" all of their federal financial aid and a Return of Title IV Funds calculation must be performed. The unearned portion (based on the percentage of the term

remaining) of the aid is returned to the lender or aid program. For example, if a student completes only 20 percent of the term, then he or she has failed to earn 80 percent of the federal financial aid that was disbursed, or could have been disbursed, prior to the withdrawal. If the return of the funds creates a balance due on the student account, the student receives a bill from the University.

3. Unofficial withdrawal from the University

Students who do not receive ANY "earned" grades (A, B, C, D, F, I, T, SA, SB, SC, UD, and UF) are considered to be unofficially withdrawn, having stopped attending ALL of their courses prior to the end of the term. Fifty percent of the aid used to pay direct educational costs (tuition, fees, room and board) must be returned to the lender or aid programs. If the return of the funds creates a balance due on the student account, the student receives a bill from the University.

Retroactive official withdrawals

If funds have been returned for a student based on his or her unofficial withdrawal, those funds cannot be reinstated if the student petitions for, and receives, a retroactive official withdrawal (all "W" grades).

Miscellaneous

Students who seek part-time jobs other than those offered through the Federal Work-Study program are advised to contact their academic department or refer to the jobs posted in Rhodes Tower West, Viking Hall, and University Center.

On-Campus Employment

Excellent opportunities exist for part-time student employment on campus. Students employed on campus can develop valuable skills and have the convenience of working flexible hours. Both federal work-study and non-work-study positions are available. Jobs are posted at www.csuohio.edu/fao/job-postings.htm.

Veterans' Administration Educational Allowance

Students eligible for the Veterans' Administration Educational Allowance who do not make satisfactory progress required at the end of the second probationary period will be terminated for Veterans' Administration purposes.

This termination will not affect a student's standing in school as long as the usual academic standards have been met.

Satisfactory Academic Progress Standards

Students must achieve satisfactory academic progress (SAP) toward their degree in order to maintain eligibility for most types of financial aid. To maintain SAP, students must meet the following three requirements: grade-point average, completion rate requirement, and maximum time frame for degree completion. Additionally, students must be eligible to continue in their program of study in order to receive financial aid.

Satisfactory academic progress will be evaluated at the end of each term for which the student is in attendance. Students who do not meet the grade-point average and completion rate requirements outlined below are given one term of financial aid probation. Failure to meet all the requirements at the end of the probationary term will result in loss of federal financial aid, as well as state and institutional need-based financial aid. Students who do not earn their degree within the specified time frame become ineligible as soon as they reach the specified time frame for their programs of study.

Grade-Point Average Requirement for Graduate Students

All graduate students must maintain a minimum cumulative grade-point average of 3.0 and remain eligible to continue in their program of study. Students who are dismissed by the University or by their graduate program are ineligible for federal financial aid for the program from which they were dismissed.

Completion Rate Requirement

Graduate students must successfully complete at least two-thirds (67 percent) of their attempted credit hours each term. Successful completion is defined as receiving a grade of A, B, C, or S. Multi-term courses, in which a T grade is assigned pending completion of the final terms, are treated as successfully completed during the initial term(s).

Note: A grade of W received when a student withdraws from a class has a negative impact on the completion rate. Credit hours in which a student receives a grade of W are included in the number of attempted hours, but do not count as successfully completed hours.

Impact of Selected Grades on SAP Requirements

The Financial Aid Office has specific policies outlining the effect of incompletes, withdrawals, absence of assigned letter grades, and transfer credits in the measurement of completion rate and maximum time frame.

Incompletes: Credit hours in which a student receives an I (incomplete) are included in the number of attempted hours, but do not count as successfully completed hours.

Withdrawals: Credit hours in which a student receives a grade of W are included in the number of attempted hours, but do not count as successfully completed hours.

Absence of an assigned letter grade: Credit hours in which a student receives a grade of, I, U, or W are included in the number of attempted hours, but do not count as successfully completed hours. Multi-term courses, in which a T grade is assigned pending completion of the final term, are treated as successfully completed during the initial term(s).

Transfer credits: Transfer credits are included in the total number of attempted hours for the measurement of maximum time frame.

Repeated hours: Hours for repeated courses, as well as the initial hours for those courses, are all included as attempted hours.

Academic reassessment: The financial aid SAP is always based on the grades and completion rate of the student's attempted hours, rather than the adjusted credit total that results from the academic reassessment.

Probation

At the end of the academic year, students (who are not currently on financial aid probation) who do not meet the GPA or completion-rate requirements will be placed on financial aid probation for the following term. Their progress will be measured again, at the end of their probationary term.

Loss of Eligibility

Students become ineligible for federal financial aid, as well as for state and institutional need-based financial aid, when they:

- Fail to meet the GPA or completion-rate requirement at the end of their probationary terms; or
- Have attempted the maximum allowable credit hours for their programs of study. If a student reaches the maximum time frame during an award year, he or she becomes ineligible to receive additional federal and state need-based financial aid, and any aid that has been awarded for future terms will be cancelled; or
- Are dismissed by the University or their graduate programs.

Regaining Eligibility

Students who attend school (without federal financial aid or state and institutional need-based financial aid) and meet the GPA and completion-rate requirements regain their financial aid eligibility for future terms.

A student who is ineligible for financial aid due to failure to make satisfactory academic progress during the probationary period may submit a petition for reinstatement of financial aid eligibility. If the petition is approved, the student's probationary period will be extended for one term, and he or she will be eligible to receive financial aid during the extended probationary period.

Students who regain eligibility, either by meeting the satisfactory academic progress standards or by approval of their petitions for reinstatement, may be eligible for Perkins Loans, Federal Work Study, and Federal Stafford Loans beginning with the term in which they are determined to be eligible.

Petition for Reinstatement of Financial Aid Eligibility

Students who wish to petition for reinstatement of financial aid eligibility may submit a written petition to the Financial Aid Office. In order to submit a petition, a student must:

1. Complete both sides of the Petition for Reinstatement of Financial Aid (available at www.csuohio.edu/fao/download.html). Documentation supporting the student's case should be attached.

2. Explain the mitigating circumstances that contributed to the failure to meet satisfactory academic progress.

The student is encouraged to schedule an appointment to meet with his or her academic advisor to discuss academic progress and identify ways in which he or she can improve academic performance.

Petitioners will receive a written response no later than four weeks after submitting the necessary information.

If the petition is denied, the student will be responsible for all charges incurred as a result of the loss of federal and state need-based financial assistance.

Arts and Humanities

English ■

Creative Writing/NEOMFA ■

History ■

Art History Specialization
Social Studies Specialization

Music ■

Philosophy ■

Spanish ■

Master of Arts in English

Department of English

Rhodes Tower 1815
(216) 687-3951
www.csuohio.edu/english/maeng.htm

Louis Barbato, Chair
Rachel Carnell, Graduate Program
Director
Neal Chandler, Director,
Creative Writing Program
Mary Murray, Director of the
Writing Center

The Faculty

Current faculty information can be located on the Department of English Web site.

The Program

The Master of Arts in English offers two concentrations: literature and creative writing. The literature concentration emphasizes research and the application of various critical approaches to problems in literature and composition. The creative writing concentration emphasizes professional writing and the analysis of literary works from the point of view of the practitioner. Both concentrations provide graduate students with course work in practical criticism, electives in literature and linguistics, and opportunities for the study of composition theory and the practice of teaching writing to beginning students.

The program is designed to meet the needs of part-time and full-time students. Core courses and graduate seminars are offered in the evenings. Students are advised to take their core-course requirements during their first two semesters of graduate study.

A departmental Committee on Graduate Studies, chaired by the Director of Graduate Studies, governs the Master of Arts program in English. The Committee on Graduate Studies administers admission of new students, appointment of graduate assistants, selection of Andrews Award winners, student petitions, and policy issues concerning the Master of Arts curriculum.

Prospective and current students should consult the Handbook for Graduate Studies in English at www.csuohio.edu/english/grhandbook.htm.

Faculty Research and Resources

The graduate faculty of the English Department has published over thirty books and several hundred major articles in the fields of literary scholarship, linguistics, and critical theory. The range of research interests is illustrated by a partial list of books published by the faculty. Medieval and Renaissance studies are represented by Earl Anderson's *Cynewulf* (Fairleigh Dickinson University Press). Eighteenth-century and nineteenth-century studies are represented by Gary Dyer's *British Satire and the Politics of Style* (Cambridge University Press), by Rachel Carnell's *Partisan Politics, Narrative Realism, and the Rise of the British Novel* (Palgrave Macmillan), and by her scholarly edition of the works of *Delarivier Manley* (Pickering & Chatto). Modern and contemporary literature is represented by Adrienne Gosselin's *Multicultural Detective Fiction: Murder from the "Other" Side* (Garland), Jeff Karem's *The Romance of Authenticity* (University of Virginia Press), by Jennifer Jeffers' *The Irish Novel at the End of the Twentieth Century: Gender, Bodies, and Power* (Palgrave), and by her *Britain Colonized: Hollywood's Appropriation of British Literature* (Palgrave Macmillan). Critical theory is represented by Jennifer Jeffers' *Uncharted Space: The End of Narrative* (Peter Lang Publishers), by Earl Anderson's *Grammar of Iconism* (Fairleigh Dickinson University Press), and by his *Folk-Taxonomies in Early English* (Fairleigh Dickinson University Press). Linguistics and philology are represented by John Greppin's *Medieval Arabic-Armenian Botanical Dictionary* (Vienna: Mechitaristen-Buchdruckerei), *The Diffusion of Greek Medicine into the Middle East and the Caucasus* (Caravan), and fourteen other books. Composition studies are represented by Mary Murray's *Artwork of the Mind: An Interdisciplinary Description of Insight and the Search for It in Student Writing* (Hampton Press), Ted Lardner and Armetha Ball's *African American Literacies Unleashed: Vernacular English in Composition Classroom* (Southern Illinois University Press) and by Ted Lardner and Todd Lundberg's *Exchanges: Reading and Writing about Consumer Culture* (Longman). Research

in Language Arts is represented by Adrienne Gosselin's *Reflections Sweet and Sour: Language Arts and Prevention Assessment* (Rose Dog Press).

The creative-writing faculty has published poetry, fiction, and creative non-fiction in dozens of creative-writing periodicals, have plays performed, and have read or performed poetry in a variety of venues. Book titles include, in the field of fiction, Sheila Schwartz's *Imagine a Great White Light*, winner of the Pushcart Editor's Book Award, and Neal Chandler's *Benediction* (University of Utah Press), and, in the field of poetry, Nuala Archer's *From a Mobile Home* (Galway: Salmon Press).

The English Department is home to The Cleveland State University Poetry Center, which has published more than 135 poetry books since 1971 and averages three new books a year. Recent publications include Gaspar Pedro Gonzalez's *A Dry Season: Poems in Q'anjob'al Maya* (one of the few books of contemporary Mayan poetry to be published anywhere), Alison Luterma's *The Largest Possible Life*, and Ohio poet Nin Andrews' *The Book of Orgasms*. The Poetry Center has won several national and regional awards for its publications. Carol Potter's *Short History of Pets* won the 2001 Balconnes Prize for Poetry. Jared Carter's *After the Rain* won the 1995 Poets' Prize. In 1996, The Poetry Center's *Off the Page*, a videotape of performance poetry, won the Ohio Board of Regents' W. E. B. DuBois Award for Service to the Community.

The English Department houses three journals: the *Annual of Armenian Linguistics*; *Raft: a Journal of Armenian Literature and Criticism*; and *Whiskey Island*, a student-edited literary magazine.

Financial Assistance

Graduate assistantships in English provide students with an opportunity to teach in the Writing Center, assist faculty on editorial or other academic projects, and in some cases to teach Freshman English classes. All graduate assistantships provide tuition waivers and a stipend. A few tuition waivers may be available for part-time students. Students must apply by February 1 in order to be considered for a graduate assistantship in the following academic year. The

department also provides tuition scholarships as prizes in annual creative-writing contests and an annual Andrews Award, a cash prize (normally \$1,000) to assist a graduate student in the completion of a thesis of exceptional merit.

Career Information

Students who are pursuing the MA in English as a means of enhancing their teaching careers should select the literature concentration. Students who are taking the MA as preparation for doctoral study in English should select the literature concentration, should take as many research seminars (ENG 695) as possible, and should take ENG 506 Composition Theory in order to enhance their eligibility for doctoral teaching assistantships at other universities. This course of study also is recommended for students who are preparing for careers teaching writing or administering writing centers in community colleges and schools. Cross-listed electives in linguistics are offered for students who are pursuing Teaching English to Speakers of Other Languages (TESOL) endorsement concurrently with the MA in English. The creative writing concentration is recommended for students who desire increased competitiveness in creative and professional writing fields or in allied careers in editing, communications, and public relations.

Admission Information

To be admitted to the MA program in English, an applicant must have a baccalaureate degree from an accredited college or university with an overall grade-point average of 2.75 or higher and a 3.0 average in courses in English. Applicants must provide transcripts of all previous college work, two letters of recommendation, and a writing sample. Applicants seeking admission to the literature concentration should submit a sample of academic writing, typically a research paper from an undergraduate literature course. Applicants seeking admission to the creative writing concentration should submit a portfolio of their creative work in addition to an analytical paper. Admission to the creative writing concentration is a separate decision made by the creative writing faculty once a student has been admitted into the MA program.

An applicant whose undergraduate major was in a field other than English may be required to take a certain number of undergraduate English courses as a condition for admission to the MA program. These courses do not count toward degree requirements.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Cross-Registration

Students may petition the Committee on Graduate Studies to take up to eight elective credits in graduate courses outside the English Department, in cases where such courses meet the students' particular research needs. A student combining TESOL endorsement with the MA in English, for example, may be allowed to count graduate-level Methods in TESOL courses as English electives.

Degree Requirements

(33 credits minimum)

Literature Concentration:

1. Core courses (8 credits): ENG 510 and ENG 511.
2. Graduate seminars (8 credits): ENG 695 (taken twice, with change of topic).
3. Electives (12 credits): courses numbered ENG 506 and higher; at least one additional graduate seminar is recommended.
4. Thesis (5 credits): ENG 699. To earn these credits, the student must prepare an acceptable master's thesis of 30 to 50 pages, written under the direction of two English graduate faculty members.
5. A successful master's examination based on the student's thesis topic.

Creative Writing Concentration:

1. Core courses (8 credits): ENG 510 and ENG 512.
2. Graduate seminars (8 credits): ENG 695 (taken twice, with change of topic); creative writing students may substitute ENG 535 or another modern or contemporary literature course for one of the 695 seminars.
3. Electives (12 credits): courses numbered ENG 506 and higher; at least one creative writing course (ENG 580 or ENG 602) is recommended.
4. Thesis (5 credits): ENG 699. To earn these credits, the student must be accepted into the creative writing program and must prepare a successful master's creative writing project under the direction of two English

graduate faculty members, viz., a collection of short stories, essays, or poems, or a play or part of a novel, judged to be of high quality, with an analytical section of 15-20 pages, placing the work in appropriate literary and theoretical context.

5. A successful master's examination based on the student's creative writing project.

Composition course requirements for teaching assistants: Graduate students who are beginning as teaching assistants must take ENG 506 (4 credits) and ENG 507 (1 credit). Graduate students who completed ENG 308 Composition Theory as undergraduates are required to attend ENG 506 sessions in fall semester but should not register for credit for this course. Graduate students who completed 4 credits of ENG 309 Writing Center Practicum as undergraduates are required to attend ENG 507 workshops in fall semester but should not register for credit for this course.

Master of Fine Arts in Creative Writing/NEOMFA

Department of English

Rhodes Tower 1815
(216) 687-3951
www.yzu.edu/neomfa.html

Louis Barbato, Chair
Rachel Carnell, Graduate Program
Director
Neal Chandler, Director,
Creative Writing
Phil Brady, (Youngstown State University)
NEOMFA Coordinator

The Faculty

Current faculty information can be located on the NEOMFA Web site.

The Program

The Master of Fine Arts in Creative Writing is offered as part of the North East Ohio Master of Fine Arts in Creative Writing, a four-university consortium incorporating the faculty and resources of Cleveland State University, Kent State University, Youngstown State University, and the University of Akron. The degree program offers five different concentrations: fiction, creative non-fiction, playwriting, poetry, and literary translations. Curriculum focuses on the techniques of professional writing and the analysis of literary works from the point of view of the practitioner, while electives enable the study of whatever subject area will further the student's writing interests. A required internship offers practical workplace experience from a wide range of fields, including teaching, editing, grant writing, arts marketing, and arts administration.

The program is designed to meet the needs of both part-time and full-time students. Workshops and craft and theory courses are routinely offered in the evenings. Students can register freely across institutional boundaries for graduate courses offered at any of the participating universities and taught either by regular faculty or by visiting resident writers.

A NEOMFA Executive Committee, made up of representatives from each Consortium university, governs the Master of Fine Arts Program in Creative Writing, oversees the subcommittee on

the admission of students, appoints NEOMFA graduate assistants, and makes policy decisions for the Master of Fine Arts program. It also hears student petitions that specifically address NEOMFA arrangements or policy.

Faculty Publications and Research

The twenty-five faculty members of NEOMFA have gained regional and national recognition as creative writers and literary translators with a distinguished record of publications, performances, and awards. Faculty publication records include over fifty book-length works of poetry, fiction, and translation, and hundreds of short stories and poems published in such journals as *American Poetry Review*, *Field*, *Kenyon Review*, *Poetry*, *Prairie Schooner*, *Southern Review*, and many others. The Playwriting Faculty has a record of performances from university theater programs to professional stages, locally, nationally, and internationally.

Creative writing awards won by Program Faculty include fellowships and/or awards from the National Endowment for the Arts, the Ohio Arts Council, the Pennsylvania Council on the Arts, the West Virginia Arts and Humanities Commission, the Pushcart Prize, the Chilchote Award, the MacDowell Colony, and even ASCAP awards for musical theater. Program Faculty regularly attend conferences, visit other institutions to give readings and workshops, and serve on committees and boards for regional and national organizations for the promotion of the literary arts. In addition, many faculty members are involved with outreach to schools, arts organizations, and regional communities.

For a full listing of program faculty with publications and performances, consult the NEOMFA Web site at www.yzu.edu/neomfa.

The English Department is home to the Cleveland State University Poetry Center, publisher of more than 135 books of contemporary poetry since 1971, offering one of the nation's most prestigious awards for a book of poetry, and connecting the University to a national community of poets. Each

summer since 1991, the Department of English has also sponsored the Imagination Writers Workshop and Conference, bringing both emerging and established writers from across the nation to read and teach on campus. And for over thirty years, the University has housed *Whiskey Island Magazine*, a student-edited literary journal, publishing local, regional, and national work. Resources at other Consortium Universities include the Wick Poetry Center and Wick Center Poetry Books at Kent State, the Youngstown State Poetry Center and Etruscan Press, the Akron Series of Poetry, and the student literary journals, *Akros*, *Luna Negra*, and *Penguin Review*.

Financial Assistance

In almost every case, financial assistance will come through the student's gateway university. At Cleveland State, graduate assistantships in English provide students with an opportunity to teach in the Writing Center, assist faculty on editorial or other academic projects, and in some cases to teach Freshman English classes. All graduate assistantships provide tuition waiver and a stipend. A few tuition waivers may be available for part-time students. Students must apply by February 1, in order to be considered for a graduate assistantship in the following academic year. The English Department also awards tuition scholarships as prizes in annual creative-writing contests and through the Leonard Trawick Scholarship fund.

Career Information

Students interested in a career teaching creative writing at the college or university level should apply to the MFA program (as opposed to the English MA concentration) in Creative Writing. An MFA will by no means ensure a college level teaching job. Substantial publication is increasingly the qualifying factor, but under the professional guidelines which govern such programs, the MFA has become a minimal degree requirement. Program students should select workshops and arrange their studies to help them write as productively as possible. An MFA program is designed to provide

focus and to support creative work in ways the rest of the world does not. The quantity and quality of the writing itself, rather than the formal degree, is the proper measure of a writer's success. Therefore, time in the program should be as productive as the student can make it. It is also important for students to plan for a writing life which offers no guarantees of financial reward or of teaching positions. When selecting an internship, it will be useful to keep this writing-life conundrum in mind: few jobs make space for the demands of creative writing, but many jobs demand people with writing skills.

Admission Information

To apply to the North East Ohio Master of Fine Arts in Creative Writing Program:

1. Complete the Application for Graduate Admission at Cleveland State, checking the "English – Creative Writing NEOMFA" as the intended program of study and checking Master's Degree. To facilitate the process, we strongly recommend that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html.

The submission process requires that an applicant have a baccalaureate degree from an accredited college or university with an overall grade-point average of 2.75 or higher and a 3.0 average in courses in English. Applicants must provide transcripts of all previous college work and, for NEOMFA applicants, **three** letters of recommendation. Students interested in teaching assistantships should submit a sample of academic writing, normally a research paper from an undergraduate course.

2. Send a one-page statement of purpose, along with a portfolio of fifteen pages of your work in poetry or literary translation or thirty pages of fiction, creative non-fiction, or drama. (Please note that for literary translation submissions, the original work must be included. The original will not be counted toward the page total.) Both the purpose statement and portfolio should be combined into one Microsoft Word document and emailed as an attachment to: psbrady@cc.yzu.edu or by mail to:

Phil Brady, NEOMFA Director
English Department
Youngstown State University
One University Plaza
Youngstown, OH 44555

Degree Requirements

(48 credits minimum)

Writing Workshops (15 credits)

ENG 602* Students will take 12 hours in their areas of emphasis (fiction, nonfiction, playwriting, poetry, or literary translation) and at least 3 hours in a second area.

Craft and Theory Courses (6 credits)

ENG 512* Students will take at least 3 hours of craft and theory in their areas of concentration; a second craft and theory course must be taken in another area.

Literature Courses (9 credits)

These courses, which focus on the reading of texts, will normally be taken in the Departments of English. Literature courses in languages other than English or in translation may be taken through the language departments.

Electives (9 credits)

Students will take nine hours in an advisor-approved area such as literature, foreign languages and translation, theater, arts administration, fine arts professional writing, or education. These credits may range widely in support of the student's writing interests and projects.

Internship (3 credits)

Students will take an internship in a workplace related to their interests and areas of specialization.

Thesis (6 credits)

ENG 699* Normally, students will enroll in three hours of thesis in each of the last two semesters of study. The thesis is to be a manuscript of high artistic quality in the area of specialization. Thesis committees will consist of one thesis advisor and two other program faculty members from at least two consortial universities.

*Indicates Cleveland State University numbering system only. Equivalent courses at other Consortium universities will appear with different numbers.

NEOMFA Courses

The menu of Consortium courses is comprised of the collective graduate offerings of participating departments at all four NEOMFA universities. For an overview, consult the course offering page on the NEOMFA Web site at www.yzu.edu/neomfa, where specific MFA courses are designated and available literature courses, as well as many electives, are listed for upcoming semesters.

Master of Arts in History

Department of History

Rhodes Tower 1915
(216) 687-3920
www.csuohio.edu/history/
www.csuohio.edu/art/p/his_grad.html

Joyce Mastboom, Department Chair
Robert Wheeler, Graduate Program
Director

The Faculty

Current faculty information can be located on the Department of History Web site.

Introduction

The Master of Arts in History program offers advanced training in American and European history. The program is particularly well suited for pre-doctoral students, for secondary school teachers seeking additional enrichment, and for those interested in pursuing careers in public history. Close student and faculty contact is encouraged through a combination of lecture-discussion courses and research and reading seminars that are designed to broaden and deepen the students' historical knowledge and provide training in history as a scholarly discipline. The department has developed new courses in the fields of Early Modern European History, American and European Social History, African-American History, Atlantic History, and Public History. Advanced MA candidates are eligible for internships in archival management at *The Cleveland Press* Collection of Cleveland State. Other internship opportunities also are frequently available.

Admission Information

In addition to College of Graduate Studies requirements for admission, applicants to the History program must have:

1. An undergraduate major in history with a grade-point average of 3.0 or better, or sufficient undergraduate history courses with grades of B or better to serve as an indicator of probable success in the graduate history program. If possible, the applicant should secure letters of recommendation from professors from whom the applicant has taken advanced undergraduate history courses.

2. Results of the Graduate Record Examination (GRE) are desired from all applicants. GRE test results are required, however, for applicants who do not meet the College of Graduate Studies requirement of at least a 2.75 undergraduate GPA for admission.

Under special circumstances, an applicant may remediate undergraduate deficiencies by enrolling as a non-degree student. Non-degree students must achieve a graduate GPA of 3.0 or better for twelve credit hours in approved courses to qualify for admission.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Financial Assistance

The Department of History offers a number of graduate assistantships and internships to complement full-time study. Assistantships and internships require twenty hours of service per week to the department. Graduate assistant responsibilities include tutoring students, assisting professors in the preparation of lectures and discussions, and working on departmental programs. Additional financial assistance is available through various internship programs.

Career Information

The History MA program is intended to prepare students for entry into doctoral programs in history and art history. Graduates of the program also are prepared for secondary-level teaching in history and social studies, as well as careers in public history (i.e., the practice of history in a non-academic setting), archival management, and historical preservation.

In addition, the master's program in history develops a variety of skills that are basic to success in many careers in business and other professions. Recent graduates have demonstrated skills in conceptualization, research, analysis, and oral and written communication in careers in banking, the media, insurance, journalism, law, marketing and advertising, publishing, and government service.

Faculty Research and Publications

All members of the graduate faculty participate in the activities of local and national historical associations and are active in research and publication in their fields of specialization. In recent years, faculty members have made important scholarly contributions in the form of books and articles on diverse topics, such as medieval maritime history, Brazilian family structure, a biography of President Garfield, European exploration in colonial Africa, social protest in Tudor and Stuart England, African-American community life, French diplomacy in the 1930s, U.S. gender history, Russian revolutionary and workers' movements, American labor and immigration history, American popular culture, the emergence of capitalism in the Netherlands, and the Japanese reaction to U.S. immigration laws. The MA program is designed to encourage students to interact closely with faculty in their areas of interest. Through research and reading seminars, independent study, and/or the writing of a master's thesis, students are encouraged to develop independent research and writing skills.

Degree Requirements

Students may pursue either of two plans for the Master of Arts degree in History. Plan A requires the writing of a thesis, while Plan B requires additional courses in lieu of a thesis. The prospective student selects one of the programs in consultation with the Graduate Program Director.

For both plans, students are required to complete a total of thirty-two credit hours in approved courses with at least a 3.0 grade-point average. Depending on their undergraduate preparation in history, students, with approval, may take up to eight credit hours in courses outside of the History Department. For the policy on transferring credit from another institution, see the section on Transfer Credit in this Catalog.

Upon admission, each student must consult with the Director of Graduate History Studies in order to establish a general plan of study. HIS 697 Independent Study in History can be taken only with the approval of the Graduate Program Director.

Special Requirements for Plan A

1. A minimum of twenty-four credit hours in 600-level courses, which must include:
 - a. HIS 601 Introduction to Graduate Study in History
and
HIS 695 Research Seminar in American, European, or Social History.
 - b. A minimum of two reading seminars (8 credits).
 - c. Thesis (1-8 credits).
2. The remaining eight credit hours may be taken at the 500 level.

Special Requirements for Plan B

1. A minimum of twenty credit hours in 600-level courses, which must include:
 - a. HIS 601 Introduction to Graduate Study in History
and
HIS 695 Research Seminar in American, European, or Social History.
 - b. A minimum of three reading seminars (twelve credits).
2. The remaining twelve credit hours may be taken at the 500 level, including Art History courses.

Art History Specialization

Howie Smith, Department of Art Chair
Samantha Baskind, Art History
Graduate Program Director

The Faculty

Current faculty information can be located on the Department of Art and Department of History Web sites.

Introduction

The History Department and the Art Department offer an interdisciplinary program that leads to a Master of Arts degree in History with a specialization in art history. The program provides a comprehensive approach to the integral study of history and art and allows for advanced training that broadens and deepens the student's knowledge about the relationship between art and history.

The program is broad in scope rather than highly specialized. Depth in a specialized area is achieved through independent study, thesis, and related courses in history or approved electives. The program is designed to accommodate

both full-time students and those students who are currently working but are free for classes after 4 p.m. Due to the interdisciplinary nature of the program and the number of credits required, it is expected that the student will usually take two years (or longer if part-time) to complete the degree.

Although the Art Department is responsible for admission decisions for the art history specialization, the History and Art departments jointly supervise thesis advising and approve applications for graduation.

For non-degree students, graduate courses in art education and studio art also are available.

Faculty Research and Publications

All members of the graduate faculty participate in the activities of local, national, and international art and historical associations and are active in research and publication. In recent years, faculty members have made important scholarly contributions in the form of books, articles, and catalogs on such diverse topics as African ivories, African perspectives on 15th- and 16th-century art, Buddhist sculpture, Cleveland architecture and the city's struggle for self-identity, Gothic fan-vaulting, Hindu temple art, Jaina manuscript painting, Hindu and Buddhist iconography, Indian mandalas, Tantric art and erotic rituals, navigation and maritime goddesses and serpent deities of Orissa, Modern Jewish Art, Jewish American Artists, and a historic perspective on Cleveland's landmark Terminal Tower.

Career Information

The Art History program prepares students for entry into doctoral programs in art history, for secondary-level teaching in art history and cultural studies, archival management, historical preservation, art gallery and art museum curatorial employment, art consulting, and slide-library work.

Admission Information

In addition to College of Graduate Studies requirements for admission, applicants who wish to pursue the art history specialization must have:

1. At least a 3.0 grade-point average in history/art history courses.
2. An undergraduate major in history/art history or a sufficient number of undergraduate courses in history/art history to indicate probable success

in a graduate program. Under special circumstances, an applicant may make up undergraduate deficiencies by enrolling as a non-degree graduate student. For some students, additional courses or study may be required if not completed as an undergraduate.

3. Completed the equivalent of five undergraduate quarters or four semesters of a foreign language, preferably German or French; however, a language of immediate pertinence to the applicant's chosen field of study will be considered. An examination in reading and translation in the language must be taken during the first twelve hours of graduate study.

Results of the Subject Test of the Graduate Record Examination are desired from all applicants. Results of both the General and Subject test of the GRE are required of applicants who do not meet the minimum grade-point average set for admission to the College of Graduate Studies.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Financial Assistance

A number of graduate assistantships are awarded on a competitive basis to qualified students. Assistantships provide tuition support and a stipend in exchange for ten hours of service per week in the research and instructional programs of the faculty. Interested students should apply to the Graduate Advisor in advance of the academic year.

Research Program

Graduate study enables participation in the research of the graduate faculty, which is sponsored by local, national, and international agencies and is widely published in leading professional journals and books.

Graduate student research is often presented at regional and national conferences.

Graduate students have access to the Ingalls Library of The Cleveland Museum of Art, one of the foremost collections in the nation, and to the considerable collections of the Cleveland Public Library. Excellent interlibrary loan, OCLC facilities, and general computer-research services on campus assure rapid acquisition of additional material. Computer

applications to the history of art are encouraged and well supported by the College of Liberal Arts and Social Sciences.

Special exhibits and shows in the Cleveland State University Art Gallery afford graduate students experience in curating and publishing exhibition catalogs.

Additional practical experience and funding is facilitated by internships at the Cleveland Museum of Art, the Western Reserve Historical Society, and local art galleries.

Degree Requirements

Upon admission to the program, the student must immediately contact the Graduate Advisor in the Art Department to develop a general plan of study, which is recorded on a program planning form. This form provides the basis for subsequent consultations.

Students may pursue either of two plans for the art history specialization. Plan A requires the writing of a thesis and is intended primarily for the student who plans to study for a Ph.D. in Art History. Plan B is intended primarily for the student seeking only an MA degree and requires additional course work in lieu of the thesis. Plan B is designed for breadth and flexibility rather than specialized concentration. Prospective students select a program in consultation with the Graduate Advisor. Students in plans A and B must complete their approved courses with at least a 3.0 grade-point average, and all students must earn a minimum of twenty hours of credit at the 600 level.

Plan A (36 hours)

1. Sixteen hours in 500- to 600-level art history courses, including at least one art seminar (ART 695) and a maximum of four hours of independent study (ART 697).
2. Twelve hours in 500- to 600-level history courses, including HIS 601 and one reading seminar.
3. Eight hours of thesis (ART 699).

Students anticipating further study are encouraged to begin acquiring a second foreign language in order to meet the Ph.D. program requirements at other universities.

Plan B (40 hours)

1. Twenty-four hours in 500- to 600-level art history, including two art seminars (ART 695) and a maximum of four hours of independent study (ART 697).
2. Sixteen hours in 500- to 600-level history courses, including HIS 601, HIS 695, and one reading seminar.

Exit Requirements

Each candidate, whether pursuing Plan A or B, must prepare a twenty-minute slide presentation as an exit requirement. Candidates also are expected to attend and participate in their colleagues' presentations. These slide presentations should demonstrate

an original approach to a well-defined topic developed from one of the student's seminar papers. They afford the candidate the opportunity to refine and distill research, following the guidelines of professional art historical society meetings.

For Plan A candidates, the thesis committee must consist of two faculty advisors from the Art Department, one from the History Department, and one member external to the degree program. The guidelines for the thesis are decided on by agreement between the student and the committee. The committee notifies the Graduate Advisor when the thesis has been completed successfully.

History: Specialization in Museum Studies (addenda new 06/2007)

History: Specialization in Social Studies

The History Department offers an interdisciplinary program that leads to a Master of Arts degree in History with a specialization in Social Studies. The program is aimed at providing social studies teachers with new perspectives and deeper knowledge of the content areas encompassed under Social Studies (History, Anthropology, Economics, Political Science, Sociology) in order to help teachers be more effective in the classroom.

Admissions Information

Admission requirements are the same as those for the MA in History program.

Degree Requirements

Students are required to complete a total of thirty-five credit hours in approved courses with at least a 3.0 grade-point average.

Upon admission, each student must consult with the History Graduate Program Director in order to establish a general plan of study. HIS 697 Independent Study in History can be taken only with the approval of the Graduate Program Director.

Requirements

1. A minimum of 24 credits in History, which must include:
 - a. HIS 660 Social Studies in Context I (4 credits), and
HIS 661 Social Studies in Context II (4 credits), and
HIS 570 World History (4 credits)
 - b. any 600-level reading seminar (4 credits)

- c. any two 500- or 600-level courses (8 credits)
2. ECN 503 Economic Concepts (3 credits)
 3. Four credits in Political Science.

PSC 517 Political Parties and Elections

PSC 519 Public Opinion

PSC 521 Political Violence

PSC 527 Politics of Peaceful World Change

PSC 530 U.S. National Security Policy

PSC 531 U.S. Foreign Policy

PSC 534 U.S.-Latin American Security Issues

PSC 540 Foundations of Political Thought

PSC 541 Modern Political Thought

PSC 594 Special Topics in Political Science (with permission from the Chair of the Political Science Department).

4. Four credits in Sociology.

Any 600-level seminar (excluding SOC 640, SOC 650, and SOC 651) or any 500-level course (excluding SOC 555 and independent study courses).

Master of Music

Department of Music

Music and Communication 332
(216) 687-2033
music.csuohio.edu/degreesandprograms.php

Eric Ziolek, Department Chair
Birch Browning, Graduate
Program Director

Faculty

Current faculty information can be located on the Department of Music Web site.

Introduction

The graduate degree program in music offers specializations in Composition, Music Education, and Performance. Cross-disciplinary study among these specializations is encouraged.

The Department of Music offers outstanding facilities. A state-of-the-art building houses two performance halls, three large rehearsal halls, two chamber music rehearsal rooms, four electronic music/computer laboratories, and dozens of practice and specialized teaching spaces. Cleveland is one of the most outstanding centers for music in the United States, and students have many opportunities to observe and study with some of the finest performers in the world. A number of members or former members of the Cleveland Orchestra teach at the University, and Cleveland State vocal ensembles perform annually with the Orchestra. The Cleveland Contemporary Players, which is devoted to performing contemporary music, is in residence at the Cleveland State Department of Music. Composition students are able to have their works performed by the Cleveland Contemporary Players. Opportunities to perform early music, both vocal and instrumental, are available through Collegium Musicum and through private study. Internships for teaching college-level music are offered for students wishing to pursue an academic career. Workshops in Orff, Kodaly, and other approaches to music education are offered during the academic year and as part of the Summer Arts Institute through the Center for the Study of the Arts and Innovation for music educators who wish to continue their studies. The annual Thyagaraja (Aradhana) Festival

at Cleveland State is the largest international festival of Indian music held outside of India.

Through its core and specialized courses, Cleveland State's graduate music program is designed to provide solid musical training and to prepare students for careers in their area of specialization. The program is an excellent foundation for doctoral study. Students have gone on to careers in composition, arranging, conducting, choral music, electronic music, musicology, criticism, performance, library science, and teaching at the university level and in elementary and secondary schools. Cleveland State students have won awards for international study and have received appointments overseas. The music program attracts international students, as well as students from across the United States.

Financial Assistance

The Music Department offers graduate assistantships, which pay tuition plus a stipend, and graduate tuition grants without stipend. To be eligible, students need a grade-point average of at least 3.0. Applications must be received by March 31 for the following academic year. Application forms are available from the Department of Music. Further details on requirements and service obligations are in the music department's Graduate Student Handbook. Students are encouraged to audition for the Graduate String Quartet and the Graduate Woodwind Quintet.

Admission Information

All College of Graduate Studies admission requirements must be met.

Admission into the Department, at the graduate level, occurs after a conference with the head of the area in which the student expects to specialize. Contact the Department of Music at (216) 687-2033 for an appointment.

The Department has different entry requirements for each area of specialization:

Performance: An audition is required prior to admission for all students who wish to specialize in performance. In the audition, which should last fifteen minutes or longer, the student must demonstrate performance proficiency with some

stylistic breadth. An audio tape or videotape may be provided in lieu of a live audition, with prior approval of the Department.

Composition: Applicants must submit a portfolio of representative works for evaluation.

Music Education: Two letters of recommendation from supervisory personnel who can attest to the applicant's teaching ability are required.

All applicants are administered a diagnostic advisory examination in music history. Those who do not pass the examination are required to take MUS 511 and/or MUS 512. The examination must be taken before the student's first registration. Arrangements can be made by contacting the Director of the Graduate Program at (216) 687-3768.

Students who wish to change from non-degree status to degree-seeking status should consult the Degree Admission section of this Catalog.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements

A candidate for the Master of Music degree must fulfill a total of thirty credit hours in approved graduate courses, including:

I. Core Courses

MUS 514 Introduction to World Musics (3 credits)

MUS 595 Music History Seminar (3 credits)

MUS 602 Analytical Techniques (3 credits)

II. Required Courses for Areas of Specialization

A. Composition

MUS 521 Composition Forum (two semesters, for a total of 2 credits)

MUS 527 Computer Music and MIDI I (3 credits)

MUS 528 Computer Music and MIDI II (3 credits)
 MUS 620 Composition (two semesters, for a total of 6 credits)
 MUS 635 Composition Recital (2 credits)
 MUS 689 Composition Thesis (4 credits)
 600-level Electives (3 credits)

B. *Music Education*

(vocal, instrumental, and supervision concentrations available)

MUS 554 Foundations and Principles of Music Education (3 credits)

MUS 584 Seminar in Music Education (3 credits)**

**Three credits of Music Education Workshops may be substituted for the Seminar in Music Education. Within the guidelines of the College of Graduate Studies rules and regulations dealing with transfer credits, workshops offered by institutions other than Cleveland State may apply toward this facet of the degree with approval of the Cleveland State Music Education Coordinator.

MUS 611 Research Techniques in Music Education (4 credits)

MUS 679 Research Projects in Music Education (3 paper option, 6 credits) or MUS 699 Thesis (6 credits)

600-level Applied Music (2 credits)

Electives (3 credits)

C. *Performance*

600-level Applied Music (2 courses, for a total of 4 credits)

MUA 603 Recital Preparation (2 courses, for a total of 4 credits)

MUA 605 Performance Pedagogy (2 credits)

MUA 606 Repertoire (2 credits)

MUS 632 Solo Recital (2 credits)

Electives (7 credits)

III. Other Courses

MUS 510 The Business of Music (3 credits)

MUS 511 Music History I (3 credits)

MUS 512 Music History II (3 credits)

MUS 515 World Music Studies (3 credits)

MUS 551 Orchestration (3 credits)

MUS 556 Lyric Diction (3 credits)

MUS 575 Workshop (1-4 credits)

MUS 576 Extended Workshop (1-4 credits)

MUS 589 Colloquium (1-4 credits)

MUS 593 Special Topics (1-4 credits)

MUS 615 Teaching College Music (2 credits)

MUS 698 Master's Project (1-6 credits)

IV. Performing Ensembles

All ensembles are 1 credit

MUS 501 University Chorus

MUS 502 Band/ Wind Ensemble

MUS 503 Collegium Musicum

MUS 504 University Orchestra

MUS 505 CSU Chorale

MUS 506 Chamber Ensemble

MUS 507 Jazz Ensemble

MUS 508 Opera Workshop

V. Applied Music

See MUA listings in the "Courses" section. There is a surcharge fee for all MUA courses.

Electives

Any of the courses listed above under II. (Required Courses for Areas of Specialization), III. (Other Courses), IV. (Performing Ensembles), and V. (Applied Music) may, if appropriate, be taken as electives. Electives from other disciplines may be used to meet degree requirements with approval of the department.

Juries

Students specializing in performance must be evaluated by an advisory jury in the student's major applied area before completion of six hours of applied major study.

Exit Requirements

Please refer to course descriptions for MUS 632, MUS 633, and MUS 635 (recitals) and MUS 679, MUS 689, MUS 698, and MUS 699 (theses and research projects) and the Music Department's Graduate Student Handbook for further guidelines.

Language Requirement

Those who intend to specialize in performance (voice or choral studies) must satisfy the appropriate language requirements.

For performance majors in choral conducting, the language requirement consists of an oral demonstration of proficiency in diction in liturgical Latin, German, French, and Italian.

For voice students, the language requirement consists of an oral demonstration, through the recital requirement, of proficiency in diction in Italian, French, and German.

Exit Project

A student's graduate program culminates in a suitable exit project (e.g., a thesis or a recital) arranged through a principal advisor and reviewed by a committee of three faculty members. A student in music education may complete three suitable papers in lieu of a thesis.

Comprehensive Examination

A comprehensive examination is required for all candidates. The examination serves as an opportunity for both the candidate and the Department to assess the student's ability to synthesize the content of the degree, both in breadth and in the area of specialization. Students are directed to the information on the Comprehensive Examination under their track requirement in the Department of Music's Graduate Student Handbook.

Graduate Handbook

The Department of Music's Graduate Student Handbook is the definitive source for current curriculum requirements and course listings. The handbook is available in hard copy and online at music.csuohio.edu/.

Course availability

Please refer to the Department's Graduate Student Handbook for the availability of courses. Not all courses are offered every semester.

Master of Arts in Philosophy

Department of Philosophy

Rhodes Tower 1932
(216) 687-3900
www.csuohio.edu/philosophy

Diane Steinberg, Department Chair
Jane McIntyre, Graduate Program
Director

Faculty

Current faculty information can be located on the Department of Philosophy Web site.

Introduction

The Master of Arts in Philosophy program provides an opportunity for graduate study to individuals with a serious interest in philosophy. Inquiries are welcome from students whose primary background is in another field or academic discipline. The program regularly offers courses in all the major areas of philosophy, meeting the needs of those who are preparing to enter a Ph.D. program, as well as those studying for personal or professional enrichment.

Faculty Research and Publications

Faculty members of the Department of Philosophy currently are writing and conducting research in the fields of applied ethics, including bioethics and engineering ethics; social and political philosophy; theories of justice; philosophy of law; theories of human rights; philosophy of language; philosophy of science; history of philosophy; and metaphysics. Faculty members regularly publish their research in national and international philosophy journals and in books and monographs.

Financial Assistance

The department awards several teaching assistantships each year. A student interested in applying for an assistantship should write a letter to the Graduate Advisor requesting consideration when he or she submits an application for graduate admission.

Career Information

Graduates of the Master of Arts in Philosophy degree program have gone on to successfully complete Ph.D. programs; others teach at the community college level.

Admission Information

To be admitted to the program, the student must satisfy College of Graduate Studies requirements for admission. Although an undergraduate major in philosophy is not required, some study in philosophy beyond the introductory level is strongly recommended. A background in the history of philosophy and in logic is especially important, and deficiencies in these areas must be made up early in the student's graduate career.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements

All students must meet University degree requirements stated in the front section of this Catalog.

Core Requirements

1. Thirty-two (32) credits are required for graduation. These must include at least one course in two of the following areas:
 - a. Philosophy of science, metaphysics, or epistemology.
 - b. Ethics, aesthetics, or social and political philosophy.
 - c. Logical theory.

The remaining courses must be selected in accordance with either the thesis option or the non-thesis option.

2. Every student must pass a written comprehensive examination.
 - a. Students in the general MA program must demonstrate proficiency in the history of philosophy. The examination is divided into two parts: 1) Ancient and Medieval Philosophy and 2) Modern and

19th-Century Philosophy. The two parts may be taken in different semesters. Students may not take either part of the examination more than three times. A reading list for preparation for the examination is available in the departmental office. Works on the reading list are also regularly covered in seminars on prominent philosophers (PHL 505). Students are not expected to take the examination prior to completing sixteen hours of graduate work, but may take it anytime thereafter.

- b. Students in the bioethics concentration are examined on the history of ethics, ethical theory, and bioethics.

Thesis Option

Before registering for PHL 699 (Thesis), students must receive formal approval of their proposed thesis topic from the department and the College of Graduate Studies. Students should consult with the Graduate Advisor in the semester prior to their first registration for PHL 699. The program for students who elect to write a thesis must meet the following conditions:

1. A minimum of twenty-four credits in courses other than PHL 614, PHL 689, PHL 691, PHL 696, and PHL 699.
2. No more than eight credits for research and thesis courses (PHL 696 and PHL 699).
3. Completion of an acceptable thesis under the direction of a departmental faculty member. Three copies of the thesis must be submitted to the Graduate Advisor at least six weeks prior to the expected date of graduation. Three readers, including the thesis advisor, will examine the student in an oral defense. One reader may be chosen from another discipline related to the thesis topic. The endorsement of the thesis by all three readers will constitute formal acceptance by the department. Two bound copies of the thesis are required by the department.

Non-thesis Option

The program for students who elect the non-thesis option must meet the following conditions:

1. A minimum of twenty-eight credits in courses other than PHL 614, PHL 689, PHL 691, PHL 696, and PHL 699, three of which must be courses requiring substantial papers.
2. No more than four credits of PHL 696.

Concentration in Bioethics

Students who complete the core requirements in Philosophy and the requirements for Bioethics Certification (see Graduate Certificate in Advanced Study in Bioethics section of this Catalog) can receive a Master of Arts in Philosophy with a Concentration in Bioethics. Students in this concentration must take the Bioethics comprehensive examination.

Master of Arts in Spanish

Department of Modern Languages

Rhodes Tower 1619
(216) 687-4645
www.csuohio.edu/mod_languages/gradprog.htm

Philippa Brown Yin, Department of
Modern Languages Chair
Antonio Medina Rivera, Graduate
Program Director

The Faculty

Current faculty information can be located on the Department of Modern Languages Web site.

Introduction

The Master of Arts in Spanish program provides advanced study in Hispanic language, literature, and culture to individuals preparing for, or involved in, a career in teaching, or in other professional programs, such as law and international business. The program meets the needs of students seeking a terminal master's degree and those who are preparing to enter a Ph.D. program, as well as individuals studying for personal enrichment or professional advancement.

The Master of Arts in Spanish degree program is housed in the Department of Modern Languages. The department also offers courses in support of the Master of Education degree with a specialization in Curriculum and Instruction in French, German, and Spanish. Thus, students have the opportunity to be part of a larger group of graduate students and to take related courses, when appropriate, in other language or focus areas.

The program is organized to support both full-time and part-time students, and particularly those holding teaching positions. Courses are offered throughout the academic year and during the summer. Study abroad programs in the summer allow full-time immersion in a Hispanic culture and intensive language study.

The Master of Arts in Spanish program has the following unique features:

1. A personalized program plan allows students to specialize in an area of interest and makes them consciously aware of their course work as a coherent whole.
2. The study abroad requirement obliges students to relate to native speakers in their own environment and to apply learning in a practical manner.
3. The option to include four hours outside of the Spanish area allows students to view their specialized training in a broader humanistic context. This reflects both national trends and the needs of students, especially those who are teachers and will continue in that career.
4. The inclusion of oral proficiency standards relates to rising enrollments in foreign language study at all levels. In addition, reassessment by the American Council on the Teaching of Foreign Languages (ACTFL) and professional associations devoted to specific languages, as well as recent trends in the general field of foreign language education, have made this inclusion timely.

Faculty Research and Publications

All members of the graduate faculty are active scholars who participate in regional, national, and international associations. In recent years, members of the faculty have made significant contributions by authoring books, book chapters, and articles in a wide variety of scholarly fields.

The members of the graduate faculty publish extensively in the areas of 16th-century lyric poetry, Golden Age drama, Cervantes, the novels of the 18th and 19th centuries, Spanish-American and Caribbean literature with special emphasis on women writers, Mexican theater and poetry, narrative, and contemporary Peninsular poetry and prose. Faculty members also have published on foreign-language education, especially the teaching of foreign literatures and language acquisition.

Financial Assistance

A limited number of graduate assistantships and graduate tuition waivers are provided each year to qualified students. These students may assist in course instruction or other activities as assigned. Students interested in applying for an assistantship or graduate-tuition grant should write to the MA in Spanish Graduate Director, when applying to the program. Reference should be made to prior teaching experience and to the anticipated effect of an assistantship or graduate-tuition grant on the student's plan of graduate study. An undergraduate grade-point average of at least 3.0 is required. Students who are selected as teaching assistants must take the graduate teaching methods course (SPN 631) as early as possible in their program as part of their supervised experience.

Career Information

Graduates of the Master of Arts in Spanish program typically continue to be teachers in local secondary schools, teach at the community-college level, or enter Ph.D. programs in Spanish. Other careers are diverse, including government service, international business, librarianship, media, and management fields.

Admission Information

In addition to College of Graduate Studies requirements for admission, applicants must meet the following criteria:

1. An undergraduate major in Spanish, or the equivalent, as determined by the Graduate Studies Committee of the Department of Modern Languages. Students without an undergraduate major in Spanish may be admitted under special status and are required to take prescribed courses at either the undergraduate or the graduate level to ensure adequate preparation. Undergraduate courses taken to remediate deficiencies do not count toward graduate degree requirements. Graduate work may begin for any area as soon as appropriate course work or experience qualifies the student.
2. A speaking ability in Spanish equivalent to "advanced" level guidelines established by the ACTFL. Students

admitted under special status based on this criterion must demonstrate ACTFL “advanced” proficiency upon completion of the summer session abroad or take additional course work beyond the program requirements until the level is achieved.

3. Applicants must submit a personal essay in Spanish. The essay must outline the applicant’s professional goals and how they relate to the program. The essay is considered both an example of the applicant’s writing ability and an expression of the applicant’s professional goals.
4. Each applicant must submit a handwritten sample of work in Spanish. It may be a test, a significant homework assignment, or a term paper.
5. All applicants need to take the Praxis II Spanish Content Examination. This is the test that Ohio teachers must take and pass to become licensed.

After admission to the program, students may request transfer of a maximum of eight hours of graduate work completed in appropriate courses at other institutions. Transfer credit usually is not granted for courses taken more than four years prior to admittance to the program. Transfer credit is subject to approval by the Graduate Program Director and the Chair of the Department of Modern Languages. Transfer credit generally will not count toward meeting the distribution requirements of the program.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements

In addition to the graduation requirements of the College of Graduate Studies, a candidate for the Master of Arts degree in Spanish must complete a program of study for a total of thirty-two credit hours at the 500-level or above with a grade-point average of at least 3.0. The student works with an advisor to develop an appropriate plan of study that must be reviewed and approved by the Graduate Program Director and the Chair of the Department of Modern Languages. The program plan should be submitted for approval as early as feasible after the student has completed eight hours of acceptable graduate work. Upon approval of the Plan of Study, the student becomes a candidate for the MA degree. The program must include the following components:

1. A distribution requirement composed of a course in research methods and one course each in literature, language, and culture (the three traditional divisions within the field of Hispanic studies).
2. A field of concentration of at least sixteen credit hours constituting a coherent and focused program of study developed by the student in consultation with an advisor. Distribution courses may be applied to the field of concentration as appropriate.
3. A maximum of four hours of graduate-level course work outside of the Spanish area may be applied toward the MA degree with the approval of the Graduate Studies Committee in the Department of Modern Languages. This is not an option when a student has chosen to transfer credit from another institution or when the student has chosen to write a thesis.
4. Students must participate in one of the Department’s Summer Study Abroad Programs, which are offered alternately in Spain and Mexico. Cleveland State has formal programs for this purpose that provide University oversight, faculty, and courses in combination with the work completed in these programs abroad. Student aid and both internal and external scholarship funding may be available. The credit earned in these programs applies directly toward the degree. Study abroad undertaken on an independent basis applies under the transfer credit provision. Students with appropriate foreign experience and achievement at the “advanced” level on the ACTFL oral proficiency test may petition to be exempted from this requirement. Students for whom the study abroad experience would create a hardship may petition to develop an alternative experience in consultation with their advisors. Students can participate in no more than two Summer Study Abroad Programs for credit toward the degree. A minimum of three courses/twelve credits (including SPN 501) need to be taken in a regular CSU semester in which the students will have the opportunity to write three research papers for our regular Cleveland State faculty.
5. The MA program in Spanish does not accept more than one B- in the student program of study. Students obtaining more than one B- will need to take additional courses to cover for the deficiency, until completing thirty-two credits with no more than one B-.

Program and Course Approval

The MLA Spanish faculty closely monitor the academic quality of the programs in which students enroll. Students are required to meet with both the program’s director and their graduate advisor to discuss the courses they wish to take to ensure that they will receive credit on their return. The Spanish faculty may impose additional requirements for credit to be granted and will evaluate credits upon return from study abroad.

Exit Requirements

Each student must pass a final oral examination. In addition, each student must pass a written examination, covering three fields of the program reading list or must take two additional courses, which provide additional depth and breadth to the student’s area(s) of concentration.

For the written examinations, students are responsible for readings in three fields to be chosen from the fifteen that comprise the areas of Peninsular Civilization and Culture, Hispanic-American Civilization, Language and Linguistic Studies, Peninsular Literature, and Hispanic-American Literature.

With the approval of the departmental Graduate Committee, students may elect to write a thesis instead of taking eight hours of course work.

Business Administration

Doctor of Business Administration ■

Master's Degree Programs:

Accountancy ■

MBA Programs ■

Accelerated MBA

Executive MBA

JD/MBA

MSN/MBA

Health Care Administration Specialization

Computer and Information Science ■

Labor Relations and Human Resources ■

For information on the Master of Public Health and the Joint MSN/MBA programs, see the Health Professions section of this *Catalog*.

Doctor of Business Administration

College of Business Administration

Ahuja Hall 420
(216) 687-6952
www.csuohio.edu/cba/academic/doctoral/doctoral.html

Raj Javalgi, Graduate Program Director

Current faculty information can be located on Department Web sites.

Introduction

The objective of the Doctor of Business Administration (DBA) program is to develop within each candidate an expertise in a functional area of business administration so that he or she may advance business theory and practice and enhance the contributions that business can make to the larger community.

The DBA degree prepares the student for a rewarding academic career in teaching and research at the college or university level. Alternatively, the program offers advanced training in a variety of business areas that significantly enhance the student's business career development. Regardless of the career path selected, the DBA program provides students with an intellectually challenging and rewarding experience.

The DBA program is designed to provide an academically rigorous experience to a diverse population of traditional and non-traditional students. The degree can be pursued while working full-time. To provide flexibility and to meet the needs of working students, course work is offered through evening and weekend classes. A limited number of research and teaching assistantships provide financial support for full-time graduate students. Students with assistantships take nine to twelve credit hours of course work each term, and are expected to devote twenty hours per week of assistance to the College of Business Administration.

Students must choose a major area of specialization and take additional course work in complementary fields. The DBA program is currently accepting students in the following majors:

- Finance
- Information Systems

- Marketing
- Operations Management

Admission Requirements

In addition to meeting the College of Graduate Studies requirements for admission, an applicant to the DBA program must hold a master's degree in business administration (MBA or equivalent) from an accredited college or university and must meet the following minimum standards:

1. At least 1,260 points based on the following formula: 200 times the graduate grade-point average plus the total score for the Graduate Management Admission Test (GMAT). A minimum score at the 70th percentile on the GMAT is preferred. GMAT scores should be provided from a test taken within five years prior to application to the DBA program.
2. The formula outlined above serves as a general guideline for the Doctoral Program Faculty Committee, which makes admission recommendation to the Graduate College Admissions office. Applicants also must submit a current resume, a statement of goals and objectives, and three letters of recommendation. At least one letter should come from a college professor familiar with the applicant's graduate-level performance and academic ability.

Preparatory Program

The basic preparation for the DBA program is the Master of Business Administration (MBA) degree or its equivalent (e.g., Master of Accountancy) from a program accredited by the Association to Advance Collegiate Schools of Business (AACSB). If the applicant's master's degree is not an MBA (or its equivalent) from an AACSB-accredited program, the student must present evidence of the completion of the 500- and 600-level core requirements (or their equivalents) for the College of Business Administration's MBA program.

An application, an official transcript from each college and university previously attended, and other application materials must be sent to the Office of Graduate

Admissions, Cleveland State University, 2121 Euclid Avenue, Cleveland, Ohio 44115.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Requirements for the DBA Degree

1. **Completion of a minimum of sixty-eight semester credit hours (forty-four hours of courses, twenty-four hours of doctoral research) with a minimum grade-point average of 3.0.**

Enrollment in DBA classes is limited to students admitted to the DBA program.

Each DBA student must complete the following program of study, including specific core, major, and support courses, seminars, electives, and doctoral dissertation research:

- a. Foundational courses, including courses in a student's functional area, and a teaching seminar (minimum 9 credits)
- b. Advanced Analytical and Operational Core (minimum 12 credits)
- c. Major (minimum 18 credits)
- d. Additional research seminars (6 to 8 credits)
- e. Dissertation research (minimum 18 credits)

Students must register for twelve dissertation research credits per semester during their first year with the dissertation project. After the first year, students must register for a minimum of one dissertation credit hour each semester until the dissertation is completed. Permission of the DBA Director must be obtained prior to registering for any courses numbered 891, 895, 896, or 899.

2. **Selection of a major advisor and an advisory committee.**

As the student progresses toward the research phase of the program, he or she selects a major research advisor.

In consultation with the major advisor, the student selects at least three additional Graduate Faculty members to comprise the advisory committee. Of these three members, one must be a member of the Graduate Faculty within the student's major area of specialization, and another must be a Graduate Faculty member from outside of the College of Business Administration. The major advisor and the composition of the advisory committee may change during a student's program of study, due to changes in faculty availability and/or changes in a student's needs or interests.

3. Attendance at doctoral and college seminars.

Doctoral students at the pre-dissertation stage are encouraged to attend regular dissertation-research seminars to hear presentations from faculty members, outside speakers, and doctoral students. Attendance at the dissertation-research seminars is mandatory for students in the dissertation stage of their program.

4. Satisfactory performance in the comprehensive examinations.

Upon completion of formal course work, the student must demonstrate competence in their major field by passing a required comprehensive examination. The written examination is prepared and graded by the Graduate Faculty on the Doctoral Committee from the major area of specialization. Examinations are scheduled and administered by the Director of the DBA program twice a year. Examinations must be completed satisfactorily before beginning the dissertation project.

5. Presentation and defense of the dissertation proposal.

Upon completion of the formal course work and passing the comprehensive examination, the student prepares a dissertation proposal in his or her major area of specialization. Upon approval by the major advisor, the student makes an oral presentation and defense of the proposal to the Dissertation Committee and other College of Business Administration Faculty.

6. Presentation and defense of the dissertation.

Upon completion of the dissertation, the student makes an oral presentation and defense of the dissertation to his or her committee and the College of Business Administration Faculty.

Advanced Analytical and Operational Core and Teaching Seminar

DBA students begin their course work by completing the courses in the Advanced Analytical and Operational Core and the Teaching Seminar while limiting their course work in the major. This core is designed to help students develop technical and research

skills, and the ability to solve administrative problems.

Preparatory Requirements

OMS 733 Multivariate Statistical Methods (3 credits) DBA 802 Applied Multivariate Statistical Analysis (4 credits) DBA 803 Business Research: Analysis and Applications (4 credits) DBA 720 Seminar on Business Teaching Methods (2 credits)

A teaching-effectiveness course (DBA 720) is offered to ensure that the student develops the skills needed to become an effective instructor. It should be taken at the beginning of the student's doctoral course work.

Workshops

Several workshops assist the DBA student through various stages of the program. These include sessions on enhancing teaching and computer skills, research methodology, and planning and completing the dissertation. In addition, a special workshop is offered each year to help prepare students for their comprehensive examinations.

Requirements for the Major

Each DBA student chooses a major area of specialization within the College of Business Administration. The departments offering the major course work may prescribe additional preparatory requirements beyond the minimum preparation for admission to the DBA program. The student's academic advisor and the DBA Director work with the student to prepare a program of study, including any needed preparation. Depending upon the student's background and research interests, he or she may be required to complete more than the minimum number of courses required in the major.

The following sections present the requirements for the area specializations offered within the College of Business Administration.

Finance (FIN) Major

www.csuohio.edu/cba/fin/index.html

Preparatory Requirements

An MBA degree (or the equivalent) is required, including a strong background in the theory of finance, financial management, and intermediate-level microeconomics. A candidate should have completed the following finance courses (or their equivalents):

FIN 501 Financial Management (3 credits)

FIN 601 Financial Policies (3 credits)

Major Courses

FIN 801 Theory Seminar (3 credits)
 FIN 802 Seminar in Corporate Finance (3 credits)
 FIN 803 Seminar in Investment and Portfolio Models (3 credits) FIN 804 Seminar in Financial Institutions and Markets (3 credits)
 FIN 805 Seminar in International Financial Management (3 credits)
 FIN 806 Seminar in Real Estate (3 credits)
 FIN 807 Applied Research Methods and Design in Finance (3 credits)
 FIN 891 Doctoral Research in Finance (1-12 credits)
 FIN 895 Dissertation Research Seminar (3 credits)
 FIN 896 Current Problems in Finance (1-4 credit)
 FIN 899 Dissertation (1-12 credits)

Information Systems (IST) Major (See Addenda Revised 06/2007)

www.csuohio.edu/cba/academic/doctoral/dba-infosys.html

Preparatory Requirements

Applicants for the DBA degree with an Information Systems specialization must have either an MBA or a master's degree in Information Systems or a closely related field. Students who do not have an MBA and/or lack sufficient IS background should take the preparatory courses below. The exact sequence is determined by the student's advisor.

Business Preparatory Requirements

ACT 501 Financial Accounting (3 credits)
 FIN 501 Financial Management (3 credits)
 MKT 501 Marketing Theory and Practice (3 credits)
 MLR 511 Organizational Behavior (3 credits)
 OMS 503 Statistical Methods for Business Decisions (3 credits)

IST Preparatory Requirements

IST 602 Advanced Programming of Business Systems (4 credits)

- IST 603 Systems Analysis and Methods (4 credits)
 IST 604 Modern Database Design and Implementation (4 credits)
 IST 606 Management of Business Networks (4 credits)

Preparatory courses may be waived based upon the background of the student.

Major Courses

- IST 800 Research Design and Measurements (4 credits)
 IST 801 Foundations of Information Systems (4 credits)
 IST 802 Seminar in Information Systems Current Topics (4 credits)
 IST 803 Knowledge Management (4 credits)
 IST 891 Doctoral Research in Information Systems (1-5 credits)
 IST 895 Dissertation Research Seminar (3 credits)
 IST 896 Current Problems in Information Systems (1-5 credits)
 IST 899 Dissertation (1-5 credits)
 MLR 891 Doctoral Research in Management and Labor Relations (1-12 credits)
 MLR 895 Dissertation Research Seminar (3 credits)
 MLR 896 Current Problems in Management and Labor Relations (1-4 credits)
 MLR 899 Dissertation (1-12 credits)

Marketing (MKT) Major

www.csuohio.edu/cba/mkt/index.html

Preparatory Requirements

An MBA degree (or the equivalent) is required, including a strong background in marketing theory, marketing practices, and marketing research. A candidate should have completed the following courses (or their equivalents):

- MKT 501 Marketing Theory and Practice (3 credits)
 MKT 601 Marketing Management (3 credits)
 MKT 602/702 Marketing Research (4 credits)

At least two graduate-level electives (or their equivalents) from the following list are required:

- MKT 603/703 Buyer Behavior (4 credits)
 MKT 604/704 Strategic and Tactical Marketing (4 credits)
 MKT 605/705 Services Marketing (4 credits)
 MKT 606/706 Advertising and Promotion Management (4 credits)
 MKT 607/707 Product Management (4 credits)
 MKT 608/708 Global Marketing (4 credits)

- MBA 602/702 International Business (3 credits)

Major Courses

- MKT 800 Research Design and Measurement (3 credits)
 MKT 801 Marketing Theory (3 credits)
 MKT 802 Global Business Strategy: Theory and Practice (3 credits)
 MKT 803 Strategic Marketing and Tactical Decisions (3 credits)
 MKT 804 Multivariate Techniques in Marketing (3 credits)
 MKT 805 Theory and Research in Buyer Behavior (3 credits)
 MKT 891 Doctoral Research in Marketing (variable credit)
 MKT 895 Dissertation Research Seminar (3 credits)
 MKT 896 Current Problems in Marketing (1-4 credits)
 MKT 899 Dissertation (1-12 credits)

Operations Management (OMS)

www.csuohio.edu/cba/oms/index.html

Preparatory Requirements

An MBA degree (or the equivalent) is required, including a strong background in quantitative methods, applied probability, statistics, and mathematics. A candidate should have completed the following courses (or their equivalents):

- OMS 503 Statistical Methods for Business Decisions (3 credits)
 OMS 511 Operations Management (3 credits)
 OMS 601/701 Business Decision Methods (3 credits)
 OMS 633/733 Multivariate Statistical Methods (3 credits)
 At least one elective (or its equivalent) from the following list is required:
 OMS 611/711 Forecasting (3 credits)
 OMS 622/722 Project Management (3 credits)
 OMS 623/723 Materials and Supply Chain Management (4 credits)

Major Courses

- OMS 801 Theory of Optimization in Production and Operations (3 credits)
 OMS 802 Current Topic Professional Seminar (3 credits)
 OMS 804 Production Planning and Inventory Control (3 credits)
 OMS 805 Quality Control (3 credits)
 OMS 814 Flexible Manufacturing Systems (3 credits)
 OMS 819 Operations Strategy (3 credits)
 OMS 822 Project Management and Scheduling (3 credits)
 OMS 891 Doctoral Research in Production/Operations Management (1-12 credits)

- OMS 895 Dissertation Research Seminar (3 credits)
 OMS 896 Current Problems in Production/Operations Management (1-4 credits)
 OMS 899 Dissertation (1-12 credits)

Master of Accountancy

Department of Accounting

Ahuja Hall 512
(216) 687-4720
www.csuohio.edu/cba/act/index.html

Dennis Gaffney, Chair and Graduate
Program Director

Accreditation

The graduate programs of the Nance College of Business Administration are accredited by AACSB International. In addition to the business accreditation, the curriculum of the Accounting Department has accounting accreditation from AACSB. The accounting programs at Cleveland State were the first in the State of Ohio to receive this accreditation.

Introduction

The primary aim of the program is to develop competent accountants, knowledgeable in the areas of professional practice financial accounting/audit and tax. The program accommodates students on a full-time or part-time basis.

This program appeals to four general classifications of students:

1. Undergraduate accounting majors who wish to broaden their knowledge of accounting and expand their expertise in financial accounting/audit or taxation.
2. Undergraduate computer and information science majors who wish to expand their expertise to the area of accountancy.
3. Undergraduate business administration majors in areas other than accounting and computer and information science who wish to specialize in accountancy.
4. Students with undergraduate preparation in any area and a strong interest in the practice of accountancy.

Faculty Research and Publications

Accounting faculty members have published numerous books and journal articles on topics ranging from computer

auditing and control, cost accounting, and financial accounting, to federal taxation. Articles written by department faculty have appeared in the following journals:

Accounting Review
Journal of Accounting Research
Behavioral Research in Accounting
Journal of Accountancy
The Internal Auditor
Catalyst
Journal of Business Ethics
The International Journal of Accounting
Strategic Finance
Journal of the American Taxation Association
Cornell Hotel and Restaurant Administration Quarterly
Journal of Taxation
Journal of Accounting Education
Journal of Management Information Systems
Information Systems Audit and Control Journal
Tax Adviser
The CPA Journal
Applied Business and Administration Quarterly
The Practical Accountant
Journal of Business, Finance, and Accounting
Corporate Controller
Practical Tax Strategies
Today's CPA
Bank Accounting and Finance

Extensive computer facilities and databases are available to aid the research efforts of faculty members and graduate students.

Financial Assistance

The College of Business Administration has a limited number of graduate assistantships available each year. Students may apply for an assistantship by completing an application form available from the Graduate Business Programs Office. Copies of completed applications are circulated to department chairs, graduate program directors, and other appropriate parties within the College. Interviews with prospective graduate assistants are arranged directly by department chairs and others who hire and supervise graduate assistants.

Career Information

The Master of Accountancy is designed to prepare students for careers in business, internal audit, government, consulting, and public accounting. The primary goals and objectives of the program are to develop competent accounting professionals who are knowledgeable in the various areas of professional practice and who possess:

- the ability to provide, interpret, and communicate financial and operating information essential to understanding the activities of an enterprise;
- the preparation to assume increasing levels of responsibility and leadership in the organizations they join; and
- the qualifications to enter advanced programs in business and/or accounting.

Programs of Study

The Master of Accountancy allows the student to pursue one of two programs of study:

1. The Financial Accounting/Audit program is designed to develop competent accountants, who are knowledgeable in financial processes and procedures and are able to provide and interpret sophisticated financial information for the business community.
2. The Tax program prepares individuals for entry into, as well as advancement in, professional tax practice.

The Master of Accountancy provides students with the opportunity to develop basic technical and statistical skills, to obtain knowledge of the business disciplines, and to pursue advanced course work in accounting or taxation. Graduates of the program are prepared to enter the accounting profession and to pursue satisfying and stimulating lifelong careers. Many graduates join public accounting firms, while others seek a variety of positions in the private and public sectors. Graduates of the program are well placed and have performed well in their job assignments, according to employers. A large percentage of students become CPAs, and recently there has been an increased interest in the Certified Management Accountant

(CMA), the Certified Fraud Examiner, the Certified Internal Audit (CIA), the Certificate in Financial Management, and the Certified Information Systems Audit (CISA) examinations.

Admission Information

Applicants to the Master of Accountancy program must have:

1. A total of at least 950 points based on the following formula: 200 times the overall undergraduate grade-point average plus the Graduate Management Admission Test (GMAT) score; or at least 1,000 points based on the following formula: 200 times the upper-division grade-point average plus the GMAT score.
2. Students scoring below the 20th percentile on the verbal section of the GMAT are required to take the following remedial courses in business communication: GAD 502 (16th through 19th percentile); or GAD 501 and GAD 502 (below the 16th percentile). Students scoring below the 25th percentile on the quantitative section of the GMAT are required to take a two-credit course, OMS 500. The GMAT may be waived for applicants holding a Ph.D. or MD. Medical doctors must be licensed to practice in the United States in order to qualify for this waiver. Registration information for the GMAT is available in the Office of Graduate Admissions (Rhodes Tower West, Room 204) or the Cleveland State University Testing Center (University Center, Room 253B). For GMAT test information, visit the Web site at www.mba.com. A score from the Graduate Record Examination (GRE) cannot be substituted for the GMAT.
3. An official transcript from each college and university previously attended must be sent to the Office of Graduate Admissions.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements

The Master of Accountancy is awarded upon successful completion of the thirty-three credit hours of Professional Preparation (Level III). Preparation for taking Level III courses is through completion or waiver of all Level I and Level II course requirements. Students are not

usually allowed to register for Level III courses until all Level I and Level II courses have been either taken or waived. Petitions must be approved by the Master of Accountancy Program Director.

Professional Preparation Courses

Level I: Basic Skill Proficiency

(12 credit hours)

Courses in Level I are designed to bring skills up to acceptable levels for completing graduate-level work. These courses may be waived on the basis of prior courses, work experience, or by examination. Familiarity with Microsoft Windows, Microsoft Office, and the Internet is required.

- GAD 501 Business English (4 credits)
- GAD 502 Intermediate Business English (3 credits)
- OMS 500 Mathematical Models for Business (2 credits)
- OMS 503 Statistical Methods for Business Decisions (3 credits)

Level II: Accounting and Basic Business Knowledge

(33 credit hours)

Courses in Level II provide knowledge of the basic business disciplines to prepare students for the upper-level graduate courses. These courses may be waived on the basis of recent undergraduate business course work.

- ACT 501 Financial Accounting (3 credits)
- ACT 600 Managerial Accounting (3 credits)
- ACT 611 Financial Accounting: Resources (3 credits)
- ACT 612 Financial Accounting: Equities (3 credits)
- BLW 511 Business Law and Ethics I (3 credits)
- ECN 503 Economic Concepts (3 credits)
- FIN 501 Financial Management (3 credits)
- GAD 515 Communications for Managers (3 credits)
- MLR 501 Management and Organizational Behavior (3 credits)
- MKT 501 Marketing Theory and Practice (3 credits)
- OMS 511 Operations Management (3 credits)

Level III Courses—Professional Preparation

(33 credit hours)

Level III course work prepares the student for successful entry into the profession. Students may choose between two

programs—Financial Accounting/Audit and Tax.

Financial Accounting/Audit Program Requirements

A. Accounting

(18 credit hours)

- ACT 621 Federal Income Taxation (3 credits)* *
- ACT 622 Attest Function (3 credits)*
- ACT 631 Selected Topics in Accounting (3 credits)*
- ACT 639 Accounting Policy (3 credits)
- Two ACT electives (6 credit hours)

B. Information Systems

(15 credit hours)

- ACT 553 Information Systems Auditing (3 credits)*
- ACT 688 Accounting Systems (3 credits)*
- Two IST/CIS electives (6 credit hours)
- Business elective (3 credit hours)

Tax Program Requirements

A. Taxation

(12 credit hours)

- ACT 621 Federal Income Taxation (3 credits)**
- ACT 636 Federal Income Taxation of Corporations and Shareholders (3 credits)
- ACT 637 Taxation of Partnerships (3 credits)
- ACT 638 Tax Research and Planning (3 credits)

B. Taxation, Accounting, and Business Electives

(21 credit hours)

- Three ACT electives (Tax) (9 credit hours)
- ACT elective (Accounting or Tax) (3 credit hours)
- Three accounting or business electives (9 credit hours)

**With successful completion of an equivalent course, this course will be waived and an additional ACT or IST course at the same level will be required.*

***With successful completion of an equivalent course, this course will be waived and an additional tax course at the same level will be required.*

Degree Candidacy

A student becomes a candidate for the Master of Accountancy degree upon:

1. Completion of the preparatory program.
2. Approval of a program of study.

Master of Business Administration

College of Business Administration

Ahuja Hall 219
(216) 687-3730
www.csuohio.edu/cba/academic/graduate/mba.html

W. Benoy Joseph,
Graduate Program Director

The Faculty

Current faculty information can be located on the Departments' Web sites.

Introduction

The Master of Business Administration program, which is designed for students with undergraduate degrees in either business or non-business areas, prepares individuals for careers in management. The program encourages men and women to develop knowledge, abilities, attitudes, technical skills, and understanding that will provide the foundation for the growth of competent and responsible managers and leaders.

The program is designed to meet the needs of both full-time and part-time students. All required courses are offered both during the day and in the evening. MBA programs are also offered at various off-campus locations in the Cleveland metropolitan area.

Accreditation

The graduate business programs of the Nance College of Business Administration are accredited by AACSB International, the Association to Advance Collegiate Schools of Business. In addition to the business accreditation, the curriculum of the Accounting Department has accounting accreditation from AACSB. The accounting programs at Cleveland State were the first in the State of Ohio to receive this accreditation. The Health Care Administration specialization in the MBA Program is accredited by the Commission on Accreditation of Healthcare Management Education (CAHME).

Financial Assistance

The College of Business Administration provides a limited number of graduate tuition grants and graduate assistantships.

Tuition grant awards generally are reserved for first-year MBA students. Awards require a minimum nine-credit-hour course load, and ten hours of service per week to the College. Graduate assistantships generally are reserved for second-year MBA students. They require a minimum nine credit-hour course load, and twenty hours of service per week. Application forms may be obtained in the Graduate Business Programs Office (Ahuja Hall 219).

Admission Information

Admission to the Master of Business Administration program is based on the following criteria:

1. Applicants must meet all College of Graduate Studies admission requirements.
2. The applicant must earn a minimum of 950 points based on the following formula: 200 times the overall undergraduate grade-point average plus the Graduate Management Admission Test (GMAT) score; or at least 1,000 points based on the following formula: 200 times the upper-division grade-point average plus the GMAT score.
3. Students scoring below the 20th percentile on the verbal section of the GMAT are required to take the following remedial courses in business communication: GAD 502 (16th through 19th percentile); or GAD 501 and GAD 502 (below the 16th percentile). Students scoring below the 25th percentile on the quantitative section of the GMAT are required to take a two-credit course, OMS 500. The GMAT may be waived for applicants holding Ph.D. or MD degrees. Medical doctors must be licensed to practice in the United States in order to be considered for a waiver. Registration information for the GMAT is available in the Office of Graduate Admissions, Rhodes Tower West, Room 204. For GMAT test information, visit the Web site at www.mba.com. A score from the Graduate Record Examination (GRE) cannot be substituted for the GMAT.
4. An official transcript from each college and university previously attended must be sent to the Office of Graduate Admissions.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

MBA Bridge Program for International Students

Students who have completed the three year B-Com degree from institutions outside the U.S. may be eligible for admission to the College of Business Administration MBA "Bridge" program. A bridge program is also available for the MCIS applicants with three year baccalaureate degrees in science or engineering.

The bridge program requires students who qualify for admission to the MBA to complete an additional twenty-four credits of graduate courses in the field. The bridge courses must be selected after consulting with the program advisor. These courses may be taken at the beginning or at the end of the program of study.

For more information about the bridge program, please call the Graduate Business Programs Advising Office at (216) 687-3730. The office is located in Ahuja Hall 219.

Non-Degree Students

Non-degree students awaiting admission to a graduate program in the College of Business Administration are allowed to take a maximum of twelve credit hours from the following list of courses:

- ACT 501 Financial Accounting (3 credits)
- ECN 503 Economic Concepts (3 credits)
- FIN 501 Financial Management (3 credits)
- GAD 501 Business English (4 credits)
- GAD 502 Intermediate Business English (3 credits)
- GAD 515 Communications for Managers (3 credits)
- MBA 500 Environment of Business (3 credits)
- MLR 501 Management and Organizational Behavior (3 credits)
- MKT 501 Marketing Theory and Practice (3 credits)

- OMS 500 Mathematical Models for Business (2 credits)
 OMS 503 Statistical Methods for Business Decisions (3 credits)
 OMS 511 Operations Management (3 credits)

A student must be admitted as a Regular graduate student in the MBA program before being allowed to register for more than twelve graduate credit hours in the College of Business Administration.

Degree Requirements

The Master of Business Administration degree is awarded on the basis of successful completion of a minimum of thirty-two credit hours of upper-level MBA courses (Level III). Preparation for taking Level III courses is achieved through completion or waiver of all Level I and Level II course requirements. Students usually are not allowed to register for Level III courses until all Level I and Level II courses have either been taken or waived. Petitions must be approved by the MBA Program Advisor.

The Master of Business Administration degree includes courses from all of the departments of the Nance College of Business Administration, as well as courses from the Department of Economics. Questions regarding the program or specific courses should be directed to the Graduate Business Programs Office.

Courses in the three levels are as follows:

Level I: Basic Skill Proficiency

Courses in Level I are specially designed to bring skills up to acceptable levels for doing graduate-level work. These courses may be waived; please consult with the program advisor. Familiarity with Microsoft Windows, Microsoft Office, and the Internet is required.

- GAD 501 Business English (4 credits)
 GAD 502 Intermediate Business English (3 credits)
 OMS 500 Mathematical Models for Business (2 credits)
 OMS 503 Statistical Methods for Business Decisions (3 credits)

Level II: Basic Business Knowledge

Level II courses are designed to provide knowledge of the basic business disciplines to prepare students for the upper-level MBA courses. These courses may be waived on the basis of recent undergraduate business course work.

- ACT 501 Financial Accounting (3 credits)

- ECN 503 Economic Concepts (3 credits)
 FIN 501 Financial Management (3 credits)
 GAD 515 Communications for Managers (3 credits)
 MBA 500 Environment of Business (3 credits)
 MLR 501 Management and Organizational Behavior (3 credits)
 MKT 501 Marketing Theory and Practice (3 credits)
 OMS 511 Operations Management (3 credits)

Level III: Upper-level MBA Courses (minimum 32 credits)

These three groups of required courses are the heart of the MBA curriculum:

Group A: Functional Core

- ACT 600 Managerial Accounting (3 credits)
 FIN 601 Financial Policies (3 credits)
 MLR 601 Human Resources Management and Labor Relations (3 credits)
 MKT 601 Marketing Management (3 credits)

Group B: Integrative Core

- MBA 600 Team Dynamics (1 credit)
 MBA 602 International Business (3 credits)
 MBA 603 Management of Innovation, Technology, and Quality (3 credits)
 MBA 660 Integrative Business Strategy (4 credits)

Group C: Electives

Three graduate business electives (at least two at the 600 level) in any functional business area must be taken. Courses listed in Levels I and II of the MBA program cannot be taken as electives. Each department in the College of Business Administration offers courses in faculty-supervised independent study or internships. Only one of the two courses may be counted as an elective toward the MBA degree. Please see the course description section of this Catalog for each department.

Additional Requirements

The required credit hours of course work must be completed with the following conditions:

- All credits must be for business courses, taken either at Cleveland State University or transferred from another business college (see Transfer of Credit below).
- One of the three electives may be a 500-level course. See the course descriptions for a list of available courses.

- A minimum grade-point average of 3.0 in total work attempted while registered in the MBA program is required. College of Graduate Studies regulations regarding grades below B are applicable.
- Level III courses must be completed within six years prior to the proposed graduation date.

Transfer of Credit

Transfer credit may be granted for no more than nine semester hours of Level III courses, provided that the courses were completed for graduate credit at an institution accredited by the AACSB. Graduate courses may not be transferred from other Cleveland State University colleges, except as allowed by the JD/MBA program.

Specialization See Addendum

Within the MBA curriculum, specialization can be achieved by taking three elective courses (no more than one at the 500 level) within any of the following business disciplines: Accounting, Finance, Health Care Administration, Information Systems, Management and Labor Relations, Marketing, and Operations Management and Business Statistics. Specialization also can be earned in Business Economics. Refer to the Master of Arts in Economics program description in this Catalog for a list of courses and descriptions.

The College of Business Administration also offers the following master's degree programs in specialized areas:

- Master of Accountancy
- Master of Computer and Information Science
- Master of Labor Relations and Human Resources
- Master of Public Health

One-year Accelerated MBA Program

The Accelerated MBA program enables an employed person to complete the MBA degree within a calendar year by attending classes on Saturdays and alternating Friday evenings. To qualify for admission, applicants must have a total of at least 1,000 points based on the following formula: 200 times the overall undergraduate grade-point average plus the GMAT score. Applicants to the Accelerated MBA program must be able to waive all Level I and Level II course requirements. This program is

ideal for students with a recent bachelor's degree in business, or those candidates who have completed the necessary first-year MBA prerequisites. Participants can begin the program at one of two start dates each year. Students progress as a cohort group to the completion of their degrees. Accelerated MBA programs begin in early January and end in November, or begin in early August and end in June of the following year. Class sizes are limited. The application deadline for the January program is November 1, and June 1, for the August program. Contact the Accelerated MBA office at (216) 687-6925 for a program brochure and application materials.

Executive MBA Program

Cleveland State University's Executive MBA program provides a unique learning opportunity for highly-motivated business executives, managers, and professionals to earn an MBA degree in nineteen months without interrupting their careers.

The curriculum features strategic decision-making and integrative management skills, an international business study experience, and balanced coverage of the major business disciplines. Special emphasis is placed on small study groups, giving participants the opportunity to benefit from each other's professional experiences and insights.

The opening week of the Executive MBA program begins with the "Manager's Workshop", a week-long residential orientation, study, and team-building experience. Classes during the remainder of the program meet on Saturdays and occasional Fridays.

Admission Requirements

Candidates for admission are evaluated on the following criteria:

- A nomination letter from a person who can comment meaningfully on the candidate's performance in a professional setting, preferably from a current or former supervisor.
- Candidates must have a minimum of five years of significant professional or managerial experience, as evidenced by a recent resume that details both professional background and work experience.
- Educational experience equivalent to at least a bachelor's degree from an accredited college or university.
- Evidence demonstrating the applicant's preparation for graduate study by fulfilling one of the following criteria:

- Candidate possesses a graduate degree—no GMAT required.
- Candidate completed an undergraduate degree with an overall GPA of at least a 2.8 out of a 4.0—no GMAT required.
- Candidates whose highest degree is a bachelor's degree and have an overall GPA below a 2.8 out of 4.0, are required to take the GMAT and achieve a score of at least 950 total points using the following formula:
$$200 \times \text{Undergraduate GPA} + \text{GMAT} = 950 \text{ or higher}$$
- Minimum GMAT scores at the 20th percentile on the verbal component and 25th percentile on the quantitative is required to avoid additional course work.

- Each candidate is interviewed by the admissions committee in order to determine the individual's ability to pursue the EMBA.

For information about the Executive MBA program, call the EMBA office at (216)-687-6925 or visit the Graduate Business Programs Web site at: <http://www.csuohio.edu/cba/academic/graduate/executive.html>.

Off-Campus MBA Programs

The College of Business Administration offers the full MBA program at various locations in the Greater Cleveland area. The MBA degree can be completed in twenty-seven months, or fifteen months for students with a recent BBA degree. Students take two classes, two evenings per week from 5:30-9:30 p.m. Current locations include Solon, Westlake, North Olmsted, and Mayfield Heights. Call the Off-Campus Programs office at (216) 687-6925, for more information or visit the Web site at www.csuohio.edu/cba/academic/graduate/offcampus.html.

JD/MBA Joint Degree Program

The design of the curriculum leading to the degrees of Juris Doctor and Master of Business Administration permits the student to complete both degrees within four years instead of the five years that normally would be required to complete the two degrees separately.

Applicants to the Joint Degree Program must apply for admission to both the College of Graduate Studies and the College of Law concurrently and follow the normal procedures of the respective colleges. Application for admission must be specifically for the Joint Degree Program. The student will not be allowed

under any circumstances to take more than eight years to complete the combined program.

All requirements for both programs must be completed before degrees are awarded. If a student elects to receive one degree before completing the requirements for the other degree, forfeiture of some transfer credit will result, and the student will no longer be enrolled in the Joint Degree Program.

A student in the Joint Degree Program must begin the first year of work in the College of Law. The student's second year of study consists of the first year's curriculum of the Master of Business Administration program.

The Joint Degree Program requires a total of four academic years. The Juris Doctor requirements are fulfilled by the completion of eighty semester credit hours of work in the College of Law, including all required courses, as well as ten credit hours transferred from Master of Business Administration courses. The MBA requirements are fulfilled by the completion of twenty-two credit hours of required Level III MBA courses, as well as nine credit hours transferred from law courses. In order to ensure that the degree requirements of both programs are fully maintained, while at the same time permitting the saving of a full academic year, students who pursue the combined programs are not permitted to take elective courses outside of either the College of Law or the MBA program for credit toward either degree.

For information about the JD/MBA program, call the MBA Programs Advising Office at (216) 687-3730 or visit the Web site at <http://www.csuohio.edu/cba/academic/graduate/juris.html>.

MSN/MBA Joint Degree Program

The MSN/MBA program is designed for students with undergraduate degrees in nursing (BSN) who wish to complete advanced study in nursing and also prepare for careers in management and leadership.

The Joint Degree Program permits the student to complete both degrees within approximately three years. The MBA program accepts nine hours of core MSN courses as elective credit, and the MSN program accepts ten hours of core MBA courses as elective credit.

Applicants for the MSN/MBA program must meet the admission requirements for both the College of Business Administration and the School of Nursing. For

information about the Joint MSN/MBA program, please see the program description in the Master of Science in Nursing section of this Catalog or visit the Web site at: www.csuohio.edu/cba/academic/graduate/nursing.html. Information about the MBA program also can be obtained from the MBA Programs Advising Office (Ahuja Hall 219) or by calling (216) 687-3730.

Health Care Administration Programs

The Health Care Administration Program provides academic training, internships, and career guidance for two master's degree programs:

- The MBA in Health Care Administration (MBA/HCA) is granted by the College of Business Administration.
- The Master of Public Health (MPH) is offered in partnership with five other universities in eastern Ohio.

E-mail inquiries about the graduate programs and requests for application materials may be directed to hcaprograms@csuohio.edu for the MBA/HCA and mph@csuohio.edu for the MPH. Prospective students are strongly encouraged to consult the following sources for the most current information:

- The HCA Program Office at (216) 687-4711
- The HCA Web page at: <http://www.csuohio.edu/cba/hca/index.html>
- The MPH Web page at www.NEOUCOM.edu/MPH

The Faculty

Current faculty information can be located on the Departments' Web sites.

Introduction

The Health Care Administration concentration within the Master of Business Administration program is dually-accredited by AACSB International, the Association to Advance Collegiate Schools of Business, and the Commission on Accreditation of Healthcare Management Education (CAHME). It is one of three ACEHSA-accredited programs in the State of Ohio, the only ACEHSA-accredited program in Northeast Ohio, and the only dually accredited program in the state. The program is designed to provide graduate education for individuals interested in preparing for or furthering their careers in the management

and administration of all health care delivery entities, such as integrated systems, hospitals, and managed care organizations. The program also provides training that leads to careers in consulting, health planning, policy analysis, and long-term-care administration.

The Health Care Administration concentration provides a comprehensive academic background in management theory and practice, together with the knowledge and skills associated with the field of health care administration, planning, and policy analysis. Through this concentration, students develop an awareness of the interaction and interdependence of management, finance, economics, medicine, politics, and the social sciences. The program also provides a unique opportunity to gain valuable practical experience through professional site visits, shadowing, and an intensive administrative work experience, referred to as the internship. Both full-time and part-time students are able to complete the program through courses offered during the day and in the evening. Full-time students usually are able to complete the program in two or two-and-one-half years, while part-time students have up to six years to earn the degree.

Faculty Research and Publications

The Health Care Administration faculty is actively engaged in theoretical and applied health services research and is involved in health management organizations, locally and nationally. A recent study (a first, nationally) evaluated the health-seeking behavior and health practices of public housing residents in the city of Cleveland. Faculty members regularly contribute to scholarly journals, including *Medical Care*, *Healthcare Management Review*, and the *Journal of Healthcare Management*.

Admission Information

In addition to holding a baccalaureate degree, applicants for admission to the Health Care Administration specialization must meet the following requirements:

1. A total of at least 1,050 points based on the following formula: 200 times the overall undergraduate grade-point average plus the Graduate Management Admission Test (GMAT) score; or at least 1,100 points based on the following formula: 200 times the upper-division undergraduate grade-point average plus the GMAT score. The Graduate Record Examination (GRE) cannot be substituted for the GMAT.

2. The GMAT may be waived for those applicants with an earned U.S. doctorate (Ph.D. or MD). International applicants with an earned doctorate (Ph.D. or MD) must present proof of U.S. equivalency. Medical doctors must be licensed to practice in the United States in order to be considered for this waiver.

Applicants scoring at, or below, the 25th percentile on the GMAT are required to take Basic Skill Proficiency remedial work (see Degree Requirements for the MBA).

Applicants who fail to achieve admission to the HCA specialization but who have a total score of 950 points may be admitted to the regular MBA program and take a series of courses (usually four) designated by the HCA director. Upon successful completion (a grade of B or better) of these courses, the student may be admitted to the HCA program, with the director's approval.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Financial Assistance

Financial aid is available through the University. HCAP has a limited number of graduate assistantships available. Graduate assistantships also are available in other departments of the College of Business Administration, and in other departments throughout the University. Students may apply for an assistantship by checking the appropriate box on the graduate application and by submitting a completed assistantship application form to the Graduate Business Advising Office. Complete support is available through the United States Navy Medical Scholars' Program, for qualifying individuals.

Curriculum

The curriculum consists of five levels of course work: basic skill proficiency in written and oral communication and in quantitative analysis (Level I); basic business knowledge (Level II); advanced business knowledge (Level III); health care administration core concepts (Level IV), and advanced health care administration knowledge (Level V). Students also must complete at least ten professional site visits, a shadowing assignment, and an internship.

A student with appropriate undergraduate preparation and/or GMAT scores above the 25th percentile may have several or all of the Level I and Level II courses waived. A maximum of eighteen credit hours may be waived.

Program of Study

Level I: Basic Skill Proficiency

(5 credits)

Familiarity with Microsoft Windows, Microsoft Office, and the Internet is required.

GAD 515 Communications for Managers (3 credits)

OMS 500 Mathematical Models for Business (2 credits)

Level II: Basic Business Knowledge

(12 credits)

ACT 501 Financial Accounting (3 credits)

FIN 501 Financial Management (3 credits)

MLR 501 Management and Organizational Behavior (3 credits)

MKT 501 Marketing Theory and Practice (3 credits)

Level III: Functional Business Core

(10 credits)

ACT 600 Managerial Accounting (3 credits)

MBA 600 Team Dynamics (1 credit)

MLR 601 Human Resources Management and Labor Relations (3 credits)

MKT 601 Marketing Management (3 credits)

Level IV: Health Care Administration Core

(12 credits)

HCA 510 Administrative Uses of Epidemiology (3 credits)

HCA 515 Medical Care Organization (3 credits)

HCA 516 Social Environment of Health Care (3 credits)

HCA 555 Analysis of Health Care Markets (3 credits)

Level V: Advanced Health Care Administration Training

(21 credits)

HCA 601 Health Care Financial Management (3 credits)

HCA 615 Quality of Care (3 credits)

HCA 625 Health Care Informatics for Managers (3 credits)

HCA 640 Health Care Law (3 credits)

HCA 650 Long-term Care (3 credits) (the long-term care option only)

HCA 660 Integrative Business Strategy for Health Care Administrators (4 credits)

HCA 690 Administrative Internship (5 credits)

Learning by Experience—The Administrative Capstone Series: Internship, Professional Site Visit, and Shadowing

Health care administration programs that are accredited by CAHME view an administrative internship as an important component of graduate education. Even students with considerable experience in health care administration benefit from a well-planned and supervised internship. Indeed, many students report that the opportunity to integrate course work with experience was the high point of their graduate training in health care administration.

The Administrative Internship (HCA 690) is required of all MBA/HCA students. The internship is defined as a planned and supervised learning experience gained through first-hand observations and operational responsibilities in a health service organization. It is expected that a minimum of 360 hours will be devoted to the internship. This time may be scheduled, with prior approval of the executive-in-residence, at any time after the completion of formal academic training. Each internship student is supervised by the executive-in-residence and an on-site preceptor with whom he or she maintains a liaison during the internship. The internship may be implemented either on a full-time or part-time basis.

The Professional Site Visit Experience is required of all MBA/HCA students. It involves on-site and on-campus experiences with senior management teams from a variety of health care entities throughout the students' tenure in the program. Two of the professional site visits are directed (mandatory). One of the directed visits is a shadowing experience, while the other is individually tailored to the student's career path. A minimum of ten Professional Site Visits are required for graduation. One hour of academic credit will be given upon completion of the Professional Site Visits when the student registers for HCA 690 Administrative Internship. If MBA/HCA students elect to attend these site visits, they also receive an additional hour of credit when they register for HCA 685.

Shadowing a health provider or other health professional is a proven way to learn more about career options and to confirm the chosen career path. Shadowing consists of at least eight hours of contact with a person and/or organization. These experiences are designed to broaden the opportunities for students to obtain in-depth knowledge of certain health-related professions, programs, and organizations. Shadowing may take two forms: Clinical (a direct care provider) or Non-clinical (an administrator such as a chief financial officer or company vice president).

Master of Computer and Information Science

Department of Computer and Information Science

Ahuja Hall 344
(216) 687-4760
www.csuohio.edu/cba/academic/graduate/mcis.html

Santosh Misra, Chair and Graduate Program Director

Faculty

Current faculty information can be located on the Department of Computer and Information Sciences Web site.

Introduction

The Master of Computer and Information Science (MCIS) program at Cleveland State University is a professional degree program specifically designed to combine a thorough education in computer and information science with applications in the areas of business, engineering, mathematics, or other relevant fields. It qualifies the graduate for a variety of positions generated by the increasing demand for upper-echelon computer professionals in industry, science, and government. These include application programmers, systems analysts, systems programmers, systems operation managers, and information technology managers.

Faculty Research and Publications

Because of the broad range of research interests of the faculty, there are numerous opportunities for students to participate in special projects or research in all areas of computer and information science. The optional master's thesis allows a student to conduct a more formal research project. Faculty publications and research interests over the past few years have been in the areas of database analysis and design, numerical analysis, optimization, performance measurement and evaluation, operating system design, data communications and network design, artificial intelligence, new computing paradigms,

simulation, object-oriented systems analysis and design, object-oriented programming, healthcare systems, mobile computing, distributed computing, and geographic information systems.

Computer Facilities

Several major computer facilities are used by the Department to support research and teaching. These include a number of networked laboratories of basic and advanced personal computers and clusters of UNIX workstations, including HP Itanium, Sun Sparc/Ultra, SGI Indy/O2, IBM RS/6000, and Dell Linux workstations. These machines are connected to Fast Ethernet, ATM, and/or FDDI LANs. All laboratories are available to students for both course work and research. The networks are connected to the University fiber backbone, which, in turn, is linked to national networks.

The basic personal computer laboratory provides a variety of word-processing, spreadsheet, database, and programming-language software and is available to all students. In addition, special software is available as needed for individual courses.

The advanced personal computer laboratory provides advanced program-preparation software, specialized compilers, and other application software pertinent to advanced computer and information science courses, including C, C++, application servers, Java, Rational Rose, SAP, artificial intelligence compilers, and database software. Some of these resources are remotely accessible.

The workstation laboratory provides a networked UNIX environment that is used in courses, such as those dealing with advanced operating systems and computer networks. In addition to these computing facilities, a campus-wide wireless network is available that allows students to use their laptop to connect to the University's intranet as well as the Internet.

Financial Assistance

The College of Business Administration has a limited number of graduate assistantships available each year. A student may apply for an assistantship by completing an application form from the Graduate Business Programs Office. Copies of the completed applications are circulated to department chairs, program directors, and other appropriate parties within the College. Interviews with prospective graduate assistants are arranged directly by department chairs and others who hire and supervise graduate assistants. Assistantships are not awarded in the CIS Department until a student has been in a graduate program for at least one semester.

Career Information

Students in the MCIS program have a wide range of options, allowing them to focus their studies on topics such as information systems, systems programming, database development, networks, web development, and others. As a result, a graduate's career options will vary somewhat, depending on the chosen areas of study. For example, a student who specializes in information systems would be prepared for a career in the application of computers in business or the nonprofit sector, and typical starting positions would include programmer, systems analyst, and database designer. A student who specializes in systems programming, however, would be prepared for a career in technical-support functions and their management. Typical starting positions in this field would include systems programmer, technical-support engineer, and operations manager. A student who focuses on Internet-related topics could start as a web designer, HTML or Java programmer, or network designer or manager.

Admission Information

The applicant must meet the College of Graduate Studies requirements for admission, as specified in the front section of this Catalog. In addition, the student must have:

1. A cumulative undergraduate grade-point average of 2.75 or better;
2. Completed either the Graduate Record Examination (GRE) or the Graduate Management Admission Test (GMAT);
3. A weighted score of 1,000, computed as the test score, plus 200 times the undergraduate grade-point average; if an applicant takes the GRE, the test score is computed as the average of the verbal and quantitative scores on the examination;
4. For applicants whose native language is not English:
 - a. A score on the TOEFL of at least 525 (197 for the computer-based test) and
 - b. A score at the 5th percentile or better on the verbal portion of the GRE or GMAT.
5. An official transcript from each college and university previously attended.

Although the CIS Department makes every effort to honor students' requested dates of admission, this is not always possible. In some cases, it may be necessary to delay the admission date because of the schedule of required courses. For international students, complete application materials, including a completed application form, transcripts for all college-level work, appropriate test scores (GMAT or GRE), and TOEFL scores, must be received by March 15 for the summer term and May 15 for fall admission consideration. Domestic applicants must submit complete application materials at least six weeks before the start of the summer, fall, and spring terms.

The Master's Programs Committee of the College of Business Administration meets periodically to review admission requirements. Please call the Graduate Business Advising Office at (216) 687-3730 to obtain additional information.

To facilitate the admission process, it is strongly recommended that applicants visit www.csuohio.edu/admissions and use the online application system. The processing time for paper application forms is longer.

MCIS Bridge Program for International Students

Students who have completed a three-year science or engineering degree from institutions outside the U.S. may be eligible for the College of Business Administration "Bridge" program for the MCIS degree.

The bridge program requires students who qualify to complete an additional twenty-four credits of graduate courses in the field. The bridge courses should be selected after consulting with the program advisor. These courses may be taken at the beginning or at the end of the program of study.

For more information about the bridge program, please call the Graduate Business Programs Advising Office at (216) 687-3730. The office is located in Ahuja Hall 219.

Non-Degree Students

Non-degree students and those awaiting admission to the master's degree program in MCIS are allowed to take a maximum of twelve credit hours from the courses listed below. These preparatory courses provide students with a basic background in CIS. These courses do not count toward the requirements for the MCIS degree and generally are waived for students with an undergraduate degree in CIS or a closely related field.

- CIS 500 Introduction to Programming (4 credits)
- CIS 505 Analytical Methods in Computer Science (4 credits)
- CIS 506 Data Structures and Algorithms (4 credits)
- CIS 530 Database Systems and Processing (4 credits)
- CIS 535 Language Processors (4 credits)
- CIS 540 C/C++ for Systems Programming (2 credits)
- CIS 545 Architecture and Operating Systems (4 credits)
- CIS 568 Object-oriented Design and Programming (4 credits)

To register for more than twelve graduate credit hours, non-degree students are required to meet regular admission standards for the MCIS program. Students who have not been admitted to a graduate degree program may not take 600-level or above CIS or IST courses.

The Preparatory Program

In order to prepare students for graduate courses in computer and information science, the program provides a basic background in three areas: analytical methods, programming languages and data structures, and systems programming. The grades for the courses taken in the preparatory sequence are computed into the student's grade-point average, but the credit hours do not count toward the requirements for the Master of Computer and Information

Science degree. Students should call the CIS Department at (216) 687-4760 to schedule an appointment with an MCIS advisor prior to registering for classes.

Analytical Methods

- OMS 500 Mathematical Models for Business (2 credits)
- OMS 503 Statistical Methods for Business Decisions (3 credits) (*Prerequisite: OMS 500*)
- CIS 505 Analytical Methods in Computer Science (4 credits) (*Prerequisite: OMS 500*)

Application Programming

- CIS 500 Introduction to Programming (4 credits)
- CIS 506 Data Structures and Algorithms (4 credits) (*Prerequisites: CIS 500 and OMS 500*)
- CIS 530 Database Systems and Processing (4 credits) (*Co-requisite: CIS 506*)
- CIS 568 Object-oriented Design and Programming (4 credits) (*Prerequisite: CIS 506*)

Systems Programming

- CIS 535 Language Processors (4 credits) (*Prerequisite: CIS 506*)
- CIS 540 C/C++ for Systems Programming (2 credits) (*Co-requisite: CIS 506*)
- CIS 545 Architecture and Operating Systems (4 credits) (*Prerequisite: CIS 506*)

The Department of Computer and Information Science may waive part or all of the preparatory program, based on the student's prior background or experience.

The MCIS Program

See Addenda 12/2007

The MCIS program consists of thirty-one semester hours of approved courses for students who complete a graduate thesis, or thirty-three hours for those who do not. Prior to satisfactory completion of the entire preparatory program, no course may be taken toward the fulfillment of the graduate degree requirements without prior written permission of the student's advisor.

Students whose native language is not English must take GAD 501 (Business English) and GAD 502 (Intermediate Business English) if their verbal score on the GMAT or GRE is between 5th and 15th percentile; or GAD 502 only if their verbal scores are above the 15th percentile but below the 20th percentile. Students who score at the 20th percentile or above need not take either GAD 501 or GAD 502.

Students whose scores in the quantitative section of the GMAT or GRE are below the 25th percentile must take OMS 500, regardless of mathematics courses previously completed.

Regardless of whether a student completes a thesis, the program:

1. Must include a nine-credit core consisting of:

CIS 600 Computer Architecture
(4 credits)

CIS 601 Graduate Seminar in Computer and Information Science (1 credit)

CIS 620 Comparative Operating Systems Interfaces (4 credits)

If a course in the core program is waived based on prior preparation, an advanced course in the same area must be taken in its place.

2. Must include one course in analytical methods beyond the preparatory level. This requirement may be satisfied by CIS 590, CIS 606, CIS 611, or CIS 666.
3. May include up to six hours of credit transferred from another university, if such credit is beyond the level of the preparatory program and has the approval of the CIS department.
4. May include up to nine credit hours of computer-related Cleveland State graduate courses outside of the CIS Department, with prior written approval of the student's advisor, if the student has an undergraduate degree in computer and information science. Students without an undergraduate degree in computer and information science must take all courses in the CIS Department in order to gain adequate professional depth.
5. No more than five credit hours of CIS 698 (Independent Study) can be counted towards the MCIS degree.

In addition, the program must include either:

1. CIS 699 Master's Thesis Research in Computer and Information Science; and
2. At least twenty-two semester hours of electives beyond the preparatory sequence and core courses.
or:
1. At least twenty-four semester hours of electives beyond the preparatory sequence and core courses.

Electives

Electives are divided into eight specialization tracks. Students may choose electives to emphasize depth or breadth. For emphasis on depth, a student must take at least two courses from at least two tracks, and at least one course from three other tracks. For emphasis on breadth, a student must choose at least one course from at least five different tracks. The elective tracks are:

Applied Distributed Systems Track

CIS 630 Enterprise Application Development (4 credits)

CIS 631 Distributed Object Systems (4 credits)

CIS 632 Mobile Computing (4 credits)

Artificial Intelligence Track

CIS 665 Artificial Intelligence Languages and Applications (3 credits)

CIS 666 Topics in Artificial Intelligence (3 credits)

CIS 667 Bioinformatics (4 credits)

Database Track

CIS 611 Relational Database Systems (3 credits)

CIS 612 Advanced Topics in Database Systems (3 credits)

Multimedia and Graphics Track

CIS 657 Computer Graphics and Imaging (4 credits)

CIS 658 Multimedia Computing (4 credits)

Networks Track

CIS 554 Data Communications and Networking (4 credits)

CIS 675 Information Security (3 credits)

CIS 676 Computer Networks (3 credits)

Programming Languages Track

CIS 524 Comparative Programming Languages (4 credits)

CIS 650 Compiler Design (3 credits)

Software Engineering Track

CIS 634 Object-oriented Software Engineering (4 credits)

CIS 635 Software Engineering Metrics, Economics, and Management (4 credits)

Theory and Algorithms Track

CIS 590 Foundations of Computing (3 credits)

CIS 606 Analysis of Algorithms (3 credits)

Note: Any 600-level course, including CIS 693 and CIS 694, but excluding CIS 600, CIS 601, CIS 620, CIS 690, CIS 698, and CIS 699, can be used to satisfy the breadth requirement even if it is not listed in a track.

Master of Labor Relations and Human Resources

Department of Management and Labor Relations

Ahuja Hall 433
(216) 687-4754
www.csuohio.edu/cba/mlr/index.html

Jeffrey Susbauer, Chair and
Graduate Program Director

The Faculty

Current faculty information can be located on the Department of Management and Labor Relations Web site.

Introduction

The principal objective of the Master of Labor Relations and Human Resources (MLRHR) degree program is to help graduates begin careers, or advance their careers, in human resources and labor relations. Specific objectives of the program include:

- Providing education in the fundamental principles of human resources and labor relations.
- Providing a better understanding of human resource data and its use in such areas as testing, program evaluation, selection, and survey research.
- Providing an awareness of the political and legal environments in which human resource and labor relations systems function.
- Providing an interdisciplinary perspective of the field.

Application Procedure

Applicants must submit to the Office of Graduate Admissions:

1. GMAT or GRE results submitted to the University by ETS, and
2. An official transcript from each college and university attended.

Admission examination registration forms may be obtained from Educational Testing Service, Box 966, Princeton, New Jersey 08540, or from the Testing Center, University Center Room 253B, Cleveland State University, Cleveland, Ohio 44115.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Admission Information [\(addenda revised 06/2007\)](#)

Students with a wide range of backgrounds are encouraged to enroll in the program. Applicants who may be interested in pursuing this course of study include those who hold undergraduate degrees in:

- Economics
- Political Science
- History
- Communication
- Sociology
- Psychology
- Urban Studies
- Business Administration

In addition to the College of Graduate Studies standards for admission, applicants for the MLRHR program must meet the following requirements:

1. A total of at least 950 points based on the following formula: 200 times the cumulative undergraduate grade-point average plus the Graduate Management Admission Test (GMAT) score, or the average score of the verbal and quantitative components of the Graduate Record Examination (GRE). All applicants are required to take either the GMAT or GRE and submit results before being considered for admission.
2. Students scoring below the 25th percentile on the quantitative section of the GMAT/ GRE are required to take OMS 500; those scoring below the 20th percentile on the verbal section of the GMAT/ GRE are required to take the following remedial courses in business communication: GAD 502 (16th through 19th percentile); GAD 501 and GAD 502 (below the 16th percentile).

Program Design

The MLRHR program consists of a minimum of thirty-three semester hours beyond the baccalaureate degree. The program is designed to accommodate students who are currently working. While a majority of enrollees are part-time students taking courses in the evening, the program also enrolls many full-time students. Full-time students usually take three semesters to complete the degree.

The program is divided into four components:

1. Prerequisite Courses

Students must demonstrate proficiency in statistics, economics, and organizational behavior. This proficiency must be demonstrated through prior course work with a grade of C or better taken within the past ten years prior to admittance. Students lacking relevant prior course work are required to take one or more of the following courses or their equivalents:

ECN 503 Economic Concepts
(3 credits)

MLR 501 Management and Organizational Behavior (3 credits)

OMS 503 Statistical Methods for Business Decisions (3 credits)

A student may be admitted without such course work, but must remove the deficiency within the first two semesters. Students who do not remove the deficiency are not permitted to enroll for further course work.

2. Required Core Courses (21 credits)

The following are required for all MLRHR students:

MLR 522 Labor Law (3 credits)

MLR 531 Employment Practices Law
(3 credits)

MLR 601 Human Resources Management and Labor Relations
(3 credits)

MLR 602 Advanced Wage and Employment Theory (3 credits)

MLR 640 Performance Appraisal, Compensation, and Benefits
(3 credits)

- MLR 641 Employment Planning,
Personnel Selection, and Training
(3 credits)
- MLR 651 Collective Bargaining
(3 credits)

3. Elective Courses (12 credits)

Students select an additional twelve credit hours to complete the requirements for the degree. Elective course selections must be made with the consent of the student's program advisor. Two elective courses must be at the 600 level.

Electives offered within the Department of Management and Labor Relations include the following:

- MLR 504 Organizational Theory and Design (3 credits)
- MLR 511 Labor History (3 credits)
- MLR 521 Comparative Labor Systems (3 credits)
- MLR 523 Labor Relations in Public Employment (3 credits)
- MLR 555 Labor-Management Cooperative Practices (3 credits)
- MLR 577 Managerial Skill Development (3 credits)
- MLR 604 Interpersonal Relations and Group Dynamics (3 credits)
- MLR 605 Organizational Development (3 credits)
- MLR 607 Total Quality Management/Continuous Quality Improvement (4 credits)
- MLR 645 Information Systems in Human Resource Management (4 credits)
- MLR 686 Current Problems in Management and Labor Relations (3 credits)
- MLR 690 Professional Internship (1-3 credits)
- MLR 698 Independent Study (1-3 credits)

Electives offered outside of the department include such courses as:

- ADM 642 Collective Bargaining and Contract Management (2 credits)
- ALD 605 Psychology of the Adult Learner (3 credits)
- ALD 645 Organizational Behavior and Change (4 credits)
- COM 544 Mediation and CB Problem Solving (4 credits)
- LAW 629 Labor Law (3 credits)
- LAW 633 Arbitration (3 credits)
- LAW 696 Alternative Dispute Resolution (3 credits)
- PAD 630 Public Human Resources Management (3 credits)
- PSY 518 Personnel Psychology (4 credits)
- SOC 588 Sociology of Work and Organization (4 credits)

Other elective courses may be selected with the consent of the student's program advisor.

4. Practice assessment examination.

All students admitted into the MLRHR program after Summer 2004 are required to purchase and take the online HRCI assessment examination in their last semester of study. Scores from this practice assessment examination will be used as part of an ongoing MLRHR program review. Students documenting current PHR or SPHR certification may have this requirement waived.

Internships

Internships are available to students to provide an opportunity to gain practical experience in human resources or labor relations.

Non-Degree Students

Non-degree students are strictly limited to a maximum of twelve credits taken on a graduate non-degree basis. Non-degree students are only permitted to enroll in the following courses: MLR 501, MLR 577, OMS 500, OMS 503, GAD 501, GAD 502, and ECN 503, with the permission of the Department Chair. Admission requirements for non-degree students are the same as stated above, including GRE/ GMAT requirements. Successful completion of courses within the allowable twelve credit hours does not waive the admission requirement of 950 points.

Academic Standards

The MLRHR student must maintain an average of "B" or better in all course work attempted. Receipt of a grade of less than "B" in three courses and failure to maintain a "B" average, or the receipt of a grade of "F" in two courses, will result in dismissal from the program.

For More Information

Please contact the Department of Management and Labor Relations for more information by phone, (216) 687-4754; fax, (216) 687-4708; or visit the department Web site at <http://www.csuohio.edu/cba/mlr/index.html>.

Education

Doctor of Philosophy in Urban Education ■

Educational Specialist ■

Master of Education ■

Doctor of Philosophy in Urban Education

College of Education and Human Services

Rhodes Tower 945
(216) 687-4697

<http://www.csuohio.edu/coehs/departments/phd/>

Programs of Study

Urban Education: Administration

Urban Education: Counseling

Urban Education: Counseling Psychology

(addenda new 04/2006)

Urban Education: Leadership and

Life-Long Learning

Urban Education: Learning and

Development

Urban Education:

Policy Studies

Joshua Gisemba Bagaka's,
Doctoral Program Director

Introduction

The Ph.D. degree program in Urban Education develops the leadership skills of advanced graduate students to prepare them to affect change in urban educational settings. It is one of the few education doctoral programs in the nation in which a special focus on urban education is infused across different specializations. The conceptual framework and primary focus of the program is preparing the urban educational leader to affect change in the educational environment.

The five primary knowledge bases of the Ph.D. program are research skills, an urban perspective, the social context of urban education, the urban learner, and organizational change and development. Concepts from education, urban policy planning, law, economics, psychology, public administration, sociology, political science, and organizational development constitute the core content in the urban educational context that underpins study in the specialty areas. Graduates of the program conduct research and play leadership roles in the areas of instruction, counseling, administration, and policy making in:

- Schools

- Community colleges
- Colleges and universities
- Business and industry
- Allied health organizations
- Social and community agencies
- Government

Doctoral students acquire academic knowledge, research, and technical skills through their close relationship with the faculty and with their doctoral student support group. Special features of the Urban Education doctoral program include:

- Cohort of candidates
- Urban laboratory
- Research emphasis
- Interdisciplinary core
- Emphasis on organizational change
- Advanced study in an area of specialized educational practice
- The program consists of:
 - Core seminars (22 credits)
- Research methodology seminars (minimum of 10 credits)
- Specialized area of study (minimum of 20 post-master's credits)
- Dissertation in the area of specialization (minimum of 15 credits)

In the core seminars, a group of students remain intact as a continuously enrolled unit for two years of intensive study and discussion. The continuing intellectual association and support of this group meets the residency requirement of the doctoral program. The research methodology seminars provide quantitative and qualitative research skills essential to the creation of new knowledge and the solution of practical education problems. Courses in the specialized areas provide opportunities for advanced study of administration, counseling, teaching, and policy development in the urban context. The dissertation component follows a traditional model, adhering to the scholarship requirements of research for the Doctor of Philosophy degree.

Faculty Research and Publications

The faculty in the College of Education and Human Services has pursued a wide variety of research, in seven major areas:

1. Equity issues, including race and ethnicity, gender, and socioeconomic differences.
2. Educational/developmental consequences for special needs/at risk children and youth populations frequently associated with urban environments and the development of educational programs that address these needs.
3. Learning needs and programming for adults in contemporary, post-industrial urban life.
4. The management, organizational development, and reform of educational institutions, especially urban public schools.
5. Counseling and mental health issues of urban populations in the face of changing health care policy.
6. The process of policy development, school reform, and implementation.
7. School effectiveness research, including school, teacher, and community practices that impact students' educational outcomes.

The faculty has been recognized for scholarly publications in more than eighty journals in the core and specialization areas. The National Council for Accreditation of Teacher Education (NCATE) accredits the College of Education and Human Services, and its programs meet the requirements of the Ohio Department of Education.

Financial Assistance

A limited number of graduate assistantships are available for students who wish to pursue full-time study. Research and teaching assistantships require twenty hours of service per week (see the section on Graduate Assistantships in this Catalog). All graduate assistants must enroll for at least nine graduate credits per semester. Tuition Grant

awards are also available for those students who desire to work no more than ten hours a week. Applications for assistantships and tuition grants must be made directly to the Office of Doctoral Studies, College of Education and Human Services, Rhodes Tower, Room 945.

Admission Information

The Doctoral Program admits a class of twenty students each year that proceeds as a cohort.

Applicants must submit:

1. A completed admission application form
2. A check for the \$30 application fee
3. Official transcripts from all colleges and universities previously attended
4. Official GRE test scores
5. A current curriculum vita
6. A statement of goals and objectives
7. Two letters of recommendation. At least one should be from a college professor familiar with the applicant's graduate-level academic ability.

Based on completed applications, a pool of candidates is invited to participate in further screening through an interview process with three members of the graduate faculty. To be invited for an interview, the applicant must have a minimum master's grade-point average of 3.25 and meet three of the following five criteria:

1. A minimum combined score of 1,000 on the quantitative and verbal sections of the GRE;
2. A minimum rating of 4.0 in the analytical writing section of the GRE; or at least 500 on the former GRE analytic reasoning examination;
3. Demonstrated research experience through a thesis or research project at the master's level or an authored publication in a refereed research journal;
4. Successful completion of at least two graduate research courses with a grade of B or better, prior to admission to the doctoral program
5. Sustained professional experience (a minimum of three years) and success with urban economic, social, political, and/or educational issues as evidenced by the candidate's portfolio and/or references. This can include evidence of extensive and successful leadership, policy or pedagogy innovations, teaching, or therapeutic performance. Applicants may submit additional supporting materials to document urban experience.

If a candidate who meets three of the above five criteria has a combined score below 950 on the verbal and quantitative sections of the GRE, the committee may recommend, upon acceptance, additional course work prior to beginning the doctoral program.

The application deadline is the first Monday in February. Students are admitted fall semester only. Submit application materials to the Graduate Admissions Office, Rhodes Tower West, Room 204, telephone (216) 687-5599. The Graduate Admissions Office processes materials and forwards them for review to the Education Doctoral Studies Program Director.

The Doctoral Studies Committee makes an admission recommendation to the Graduate Admissions Director based on the applicant's ability to meet the screening criteria stated above and the results of the interview. The Graduate Admissions Director transmits the admission action and supporting materials to the applicant.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements

Each student prepares a program of study with a faculty advisor. Components are as follows:

Core Seminars/Courses Required (22 credits)

- EDU 803 The Life Cycle: Development and Learning (4 credits)
- EDU 805 Cultural Foundations of Education I: Social Perspectives (4 credits)
- EDU 806 Cultural Foundations of Education II: Race and Ethnicity (2 credits)
- EDU 809 Urban Education: Organizational Change and Development (4 credits)
- UST 716 Systems and Processes of Policy Development (4 credits)
- UST 800 Urban Theory I (4 credits)

Research Core Required (10 credits)

- EDU 800 Advanced Research Design and Measurement (3 credits)
- EDU 801 Inferential Statistics and Hypothesis Testing (3 credits)
- EDU 807 Introduction to Qualitative Research in Education (4 credits)

Specializations

(20 credits minimum)

School Administration

(addenda revised 03/2007)

The School Administration specialization requires as a prerequisite a master's degree in administration and leads to a state license for various administrative positions.

Required (16 credits)

- ADM 830 Evaluating Educational Policy Making at the Federal and State Levels (4 credits)
- ADM 831 Implementing Public Policy in Schools and Universities (4 credits)
- ADM 833 Seminar in Urban Education (4 credits)
- ADM 889 Advanced Seminar in Administration (4 credits)

At least four additional credit hours selected from courses such as:

- ALD 606 Modern Higher Education in a Changing Society (4 credits)
- ALD 645 Organizational Behavior and Change (4 credits)
- ADM 618 Staff Personnel Administration (2 credits)
- ADM 642 Collective Bargaining and Contract Management (2 credits)
- ADM 643 School Finance and Economics (4 credits)
- ADM 652 School Business Management and School Facilities (4 credits)
- ADM 674 Special Education Law (4 credits)
- ADM 676 Clinical Supervision and Professional Development (4 credits)
- ADM 677 Legal and Policy Issues in Education (4 credits)
- ADM 811 The School Superintendency (4 credits)

Counseling

The Counseling specialization requires as a prerequisite a master's degree in counseling or a closely related field. It prepares individuals for leadership positions in community agencies, school or college counseling, and student personnel settings and provides the course work for Clinical Counselor licensure, if the student is a Licensed Professional Counselor.

Required (11 credits)

- CNS 712 Theories of Personality and Counseling (4 credits)
- CNS 781 Internship in Counseling (3 credits)

CNS 888 Research and Evaluation in Counseling (4 credits)

Complete nine additional credit hours from the following:

Clinical Counseling Track

- CNS 633 Women and Mental Health (3 credits) CNS 670 Counseling Children and Adolescents (3 credits) CNS 702 Individual Intelligence Testing* (3 credits) CNS 703 Personality Assessment for Counselors* (3 credits)
 CNS 706 Psychopathology and Diagnosis for Counselors* (4 credits)
 CNS 709 Psychopharmacology for Counselors* (3 credits) CNS 738 Family Counseling* (3 credits) CNS 771 Using the Current Diagnostic and Statistical Manual of Mental Disorders (2 credits) CNS 782 Internship in Diagnosis and Testing* (3 credits)

*These or equivalent courses may be required for the Professional Clinical Counselor License.

or

Pupil Personnel Administration Track

- ADM 613 School Law (4 credits) ADM 614 Administration Principles and Practice (4 credits)
 ADM 615 Instructional Leadership and Pupil Personnel Administration (4 credits)
 ADM 618 Staff Personnel Administration (2 credits)
 ADM 643 School Finance and Economics (4 credits)
 ADM 676 Clinical Supervision and Professional Development (4 credits)

Prerequisites:

The counseling specialty is built on a master's degree in counseling. Students entering the program with degrees completed some time ago may need additional prerequisites if they plan to seek the PCC license upon degree completion. Students with master's degrees not in counseling also must meet master's-level course work requirements for the PCC as a part of their Ph.D. program.

Counseling Psychology ([addenda new 04/2006](#))

Leadership and Life-Long Learning

The Leadership and Life-Long Learning specialization accepts applicants from a broader range of master's study and prepares them for administrative roles in higher education and adult education, including

human resource development and community agencies.

Required (12 credits)

- ADM 889 Advanced Seminar in Administration (4 credits) ALD 800 Leading Continuing Education for Professionals (4 credits) ALD 801 Adult Learning Theory and Research (4 credits)

Electives

At least eight additional credit hours distributed over the areas of administrative theory, administrative decision-making, planning/budgeting, leadership, and professional ethics.

Learning and Development

The Learning and Development specialization accepts applicants interested in the improvement of instruction through understanding individual differences in learners and learning environments with an emerging emphasis on technology. Graduates pursue teaching and instructional leadership roles in K-12, teacher, higher education, and adult education settings.

Required (12 credits)

- EDU 811 Intellectual Variability: Seminar in Learning and Development (3 credits)
 EDU 812 Personal and Social Factors: Seminar in Learning and Development (3 credits)
 EDU 813 Differentiating Intervention: Learning and Development Settings (2 credits)
 EDB 711 Educational Evaluation and Innovation (4 credits)

Electives At least eight additional credit hours approved by the advisor.

Students in the Learning and Development track may also specialize in a specific curricular area.

Policy Studies

Policy Studies accepts applicants with a broader range of master's-level study and prepares them for policy-leadership and school-reform roles in a variety of educational settings.

Required (at least 10 credits)

- EDU 814 Urban Educational Policy (4 credits) And two of the following courses:
 EDB 604 Social Issues and Education (3 credits) EDB 606 Philosophy of Education (3 credits) EDB 608 School and Society in the American Past (3 credits) EDB 609

Comparative and International Education (3 credits) EDB 612 Curriculum Theory and Instruction (3 credits) EDB 671 History of Minority Education (3 credits) EDB 693 Special Topics in Curriculum and Foundations (1 to 4 credits) EDB 711 Educational Evaluation and

Innovation *(4 credits) ADM 643 School Finance and Economics (4 credits)

ADM 677 Legal and Policy Issues in Education (4 credits)

*recommended for all who plan to lead or evaluate programs

At least 10 additional hours selected from policy foundations, urban affairs, history, economics, and/or law.

Total Credit Hours
(67 credits minimum)

Foreign Language/Computer Use Requirement

Each student is required to demonstrate proficiency in a foreign language or a computer language. Information regarding procedures for demonstrating proficiency may be obtained from the Office of Doctoral Studies. Procedures are detailed in the Urban Education Ph.D. Student Handbook.

Advancement to Candidacy

Eligibility for candidacy is determined on the basis of successful performance on written comprehensive examinations. The examinations are to be taken following the completion of the core and research seminars/courses, and after the completion of at least twelve credit hours in the area of specialization.

Students who fail to attain the required level of competence on the comprehensive examinations may retake them, but only after completing additional preparatory course work and/or study. The core and research examinations are administered every semester. Specialization examinations are administered in Fall and Spring semesters.

Exit Requirements

All candidates must complete a dissertation (15 credits minimum) that adds to the research knowledge about urban education. The student begins prospectus development in the second year of the program in concert with the Dissertation Advisor. A committee comprised of the advisor and four additional faculty members is named when the student is advanced to candidacy. The process includes the following steps:

1. Prospectus/Specialization Hearing.
When the candidate completes a dissertation prospectus to the advisor's satisfaction, the Dissertation Committee conducts an oral examination on the prospectus and the area of specialization.
2. When the candidate has completed the dissertation, a final oral examination is held before the Dissertation Committee. Acceptance of the dissertation and recommendation for conferring the Ph.D. degree is contingent upon majority Committee approval. If the candidate is not initially successful, the oral examination may be repeated once after appropriate revision of the dissertation.

EDU 895 Dissertation Research
(before approved prospectus)

EDU 899 Ph.D. Dissertation (after
approved prospectus)

Educational Specialist Degree

Department of Counseling, Administration, Supervision, and Adult Learning

Rhodes Tower 1419
(216) 687-4613
www.csuohio.edu/coehs/departments/casal/

Programs of Study

Counseling
School Administration

The Faculty

Current faculty information can be located on the Department's Web sites.

Introduction

The Educational Specialist (EdS) degree represents a year of planned advanced graduate study beyond the master's degree. The programs build on the foundation of a master's degree or its equivalent in the same area of specialization. The focus of the programs is the enhancement of specialized professional competence for roles in counseling and administration. Created under the conceptual framework of the Administrator/Supervisor as a Visionary Practitioner, the educational administration and supervision program enables graduates to achieve outcomes reflecting the five knowledge bases that compose this model: organizational change, relational, developmental, contextual, and ethical. These knowledge bases are applied to the programs within the environments of urban and suburban schools, which are culturally diverse and include students with disabilities.

Organizational Change refers to knowledge of the organizational framework and processes necessary to accomplish the work of the organization, as a continuous change process.

Developmental refers to knowledge that transforms the organization's basic inputs (e.g., materials, personnel) into desired goals, that use technology to access information and to record organizational progress, and that articulates underlying beliefs that link inputs, activity, and outcome.

Relational refers to partnerships, collaborations, and leadership styles that enable stakeholders to have a shared vision.

Contextual refers to understanding the present organization in relation to its past, in terms of cultural, economic, political, legal, and regulatory influences.

Ethical refers to knowledge about justice, righteousness, and meaning that assures diversity will be respected, and educational resources will be distributed in a manner that offers equal access to all participants.

Faculty Research and Publications

The faculty members of the Educational Specialist programs are experienced scholars/practitioners. Their published works include textbooks, articles, curriculum packages, and technical reports based on their professional experience, as well as planned research programs. Administration faculty members have explored legal issues in education, management styles, the supervisory process, personnel management, administrator assessment, career patterns of administrators, and adult learning. Counseling faculty members have studied counseling processes, counseling special audiences, legal and ethical issues in counseling, stress management, human development, and crisis intervention.

Financial Assistance

A limited number of full-time graduate assistantships are available in the Department of Counseling, Administration, Supervision, and Adult Learning (CASAL). Graduate assistants help with the teaching program, aid faculty in conducting research, coordinate the services of the counseling lab, and assist in department administration. Graduate assistantships provide tuition support and a stipend to qualified students. Applications for assistantships can be made through the CASAL office, Rhodes Tower, Room 1419.

Career Information

Students completing the EdS in Administration qualify for a number of administrative positions including, but not limited to, school principal, supervisor, central office, and superintendent. Students completing the EdS in Counseling qualify for positions such as school counselor or director of guidance. Due to early retirement programs recently initiated by many school districts, the employment outlook for individuals completing the EdS program is very good. The EdS program also can be used to qualify for administrative positions in non-school settings or to obtain a counseling license for non-school settings.

Counseling Program

The Educational Specialist in Counseling is a thirty-two credit-hour, post-master's, advanced-training program in counselor education. Its purpose is to help counselors in school and agency settings improve and update their professional expertise, or take course work that will qualify them to sit for the Professional Counselor Licensure Examination (PCLE) in the State of Ohio. It should be noted that students only needing a few courses to sit for the PCLE do not need to apply for the EdS degree but may apply as "Graduate Licensure only." Requirements of the program can be met by full-time or part-time study or a combination thereof. The requirements for program admission are sufficiently flexible to encompass the needs of each applicant defined above.

Admission Information

The following requirements must be met by each candidate applying to the program:

1. Hold a master's degree with a concentration in counseling with at least one course in each of the following areas:

Counseling Practicum/Internship, Educational Research, Group Process, Counseling Theory, Human Development or Career Development, and Testing

2. Fulfill College of Graduate Studies requirements for admission as described in this *Catalog*.

3. Make application to the Office of Graduate Admissions for the Educational Specialist degree in Counseling.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Those candidates needing six semester hours or more to complete their concentration requirements must complete the necessary prerequisites prior to admission. If the deficiency is five semester hours or fewer, the candidate may be admitted to the specialist degree program, but will be required to meet the concentration deficiencies during the first eight hours of study. Courses taken to complete concentration deficiencies do not count toward degree requirements.

4. Admission to the program is based on the candidate's graduate grade-point average, score on the Miller Analogies Test (MAT) or the Graduate Record Examination (GRE), and letters of recommendation. For further information on admission, call the CASAL Department at (216) 687-4613 or visit the Web site at www.csuohio.edu/coehs/.

Time Limit

All requirements for the Educational Specialist degree in Counseling must be completed within six years of starting course work at Cleveland State University or elsewhere. This requirement pertains to graduate work taken after receipt of a master's degree.

Degree Requirements

1. With the help of the advisor, students establish goals for their personal and professional growth and select a series of courses to meet these goals.
2. Students must complete goal-directed courses in Clinical Counseling to gain licensure.

Clinical Counseling Courses

CNS 701 Assessment for Counselors (3 credits)

CNS 702 Individual Intelligence Testing (3 credits)

CNS 703 Personality Assessment for Counselors (3 credits)

CNS 706 Psychopathology and Diagnosis for Counselors (3 credits)

CNS 709 Psychopharmacology for Counselors (3 credits)

CNS 712 Theories of Personality and Counseling (4 credits)

CNS 738 Family Counseling (3 credits)

CNS 781 Internship in Counseling (3 credits)

CNS 782 Internship in Diagnosis and Testing (3 credits)

3. Interdisciplinary Electives — With the approval of the advisor, the candidate selects a minimum of four credit hours and a maximum of eight credit hours of course work from any graduate program in the University.

Exit Requirements

The granting of the degree is based on the following criteria:

1. Satisfactory completion of course work with a minimum grade-point average of 3.0.
2. Satisfactory completion and evaluation of the Internship in Diagnosis and Testing experience, as determined by a committee composed of two full-time counselor educators, one full-time faculty member who is not a counselor educator, and, if the student chooses, a practicing counselor or a graduate student.

School Administration Program

The Educational Specialist in School Administration program is a thirty-two-semester-hour, post-master's program designed to integrate theory and practice in meeting the goals of individuals currently employed in, as well as those aspiring to, positions in school administration. A participant in the Educational Specialist in School Administration program can meet the degree requirements of the College of Graduate Studies and the Department of CASAL through full-time or part-time study.

Admission Information

The following requirements must be met by each candidate applying to the program:

1. Hold a master's degree.
2. Fulfill College of Graduate Studies requirements for admission as described in this *Catalog*.
3. Make application to the Office of Graduate Admissions for the Educational Specialist program in School Administration.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Prerequisites

A master's degree is required. An individual assessment of graduate transcripts is performed for each student entering the EdS program. Course work to meet prerequisites varies depending on the student's prior graduate credits. Course work, in addition to the requirements for the EdS degree, may be necessary in order to meet state of Ohio licensure standards.

Time Limit

All Educational Specialist degree requirements must be completed within six years of starting course work at Cleveland State University or elsewhere. This requirement pertains to graduate work taken after receipt of a master's degree.

Exit Requirements

The granting of the degree is based on the following criteria:

1. Satisfactory completion of course work with a minimum grade-point average of 3.0.
2. Satisfactory evaluation of the internship experience. If the candidate receives a grade of C for the internship, the student may be required to repeat all or part of it.
3. Satisfactory evaluation of the candidate's growth, the appraisal of which is based on the student's initial program goals and objectives. This evaluation is usually a written examination. However, an action-research project, an oral examination by selected faculty, a field demonstration, a culminating paper that shows evidence of attainment of program objectives, or a combination of the above may be substituted for the written examination, but only if arrangements are completed when the Program of Study form is filed.

Degree Requirements

Participants plan their programs of study with an advisor.

EdS in School Administration Course of Study

(32 credits)

Superintendency

Prerequisites: Master's degree, completion of coursework towards Principal License and three years of experience in School Administration.

Required Courses

- ADM 674 Special Education Law (4 credits) or ADM 677 Legal and Policy Issues in Education (4 credits)
 ADM 752 School Business Management and School Facilities (4 credits)
 ADM 811 The School Superintendency (4 credits)
 ADM 880 Internship (two semesters, 2 credits per semester)

Electives (16 credits)

Educational Staff Personnel Administration

Prerequisites: Master's degree and completion of coursework toward Principal's License.

Required Courses

- ALD 645 Organizational Behavior and Change (4 credits)
 ADM 615 Instructional Leadership and Pupil Personnel Administration (4 credits)
 ADM 618 Staff Personnel Administration (2 credits)
 ADM 642 Collective Bargaining and Contract Management (2 credits)
 ADM 643 School Finance and Economics (4 credits)
 ADM 676 Clinical Supervision and Professional Development (4 credits)
 ADM 811 The School Superintendency (4 credits)
 ADM 880 Internship (two semesters, 2 credits per semester)

Electives (4 credits)

Curriculum, Instruction, and Professional Development

Prerequisites: Master's degree and two years of teaching under a professional license.

Required Courses

- EDB 612 Curriculum Theory and Instruction (3 credits)
 ADM 613 School Law (4 credits)
 ADM 615 Instructional Leadership and Pupil Personnel Administration (4 credits)
 ADM 618 Staff Personnel Administration (2 credits)

- ADM 676 Clinical Supervision and Professional Development (4 credits)
 ADM 680 Supervision Practicum (two semesters, 2 credits per semester)
 ADM 811 The School Superintendency (4 credits)

Electives (7 credits)

Principalship

Prerequisites: Master's degree and two years of teaching under professional license at the age levels for which the principal license is taught.

Required Courses

- ADM 613 School Law (4 credits)
 ADM 614 Administration Principles and Practices (4 credits)
 ADM 615 Instructional Leadership and Pupil Personnel Administration (4 credits)
 ADM 618 Staff Personnel and Administration (2 credits)
 ADM 642 Collective Bargaining and Contract Management (2 credits)
 ADM 643 School Finance and Economics (4 credits)
 ADM 676 Clinical Supervision and Professional Development (4 credits)
 ADM 677 Legal and Policy Issues in Education (4 credits) or ADM 674 Special Education Law (4 credits)
 ADM 681 Elementary School Administration: Theory and Practicum II (2 credits) or ADM 683 Secondary School Administration: Theory and Practicum II (2 credits)
 ADM 682 Middle School Administration: Theory and Practicum II (2 credits)

Pupil Services Administration

Prerequisites: A master's degree in the area of Special School Services, such as school audiologist, school counselor, school social worker, speech-language pathologist, or school psychologist.

Required Courses:

- ADM 614 Administration Principles and Practice (4 credits)
 ADM 618 Staff Personnel Administration (2 credits)
 ADM 615 Instructional Leadership and Pupil Personnel Administration (4 credits)
 ADM 643 School Finance and Economics (4 credits)
 ADM 676 Clinical Supervision and Professional Development (4 credits)
 ADM 677 Legal and Policy Issues in Education (4 credits) or ADM 674 Special Education Law (4 credits)
 ADM 680 Supervision Practicum (two semesters, 2 credits per semester)

- ADM 811 The School Superintendency (4 credits)

Electives (2 credits)

Licenses Apart from Degree Programs

Prerequisites: Master's degree and course requirements for principal's license and three years of experience in school administration.

The Superintendent License may be added to the valid Professional Teacher License for an individual who holds a Principal or Administrative Specialist License and may be valid for teaching in the areas designated in the license for supervising programs for ages three through twenty-one and pre-kindergarten through grade twelve or for administrative duties in a school system.

In addition to the prerequisites, the following requirements must be met prior to recommendation for the Superintendent License:

1. Three years of successful experience in a position requiring a Principal or Administrative Specialist License
2. Completion of a program that includes the following course of study:

- ADM 677 Legal and Policy Issues in Education (4 credits) or ADM 674 Special Education Law (4 credits)
 ADM 752 School Business Management and School Facilities (4 credits)
 ADM 811 The School Superintendency (4 credits)
 ADM 880 Internship (two semesters, 2 credits per semester)

Administrative Specialist License

The Administrative Specialist License may be added to a valid Professional Teacher License or Professional Pupil Services License and may be valid for working in a central office or supervisory capacity under the following conditions:

1. Completion of two years of successful teaching experience under a professional teacher license, with the exception of the Pupil Services Administration License, which requires two years of experience under a Professional Pupil Services License.
2. Successful completion of an approved program of preparation for the license, which includes a concentration in one of the following three areas:

Educational Staff Personnel Administration

Prerequisites: A master's degree, completion of course work toward Principal license, and two years teaching experience.

- ADM 615 Instructional Leadership and Pupil Personnel Administration (4 credits)
- ADM 618 Staff Personnel Administration (2 credits)
- ADM 642 Collective Bargaining and Contract Management (2 credits)
- ADM 643 School Finance and Economics (4 credits)
- ALD 645 Organizational Behavior and Change (4 credits)
- ADM 676 Clinical Supervision and Professional Development (4 credits)
- ADM 811 The School Superintendency (4 credits)
- ADM 880 Internship (two semesters, 2 credits per semester)

- ADM 677 Legal and Policy Issues in Education (4 credits) or ADM 674 Special Education Law (4 credits)
- ADM 680 Supervision Practicum (two semesters, 2 credits per semester)
- ADM 811 The School Superintendency (4 credits)

Curriculum Instruction, and Professional Development

Prerequisites: Master's degree and two years of successful teaching under a professional license.

- EDB 612 Curriculum Theory and Instruction (3 credits)
- ADM 613 School Law (4 credits)
- ADM 615 Instructional Leadership and Pupil Personnel Administration (4 credits)
- ADM 618 Staff Personnel Administration (2 credits)
- ADM 676 Clinical Supervision and Professional Development (4 credits)
- ADM 680 Supervision Practicum (two semesters, 2 credits per semester)

Pupil Services Administration

Prerequisites: A master's degree in the area of Special School Services, such as school audiologist, school counselor, school social worker, speech-language pathologist, or school psychologist

- ADM 614 Administration Principles and Practice (4 credits)
- ADM 618 Staff Personnel Administration (2 credits)
- ADM 615 Instructional Leadership and Pupil Personnel Administration (4 credits)
- ADM 643 School Finance and Economics (4 credits)
- ADM 676 Clinical Supervision and Professional Development (4 credits)

Master of Education

College of Education and Human Services

Rhodes Tower 1401
(216) 687-4625
www.csuohio.edu/coehs/departments/te/

Programs of Study

Educational Administration
Counselor Education
Adult Learning and Development
Supervision
Sport Management
Exercise Science
Community Health Education
Curriculum and Instruction

The Faculty

Current faculty information can be located on the Departmental Web sites.

Introduction

Programs leading to the Master of Education degree are designed for individuals seeking to work as professional educators of children, youth, and adults. Many graduates seek employment in elementary and secondary schools. Some specializations are oriented toward business and community settings and prepare graduates to work in higher and adult education, social service agencies, corporate training centers, corporate fitness centers, community health centers, wellness/fitness centers, sports clubs, and outdoor/park recreational facilities. All courses in the programs are offered in the late afternoon and evening in order to accommodate students who wish to maintain full-time employment. During the summer term, courses are offered on a full-day schedule to permit full-time study.

Master of Education programs are offered in four departments within the College: Curriculum and Foundations; Counseling, Administration, Supervision, and Adult Learning (CASAL); Teacher Education; and Health, Physical Education, Recreation, and Dance. The Department of Curriculum and Foundations is responsible for courses in the College Core. The Curriculum and Foundations Department also is responsible for courses in the

Curriculum and Instruction specializations in the following areas: Educational Technology; Educational Research; and Gifted and Talented Learners. Initial teaching licensure in Secondary Education is also available in this department as a master's degree in Urban Secondary Teaching (the MUST program). The CASAL Department offers degrees in Administration, Counseling, Supervision, and Adult Learning and Development. The Department of Teacher Education is responsible for the Curriculum and Instruction specializations in Early Childhood Education, Elementary Education, Middle Childhood (Mathematics and Science), Literacy Development and Instruction (Reading, TESOL, Adult Literacy), Secondary Education (all content fields, including modern languages and art), and Special Education (Early Childhood/Special Education, Mild/Moderate Educational Needs, Moderate/Intensive Educational Needs). The Health, Physical Education, Recreation, and Dance Department offers the Curriculum and Instruction specialization in Health and Physical Education, including a combined master's and multi-age health licensure, as well as programs in Sport Management, Exercise Science, and Community Health Education. See the brief descriptions of each program and specialization below.

Faculty Research and Publications

College of Education and Human Services faculty members pursue a wide variety of research in six major areas:

1. Equity issues, including race and ethnicity, gender, and socio-economic disadvantage.
2. Educational/developmental consequences for special needs populations frequently associated with urban environments, including high-risk and premature infants; preschool populations; juvenile delinquents; mentally challenged, learning disabled, and behavior-disordered children; and gifted and talented students from low socio-economic, racially, and ethnically diverse backgrounds.
3. Urban educational programs, including teaching English to speakers of other languages, literacy, and mathematics competencies, classroom management and discipline, social skills training, management of urban schools, counseling special urban populations, early childhood interventions (Head Start and day care), Reading Recovery, teacher induction programs, health, wellness, and physical education.
4. Problems of adults in contemporary urban society, including stress, sport law, sports management, exercise science, health, and leisure-time uses.
5. Foundations of urban education, including life-span development and learning, comparative educational policy, curriculum/methods, teacher education, and guidance and counseling in schools and the community.
6. Legal issues in education and major educational policy issues.

Accreditation

The Master of Education degree program is fully accredited by the National Council for Accreditation of Teacher Education (NCATE) and the Ohio Department of Education. The Community Agency Counseling and School Counseling programs are accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).

Financial Assistance

A limited number of graduate assistantships are available in each department, in the Dean's Office, and through funded projects. Graduate assistants have teaching, research, and/or administrative responsibilities for which they receive financial support. For applications and information, contact the departments directly.

Career Information

The Master of Education degree qualifies graduates to move from entry-level positions in education to career positions with increased leadership responsibility. The degree enables classroom teachers

to advance their careers, and provides initial certification/licensure for those who seek school administration, supervision, and counseling positions. Certain specializations provide initial entry or career mobility for educators in business or community settings. Prospects for career advancement in school settings are favorable at this time because of population shifts and staff retirements. Opportunities in business and community settings have increased as society has become more committed to life-long education for adults.

Admission Information (See Addenda Effective Fall 2006)

The following requirements must be met by each candidate applying to the master's program:

- 1 Fulfillment of College of Graduate Studies requirements for admission, as described in this Catalog.
- 2 Application to the Graduate Admissions Office for admission to the Master of Education program in one of the specialization areas. An area of specialization must be noted on the admission application form.
- 3 Request that previously attended colleges and universities send one official transcript to the Office of Graduate Admissions. Transcripts must come directly from the originating colleges.
- 4 Two letters of recommendation (for counseling programs only).
 5. A score of at least 47 on the Miller Analogies Test, or a score at the 50th percentile or above on the General section of the Graduate Record Examination. However, a student applying for any program except Counseling is exempt from this requirement if:
 - a. The baccalaureate degree is less than six years old at the time of application AND the undergraduate cumulative grade-point average is at least 2.75; OR
 - b. The baccalaureate degree is more than six years old at the time of application AND the undergraduate cumulative grade-point average is at least 3.0; OR
 - c. The student has completed twelve or more semester credits of Cleveland State graduate course work (including EDB 601 or HPR 601) AND received a grade of B or better in each course.

Upon formal admission to the College, students must prepare a Program of Study with the assistance of an assigned advisor.

Note: Before completing an admission application, individuals who wish to obtain Ohio Department of Education licensure in

order to work in public schools should obtain counseling from the Education Student Services Center, Rhodes Tower 1401, telephone (216) 687-4625.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Graduate Status

Regular Graduate Student status is a category applied to students who have met all admission requirements designated by the College of Graduate Studies.

Provisional Graduate Student status applies to students who fail to submit all necessary application materials, but who do meet the University's minimum grade-point and/or admission test score requirements. The student admitted provisionally is not permitted to register for classes until outstanding materials are received by the Graduate Admissions Office.

Conditional Graduate Student status carries registration restrictions. It pertains to: (a) international applicants who meet College of Graduate Studies and Program grade point and admission examination (GRE, GMAT, MAT, etc.) requirements, but fall short of meeting College of Graduate Studies English Language proficiency requirements; or (b) students who fail to meet all College of Graduate Studies and program requirements for Regular Admission, but still show strong promise of being successful in their chosen graduate program.

Non-degree Graduate Student status is an admission category applied to students who wish to take courses in education, or other subject areas, but who have not been admitted to a degree program. Such students may later be admitted to a degree program upon application, if they present required documentation and meet admission requirements. Non-degree students who originally do not meet admission requirements to a degree program may become eligible for admission by:

- 1 Completing at least twelve semester hours of course work in the College of Education and Human Services, including EDB 601 or HPR 601, and achieving a grade of B or better in each course;
- 2 Achieving a minimum cumulative grade-point average of 3.0 in courses at the

500 level or above taken as non-degree students; and

3 Notifying the Education Student Services Center, Rhodes Tower 1401, telephone (216) 687-4625.

Graduate Licensure Admission

An individual with a baccalaureate degree from a college or university with full academic accreditation who is seeking a State of Ohio teaching or school services license may apply for Graduate Licensure admission status. This status is for individuals who are not seeking a master's degree. Requirements for admission are generally the same for Regular graduate degree status. Refer to the section on Admission to the College of Graduate Studies: Graduate Certificate and Licensure Admission in this Catalog for admission procedures and requirements.

Transfer of Credits

In addition to the regulations of the College of Graduate Studies (including the six-year limit on course work), credits transferred from another university for application toward the MED degree are subject to the following conditions:

1. Approval of the program and departmental committee.

2. No more than nine hours of graduate credit may be transferred, including a maximum of six credits earned for workshops from other universities. The credits must not have been used to fulfill the requirements for any other degree.
3. Students must have twelve semester hours of graduate (500- to 800-level) course work completed at Cleveland State and a grade-point average of 3.0 or better to have transfer credit recorded on their transcript.
4. Not more than one half of a student's total graduate program may be a combination of transfer credit and credit by examination.
5. All credits requested in transfer must carry a letter grade of A, A-, B+, or B in graduate courses. No S/F or S/U graded courses may be transferred. Petitions are not considered for an exception to this requirement.

Program of Study

A Program of Study document, showing all course work and other aspects of the master's program, must be filed. The Program of Study should be developed in consultation with an advisor before the mid-point in the student's program and forwarded to the Education Student Services Center, Rhodes Tower 1401. No elective courses should be taken without the advisor's approval. Any subsequent changes in the student's program should be approved, in advance, by the advisor and recorded on the approved Program of Study form on file in the Education Student Services Center, Rhodes Tower 1401.

Practicum and Student Teaching Eligibility Requirements for Teacher Licensure

Eligibility for practicum or student teaching placement requires that student interns have satisfactorily met all of the conditions noted below. If these conditions are not completely fulfilled, field placement will be denied and the student will be administratively withdrawn from relevant course work. For questions, please contact the Office of Field Services (RT 1344; 216-687-4616) or the Education Student Services Center (RT 1401; 216-687-4625).

1. At the time of placement application, all student interns must have an approved Program of Study on file with the Education Student Services Center (RT 1401) and have signed

the Verification of Good Moral Character Statement on that form. In addition, Early Childhood majors must supply Field Services (RT 1344) with three acceptable letters of recommendation attesting to their good moral character and suitability for any pre-K teaching assignment.

2. Interns must have achieved and maintained an overall grade-point average of at least 3.0 for all 400- and-above-level work required for licensure. No more than six credits of 400-level-or-above course work with a grade of C may be used to meet licensure requirements. Course work may be repeated with the approval of the COEHS Advising Office; however, it should be noted that repeating a graduate course does not eliminate any earlier recorded grade for that course on your transcript or its continued inclusion in the calculation of Hours Earned, Quality Points, and GPA.
3. All interns must submit a negative TB (tuberculosis) test report (Mantoux version) to the Office of Field Services. If seeking licensure in Early Childhood or as an Intervention Specialist in Special Education (Early Childhood, Mild/Moderate or Moderate/Intensive), documentation must also be submitted verifying full immunization against Hepatitis B (three shots). In addition, candidates for Early Childhood licensure must supply proof of having satisfactorily passed a physical examination.
4. Interns who do not already hold an Ohio teaching license or certificate must complete a civilian background fingerprint check and submit a valid copy of a Clearance Report from the Ohio Bureau of Criminal Identification and Investigation (BCI) to Field Services. For those who have not resided in Ohio for at least five continuous years, a Federal Bureau of Investigation (FBI) background check is also required. Electronic fingerprinting and BCI checks can now be obtained by appointment in the ESSC (RT 1401) with prior fee payment at the Office of Treasury Services (UC 460).
5. Separate completion and submission of an online application (<http://ist-web.csuohio.edu/coeplacements/>) for practicum or student teaching placement is needed. Applications for summer and fall placements must be received by February 15; those for spring placements must be received by September 15. Summer placements are made at the discretion of

program faculty and may be limited and/or restricted. **Please note that in addition to submitting an application, students must ultimately register for practicum and student teaching.**

6. Placement requires satisfactory completion of all specified pre-requisite course work. (Please see your program checklist for a complete list of these courses.) Where mandated by specific programs, ongoing development of a professional portfolio may also be required to confirm satisfactory progress in achieving program outcomes before practicum and student teaching placement.
7. Eligibility for student teaching further requires that students have taken and passed all required Praxis II examinations prior to the start of student teaching. If not initially sent to CSU by ETS, score reports should be submitted to the Office of Field Services.

Exit Requirements

Each participant in the master's program must select one of the following exit requirements when planning the program of study:

1. Comprehensive Examination (no credit).
2. Project (1 to 6 credits).
3. Thesis (1 to 6 credits).
4. Other exit option approved by individual programs (contact program faculty for details).

Comprehensive Examination Option

The written comprehensive examination is prepared, administered, and evaluated by the student's department. The examination is usually taken in the final semester of enrollment. Students must be registered for at least one credit hour during the semester in which they take the examination, have a program of study on file in the Education Student Services Center, and must have filed an application for graduation (see the Application for Graduation section in this *Catalog*). When the student's completed examination has been evaluated, the department chair certifies the results to the Associate Dean. Should the student's comprehensive examination be judged unsatisfactory, the student is permitted to take a second examination within one year of the first test date. A third examination is not permitted.

Thesis/Project Option

MEd candidates who do not take the comprehensive examination must complete either a project or a thesis as their culminating degree activity. Students must be registered for thesis/project credit each semester (excluding summer unless they are graduating during that semester) until the thesis or project is completed.

Thesis/Project Definitions

- 1. Thesis:** The thesis must be a written, in-depth, scholarly investigation of a specific area related to the major emphasis of the student's program of study.
- 2. Project:** The project is usually a manuscript that documents the application of educational theory to practice and demonstrates the student's capacity for evaluation and synthesis. In some instances, other media (e.g., film, videotape, computer program) may constitute the major product, but these must be accompanied by written documentation, explaining the application, value, and limitations of the product. In all cases, a project must include references to related works and must be presented in a form consistent with educational research publications.

Students considering the project or thesis options should contact the Education Student Services Center in the College of Education and Human Services (Rhodes Tower 1401, telephone (216) 687-4625) to request Thesis or Project Option guidelines. Students also should request a copy of the Thesis and Dissertation Format Guidelines from the College of Graduate Studies (Keith Building 1150, telephone (216) 687-9370).

Graduation Requirements

Before a Master of Education degree can be conferred, the student must:

1. Complete at least 31 to 32 credit hours of course work at the 500 level or above.
2. Achieve a grade-point average of 3.0 or higher.
3. File the required graduation application.
4. Satisfactorily complete all exit requirements.
5. Register for at least 1 graduate credit hour of course work in the semester of graduation, as well as in the semester in which the comprehensive

examination is taken. As noted above, students choosing the thesis or project option must be registered for thesis/project credit each semester (excluding summer, unless they are graduating during that semester) until the thesis or project is completed.

Degree Requirements

The Master of Education degree program consists of these academic components:

1. College and/or Curriculum Cores: ten to thirteen credits.
2. Area of Concentration/Specialization: sixteen to forty-eight credits.
3. Electives: up to twelve credits.

Educational Administration Program

Thirty-four credit hours leading to the Master of Education degree, plus twelve post-master's credits for licensure.

Introduction

The Cleveland State University educational administration and supervision program is based on a conceptual framework of the Administrator/Supervisor as a Visionary Practitioner. Graduates achieve outcomes reflecting the five knowledge bases that compose this model: organizational change, relational, developmental, contextual, and ethical. These knowledge bases are applied to the programs within the environments of urban and suburban schools, which are culturally diverse and include students with disabilities.

The program enables participants to gain the conceptual, technical, and theoretical knowledge in the human resources area needed to assume principalship or other entry-level administrative positions. Key areas explored in the program are curriculum, supervision, guidance, personnel administration, community relations, school management, and school law. In addition to a master's degree, a candidate for a professional administrator license must complete two years of successful teaching under a professional license at the age levels for which the principal licensure is sought; a State Board of Education examination; an entry-level program; and other requirements the State of Ohio may establish.

The recently revised regulations governing licensing of school administrative personnel in the State of Ohio may change course requirements. Please contact the Department of Counseling,

Administration, Supervision, and Adult Learning (CASAL) at (216) 687-4613 for further information.

Interested applicants should specify the Master of Education, with a specialization in either Principal I (grades PK-9) or Principal II (grades 4-12) on the Application form for Graduate Admission.

Program of Study Core

(11 credits)

Educational Research and Technology

EDB 601 Educational Research (3 credits)

ETE 501 Technology Strand (2 credits)

Social Foundations

One of the following courses:

EDB 604 Social Issues and Education (3 credits)

EDB 606 Philosophy of Education (3 credits)

EDB 608 School and Society in the American Past (3 credits)

EDB 609 Comparative and International Education (3 credits)

Human Development

One of the following courses:

EDC 501 Child Development (3 credits)

EDB 620 Psychology of the Adolescent Learner (3 credits)

EDB 628 Psychology of Learning and Instruction (3 credits)

Program Requirements

(23 credits)

The Master of Education with a specialization in Educational Administration includes the following requirements:

EDB 612 Curriculum Theory and Instruction (3 credits)

ADM 613 School Law (4 credits)

ADM 614 Administration Principles and Practice (4 credits)

ADM 615 Instructional Leadership and Pupil Personnel Administration (4 credits)

ADM 618 Staff Personnel Administration (2 credits)

ADM 642 Collective Bargaining and Contract Management (2 credits)

ADM 676 Clinical Supervision and Professional Development (4 credits)

Post-Master's Licensure

(12 credits)

1. **Principal I** (ages 3-14 or grades PK-9)

ADM 681 Elementary School Administration: Theory and Practicum II (2 credits), and

ADM 682 Middle School Administration: Theory and Practicum II (2 credits), or

Principal II (ages 8-21 or grades 4-12)

ADM 682 Middle School Administration: Theory and Practicum II (2 credits), and

ADM 683 Secondary School Administration: Theory and Practicum II (2 credits)

2. ADM 643 School Finance and Economics (4 credits)

3. ADM 677 Legal and Policy Issues in Education (4 credits) or ADM 674 Special Education Law (4 credits)

First Ring Leadership Academy

Introduction

The First Ring Leadership Academy (FRLA) is nationally recognized as an innovative pathway to school leadership preparation. The Academy was created through a partnership between Cleveland State University's College of Education and Human Services and First Ring School Superintendents' Collaborative, which represents thirteen school districts surrounding the city of Cleveland. As a state-of-the-art leadership preparation and alternative principal licensure program, the Academy prepares school leaders to meet the unique challenges facing First Ring schools, such as student mobility, poverty, inequity, and the achievement gap. First Ring Superintendents nominate talented aspiring or practicing school leaders to apply to this prestigious program. An acceptance committee made up of First Ring superintendents, the First Ring Leadership Academy Executive Director, and CSU Educational Administration Faculty members review nominees and establish a cohort of the best candidates based on detailed applications, which include essays on leadership.

The First Ring Leadership Academy's fifteen month, twenty-two credit-hour program provides participants with the opportunity to build a portfolio of authentic and field-based leadership work. Participants meet for eleven, two and a half day sessions where they learn and practice leadership skills such as creating a mission and vision, making

global connections, monitoring and influencing the change process, raising student achievement, communicating the right messages, influencing public policy, building community relationships, and managing building personnel. Participants design their own learning plans, align them with the needs of their First Ring school district, and continually adjust the plans throughout the program and beyond. The First Ring Leadership Academy emphasizes strong writing skills and requires participants to evaluate each other's written work at every session.

The First Ring Leadership Academy provides aspiring and practicing school leaders with an opportunity to practice taking calculated risks in a safe and supportive environment. Participants agree to rules of engagement that protect the rights and confidences of cohort members. The Academy provides participants with many opportunities to build a network of professional friends, upon whom they can rely throughout their careers as school leaders. The Academy also offers graduates of this program ongoing professional development and support.

The First Ring Leadership Academy prepares the next generation of leaders by creating a pool of exemplary candidates from which First Ring School Superintendents can hire for administrative positions.

Please contact Dr. Deborah Morin, Executive Director, First Ring Leadership Academy, with questions: (216) 687-9209.

Program Requirements

I. FRLA Requirements

Students who already hold a master's degree may apply for a principal's license after completing these requirements and meeting Praxis II requirements.

First Term (Fall)

FRL 600 Charting your Course for Leadership (2 credits)

FRL 603 Leading with Mission, Vision, & Strategy (2 credits)

FRL 606 Leading Instructional Technology (2 credits)

Second Term (Spring)

FRL 609 Leading the Continuous Improvement Process (2 credits)

FRL 612 Data Driven Decision-Making (2 credits)

FRL 615 Leading Curriculum and Instruction (2 credits)

Third Term (Summer)

FRL 618 Leading Communication Interactions (2 credits)

FRL 621 Influencing Public Policy—Trip to Harvard University (2 credits)

Fourth Term (Fall)

FRL 624 Leading the Learning Organization (2 credits)

FRL 627 Representing Your School in the Community and Self Development Strategies (2 credits)

FRL 630 Capstone Conference (2 credits)

II. Master's Degree and Licensure

Master's degree and passage of Praxis II are required to apply for licensure.

College/Program Core

Educational Research and Technology

EDB 601 Educational Research (3 credits)

ETE 501 Technology Strand (Credit by exam available) (2 credits)

Social Foundations (Select one based on advisor approval)

EDB 604 Social Issues and Education (3 credits)

EDB 606 Philosophy of Education (3 credits)

EDB 608 School and Society in the American Past (3 credits)

EDB 609 Comparative and International Education (3 credits)

Human Development (Select one based on advisor approval)

EDC 501 Child Development (3 credits)

EDB 620 Psychology of the Adolescent Learner (3 credits)

EDB 628 Psychology of Learning and Instruction (3 credits)

Specialization

EDB 612 Curriculum Theory and Instruction (3 credits)

ADM 613 School Law (4 credits)

ADM 676 Clinical Supervision and Professional Development (4 credits)

ADM 642 Collective Bargaining and Contract Management (2 credits)

Culminating Experience/Exit Requirement

(select one of the following)

Comprehensive Examination (no credits), Project (EDA 698) (1-4 credits), or Thesis (EDA 699) (1-4 credits)

Note: First Ring Leadership Academy students who hold master's degrees also have the option of earning an Educational Specialist degree (EdS) in

Administration (with or without licensure). Interested students should contact the First Ring Leadership Academy Office at (216) 687-9209 to arrange contact with an advisor.

Organizational Leadership ([addenda new 05/2006](#))

Counselor Education Program

Admission Information

In addition to meeting College of Graduate Studies admission requirements, the Program requires all applicants to:

- 1 Provide official scores from either the Miller Analogies Test (MAT) or the Graduate Record Examination (GRE);
- 2 Provide two evaluation forms completed by professional colleagues or supervisors; and
- 3 Successfully complete the CASAL Department Admissions Test. Dates and times for the test can be found at www.csuohio.edu/casal/AppAd.html.

Once admitted to the program with Regular graduate status, and after registering for their first semester, students are assigned faculty advisors who help with preparing their programs of study. For students admitted with non-degree status, course information is available in the departmental office, Rhodes Tower 1419. Students who have not yet been assigned advisors can contact the department office at (216) 687-4612 or (216)687-4613.

Students are not fully admitted into the program until they have passed CNS 620. Thus, this course must be the first taken in the professional counselor education sequence. Other counselor education professional courses may be taken simultaneously, but not before completing this course (see sequence below). It is important to note that, in accordance with CACREP accreditation, students are evaluated throughout the program on their academic performance, as well as their personal and professional development, which includes mental and emotional wellness. There also are courses in the program where students will be asked to engage in personal growth components that involve self-disclosure.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at <http://www.csuohio.edu/admissions/gradForm.html>. The processing time for paper application forms is longer.

Sequence

CNS 620 Laboratory in Counseling Techniques is the first course taken in the professional counselor education sequence. Other counselor education professional courses may be taken simultaneously, but not before completing this course. If CNS 620 has not been completed, other courses that may be taken concurrently are: EDB 601, ETE 501,

ALD 603, CNS 604, CNS 611, and CNS 617. Once CNS 620 has been completed, students may take courses other than those listed above. However, students are responsible for knowing and meeting the prerequisites for each course listed in the course descriptions in this Catalog.

Exit Requirements

A culminating activity is required of all students. Students may choose to meet this requirement by providing evidence that they have taken and passed the Praxis II School Guidance & Counseling Specialty Exam (Test #20420) required for licensure and requesting that an official copy of their score report be sent to the College by designating Cleveland State University (Institutional Code 1221) as a Score Recipient when completing Item #12 on the registration form. While the Praxis II exam may be taken at any time, students are encouraged to register for the test during their last year in the program. Registration materials are available online at www.ets.org/praxis or can also be obtained at Cleveland State University's Counseling & Testing Center on Floor 2B of University Center. Other options for meeting the exit requirement include successful completion of a comprehensive exam, thesis, or project— details of which can be obtained from the Department of Counseling, Administration, Supervision, and Adult Learning and Development (RT 1419, 216-687-4612). Students who elect to meet the exit requirement by taking a comprehensive exam and fail it, may retake the exam one time and have one year in which to do so.

School Counseling

Forty-eight credit hours leading to the Master of Education degree.

Application Deadlines

Summer/Fall admission applications must be completed by January 21st. The required essay examination must be taken by the first Saturday in February. Spring admission applications must be complete by August 31st. The essay examination must be taken by the second Saturday in September.

Introduction

The school counseling program is accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP). The program is based on the conceptual framework of the School Counselor as a Facilitator of Human Development and Professional Program Manager. This model envisions the professional school counselor as a program manager who has the skills to assess, develop, improve, manage, and evaluate a counseling program that is comprehensive and based on the development of student

competencies. The foci of the comprehensive program are developmental (activities provided for all students to foster their development), preventive (activities centered on the identification of students who are highly at risk of acquiring blocks to their development and removal of those blocks), and remedial (activities to help students who are struggling with problems that are impeding their development).

The school counseling program at Cleveland State University is a forty-eight-semester-hour concentration leading to a Master of Education degree. There are two paths to licensure as a school counselor in the State of Ohio. One track is for licensed or certified teachers and the other track is for non-teachers. Full details regarding licensure are described on the Ohio Department of Education Web site at http://www.ode.state.oh.us/teaching-profession/teacher/certification_licensure/standards/pdf/Licensure.pdf.

Clinical and Field-Based Experience

There are two separate clinical, field-based courses. The first is CNS 680, Counseling Practicum. This is a one-semester course requiring 100 hours of clinical field experience. Counseling Practicum is offered in the fall and spring semesters. The second clinical, field-based experience is CNS 685, Internship in School Counseling. This is an intensive, two-consecutive-semester learning experience of supervised counseling in a school setting. Internship is offered as a fall-spring sequence only. Prerequisites for Practicum and Internship are listed under the course descriptions in this Catalog. Prerequisites are strictly enforced by counseling faculty.

Eligibility for Counseling Practicum (CNS 680)

Students plan their programs so they can apply for practicum two semesters in advance of the term in which they wish to take it. Applications are available in the CASAL Department office, Rhodes Tower 1419. In addition to the application, there is a mandatory practicum-orientation meeting. Applicants for practicum will be notified of the meeting date and time after they submit their practicum applications to their advisors. To be eligible to register for practicum, students must have passed the following courses: CNS 617, CNS 620, CNS 622, CNS 623, CNS 624, and CNS 678.

Eligibility for School Counseling Internship (CNS 685)

Students plan their programs so they can apply for internship two semesters in advance of the term in which they wish to take it. Applications are available in the CASAL Department office, Rhodes Tower 1419. In addition to successful completion of the practicum (CNS 680) and all practicum prerequisites, to be eligible for internship students must have passed CNS 679 and CNS 706.

Program of Study

(48 credits)

Screening Course

CNS 620 Laboratory in Counseling Techniques (3 credits)—first course to be taken after acceptance into the Counseling Program

Research in Behavioral Sciences

EDB 601 Educational Research (3 credits)

ETE 501 Technology Strand (2 credits)

Cultural Foundations and Social Issues

CNS 604 Cultural and Social Foundations in Counseling (2 credits)

CNS 617 Ethical and Legal Issues in Counseling (3 credits)

School Counselor Practices and Principles

CNS 678 Foundations of School Counseling (3 credits)

CNS 679 Techniques in School Counseling (3 credits)

Human Development

ALD 603 Lifespan Development (3 credits)

Individual Counseling

CNS 622 Individual Counseling: Theory and Process (3 credits)
CNS 670 Counseling Children and Adolescents (3 credits)

Group Process

CNS 623 Group Process and Practice (3 credits)

Note: Active involvement in a personal growth group is usually a required part of this course.

Assessment and Diagnosis

CNS 611 Appraisal in Counseling (2 credits)

CNS 706 Psychopathology and Diagnosis for Counselors (3 credits)

Career Development

CNS 624 Career Development and Information Services (3 credits)

Clinical and Field-Based Experience

CNS 680 Counseling Practicum (one semester, 3 credits)

CNS 685 Internship in School Counseling (two semesters, 3 credits per semester)

Community Agency Counseling

Sixty credit hours leading to the Master of Education degree in mental health counseling.

Application Deadlines

Summer/Fall admission applications must be received in the Graduate Admissions Office by January 21st. The required essay examination must be taken by the first Saturday in February. Spring admission applications must be received by August 31st. The essay examination must be taken the second Saturday in September.

Introduction

The main goal of the program is to prepare counselors for roles in community agencies. Graduates who successfully meet educational requirements are eligible to take the Professional Counselor Licensure Examination (PCLE). After successfully passing the examination, graduates are awarded the Professional Counselor (PC) license until they have acquired two years of supervised experience in counseling, obtained after the award of the master's degree. After successful completion of this supervised experience, they are awarded the Professional Clinical Counselor license (PCC).

The program emphasizes a clinical orientation, focusing on theory and skills in counseling (individual, group, and family), assessment, human behavior and development, diagnosis and treatment of mental and emotional disorders, intervention methods, lifestyle and career development, legal and ethical responsibilities, and service-delivery systems.

Clinical and Field-Based Experience

There are two separate clinical, field-based courses. The first is CNS 680, Counseling Practicum. This is a one-semester course requiring 100 hours of clinical field experience. Counseling Practicum is offered in the fall and spring semesters. The second clinical, field-based experience is the two-part Internship in Agency Counseling (CNS 686 and CNS 687). This is an intensive, two-consecutive-semester learning experience of supervised counseling in an agency setting. Internship is offered as a fall-spring sequence only. Prerequisites for Practicum and Internship are listed under the course descriptions in this *Catalog*. Counseling faculty strictly enforce prerequisites.

Eligibility for Counseling Practicum (CNS 680)

Students plan their programs so they can apply for practicum two semesters in advance of the term in which they wish to take it. Applications are available in the CASAL Department office, Rhodes Tower 1419. In addition to the application, there is a mandatory practicum-orientation meeting. Applicants for practicum will be notified of the meeting date and time after they turn in their practicum applications to their advisors. To be eligible to register for practicum, students must have passed the following courses: CNS 617, CNS 620, CNS 622, CNS 623, CNS 624, and CNS 629.

Eligibility for Agency Counseling Internship (CNS 686 and CNS 687)

Students plan their programs so they can apply for internship two semesters in advance of the term in which they wish to take it. Applications are available in the CASAL Department office, Rhodes Tower 1419. In addition to successful completion of the practicum (CNS 680) and all practicum prerequisites, to be eligible for internship students must have passed CNS 706.

Program of Study*(60 credits)***Research in Behavioral Sciences**EDB 601 Educational Research
(3 credits)

ETE 501 Technology Strand (2 credits)

Cultural Foundations and Social IssuesCNS 604 Cultural and Social
Foundations in Counseling
(2 credits)CNS 617 Ethical and Legal Issues in
Counseling (3 credits)**Human Development**ALD 603 Lifespan Development
(3 credits)**Screening Course**CNS 620 Laboratory in Counseling
Techniques (3 credits)—first course
to be taken after acceptance into
the Counseling Program**Agency Practice**CNS 629 Community Agency
Counseling (3 credits)**Individual Counseling**CNS 622 Individual Counseling: Theory
and Process (3 credits)**Group Process**CNS 623 Group Process and Practice
(3 credits)*Note:* Active involvement in a personal
growth group is usually a required part
of this course.**Assessment**CNS 611 Appraisal in Counseling
(2 credits)

At least one of the following:

CNS 701 Assessment for Counselors
(3 credits)CNS 702 Individual Intelligence Testing
(3 credits)CNS 703 Personality Assessment for
Counselors (3 credits)**Intervention and Prevention of Mental and Emotional Disorders**CNS 650 Case Studies and
Interventions (3 credits)**Psychopathology and Personality**CNS 712 Theories of Personality and
Counseling (4 credits)**Diagnosis of Mental and Emotional Disorders**CNS 706 Psychopathology and
Diagnosis for Counselors
(3 credits)**Career Development**CNS 624 Career Development and
Information Services (3 credits)**Treatment of Mental and Emotional Disorders**CNS 709 Psychopharmacology for
Counselors (3 credits)**Clinical and Field-Based Experience**CNS 680 Counseling Practicum
(one semester, 3 credits)CNS 686 Internship in Community
Agency Counseling (3 credits)CNS 687 Advanced Internship in
Community Agency Counseling
(3 credits)**Elective Credits**

The remaining five credits are elective. Students pursuing PCC licensure in Ohio should fulfill these five elective credits with courses from the clinical course-work offerings in counseling. These are listed on the department Web site at www.csuohio.edu/casal/commagohio.html.

For further information about the Counselor Education Program, contact the Department of CASAL at (216) 687-4613 or go to the department Web site at www.csuohio.edu/casal.

Adult Learning and Development Program

Thirty-five to thirty-six credit hours lead to the Master of Education degree.

Introduction

Learning is a life-long process. Today's rapidly changing world requires adults to learn new ways of doing their jobs or to change careers several times throughout their lives. This new reality requires adults to return to educational institutions for classes, to partake in on-the-job training and development courses, and to attend continuing professional education seminars in order to achieve new career goals. The influx of adult learners into adult education venues has resulted in a demand for qualified adult educators to assist adult learners as they cope with the effects of an ever-changing world.

Adult educators are employed to plan, teach, administer, coordinate, and evaluate programs for adult learners. They work in many different types of settings, such as higher education, business and industry, labor unions, GED/ABLE programs, cooperative extension services, community agencies, professional continuing education programs, museums, health education centers, hospitals, libraries, and correctional institutions.

The purpose of this program is to prepare present and future adult educators

with the theories, competencies, and knowledge that will help them plan, teach, and administer programs for a diverse population of adult learners in a variety of settings. The MEd program is committed to providing adult educators with a cognizance of the issues and challenges confronting adult educators in diverse learning environments. Theories, philosophies, history, and practices concerning adult learning and development, teaching adult learners, and program planning and administration are emphasized through a variety of courses throughout the program. Students also gain practical experience through participation in internships.

Program of Study**College Core***(12 credits)***Educational Research and Technology**EDB 601 Educational Research
(3 credits)

ETE 501 Technology Strand (2 credits)

Social FoundationsALD 607 Adult Education in a Changing
Society (4 credits)**Psychological Foundations**ALD 605 Psychology of the Adult
Learner (3 credits)**Adult Learning and Development Concentration**ALD 645 Organizational Behavior and
Change (4 credits)ALD 663 Planning and Implementing
Programs for Adult Learners
(4 credits)**Internship**ALD 688 Internship in Adult Learning
and Development (4 credits)**Goal-Directed Electives**

Each student selects 11-12 credit hours of study from the courses listed below, or from other courses after discussion of career goals with a faculty advisor:

ALD 603 Lifespan Development
(3 credits)ALD 606 Modern Higher Education in
a Changing Society (4 credits)ALD 631 Group Dynamics for
Educational Leadership (4 credits)ALD 646 Human Resource
Development for Adult Educators
(4 credits)ALD 664 Instructional Principles for
Adult Learners (4 credits)ALD 665 Student Personnel Services
in Higher Education (4 credits)

- ALD 679 Planning, Marketing, and Budgeting in Nonprofit Organizations (4 credits)
- ALD 689 ALD Portfolio Development (4 credits)
- ALD 700 Issues in Multicultural Foundations of Urban Adult Education (4 credits)
- CNS 624 Career Development and Information Services (3 credits)
- EDB 612 Curriculum Theory and Instruction (3 credits)
- EDB 711 Educational Evaluation and Innovation (4 credits)
- MLR 577 Managerial Skill Development (3 credits)
- MLR 611 Team Problem-Solving Skills (3 credits)
- MLR 641 Employment Planning, Personnel Selection and Training (3 credits)

Culminating Activity

One of these options must be selected: comprehensive examination, project, thesis, or portfolio development (ALD 689).

Supervision Program

Thirty-two credit hours leading to the Master of Education degree.

Introduction

The Cleveland State University educational administration and supervision program is based on a conceptual framework of the Administrator/Supervisor as a Visionary Practitioner. Graduates achieve outcomes reflecting the five knowledge bases that compose this model: organizational change, relational, developmental, contextual, and ethical. These knowledge bases are applied to the programs within the environments of urban and suburban schools, which are culturally diverse and include students with disabilities.

The purpose of this program is to prepare department chairs, team leaders, principals, and student-teaching supervisors to develop knowledge and competence in supervising adults and administering material resources to achieve the school's instructional ends. The program emphasizes curriculum development and assessment, instructional support for teachers, analysis of effective teaching, in-service program design, leadership, group dynamics, and change strategies.

Graduates of the program may be eligible for licensure as Administrative Specialists in Curriculum, Supervision, or Professional Development providing they have completed a minimum of two

years successful teaching or pupil service experience under an Ohio professional teacher or pupil services license.

The recently revised regulations governing licensing of school administrative personnel in the State of Ohio may change course requirements. Please contact the Department of Counseling, Administration, Supervision, and Adult Learning (CASAL) at (216) 687-4613 for further information.

Program of Study

College Core

(11 credits)

Educational Research and Technology

- EDB 601 Educational Research (3 credits)
- ETE 501 Technology Strand (2 credits)

Social Foundations

- Select one of the following courses:
- EDB 604 Social Issues and Education (3 credits)
- EDB 606 Philosophy of Education (3 credits)
- EDB 608 School and Society in the American Past (3 credits)
- EDB 609 Comparative and International Education (3 credits)

Human Development

- Select one of the following courses:
- EDC 501 Child Development (3 credits)
- EDB 620 Psychology of the Adolescent Learner (3 credits)
- EDB 628 Psychology of Learning and Instruction (3 credits)

Supervision Program Requirements

- (21 credits)
- EDB 612 Curriculum Theory and Instruction (3 credits)
- ADM 613 School Law (4 credits)
- ADM 615 Instructional Leadership and Pupil Personnel Administration (4 credits)
- ADM 618 Staff Personnel Administration (2 credits)
- ADM 676 Clinical Supervision and Professional Development (4 credits)
- ADM 680 Supervision Practicum (two semesters, 2 credits per semester) Application and permission required before registration.

Exit Requirements

Select one of the three options:

Comprehensive examination, project, or thesis.

Sport Management

Thirty-four credit hours leading to the Master of Education degree.

Introduction

The sport management program prepares students to meet the needs of the ever-evolving sports world. Advanced educational offerings prepare graduates for professional careers related to the delivery and management of physical activity or sport programs in business, community, public, and private settings. Practicums available to our students include: IMG, professional sport organizations (e.g., Cleveland Browns, Cavaliers, Indians), and private and public health and fitness clubs, as well as recreation centers.

Program of Study

College Core

(13 credits)

- ETE 501 Technology Strand (2 credits)
- HPR 601 Research Methods in Health and Human Performance (4 credits)
- HPR 606 Human Development (3 credits)
- PED 565 Law and Policy Studies in Sport and Physical Education (4 credits)

Specialization

(21 credits)

Required:

- PED 560 Program Development and Management (4 credits)
- PED 566 Sport Facility Management (3 credits)
- PED 567 Sport Marketing (3 credits)
- HPR 682 Practicum (5 credits)

Electives. Select two of the following courses:

- PED 551 Applied Sport Psychology (3 credits)
- PED 554 Sport Sociology (3 credits)
- PED 561 Sport Governance (3 credits)
- PED 570 Seminar in Training and Conditioning (3 credits)
- ACT 501 Financial Accounting (3 credits)
- ECN 503 Economic Concepts (3 credits)
- MLR 501 Management and Organizational Behavior (3 credits)

Culminating Activity

Select one of the three options: comprehensive examination, project, or thesis.

Sport Management/Sport and Exercise Psychology

Thirty-three to thirty-four credit hours leading to the Master of Education degree.

Introduction

This program is a combination of sport management and sport and exercise psychology. Students develop skills in organizing and administering a variety of sport programs (recreational, amateur, and professional sport). They also acquire the knowledge and skills needed to apply performance enhancement strategies in sport and/or exercise settings to assist participants in reaching their potential and learn strategies for effective leadership and for managing group dynamics. Students seeking careers in sport management, recreation, coaching, or athletic administration will benefit from this program.

Program of Study

College Core

(13 credits)

- ETE 501 Technology Strand (2 credits)
- HPR 601 Research Methods in Health and Human Performance (4 credits)
- HPR 606 Human Development (3 credits)
- PED 565 Law and Policy Studies in Sport and Physical Education (4 credits)

Specialization

(20-21 credits)

Required:

- PED 550 Psychology of Sport and Exercise (4 credits)
- PED 551 Applied Sport Psychology (3 credits)
- PED 554 Sport Sociology (3 credits)
- PED 560 Program Development and Management (4 credits)
- HPR 680 Practicum (3 credits)

Elective: Select one of the following courses: (3-4 credits)

- PED 566 Sport Facility Management (3 credits)
- PED 561 Sport Governance (3 credits)
- PED 567 Sport Marketing (3 credits)
- PED 570 Seminar in Training and Conditioning (3 credits)

- HED 574 Stress Management (3 credits)
- HED 575 Nutrition and Physical Activity (3 credits)
- ALD 631 Group Dynamics for Education Leadership (4 credits)
- ALD 645 Organizational Behavior and Change (4 credits)

Culminating Activity

Select one of the three options: comprehensive examination, project, or thesis.

Exercise Science

Thirty-four credit hours leading to the Master of Education degree.

Introduction

In this program, students develop skills to organize and lead exercise programs in a variety of settings, including cardiac rehabilitation centers, corporate- and hospital-based wellness programs, and private physical fitness enterprises. The primary focus of study is exercise physiology and its applications to physical activity programs.

Program of Study

College Core

(13 hours)

- ETE 501 Technology Strand (2 credits)
- HPR 601 Research Methods in Health and Human Performance (4 credits)
- HPR 606 Human Development (3 credits) or PED 572 Physiology of Aging (3 credits)
- PED 565 Law and Policy Studies in Sport and Physical Education (4 credits)

Specialization

(21 credits)

Required:

- PED 570 Seminar in Training and Conditioning (3 credits)
- PED 675 Physiology of Human Performance I (4 credits) (Prerequisites: Courses in human anatomy and physiology, or equivalents)
- PED 676 Physiology of Human Performance II (4 credits) (Prerequisite: PED 675)
- HED 575 Nutrition and Physical Activity (3 credits)
- HPR 680 or HPR 681 Practicum (3 or 4 credits) (*register for 4 credits if elective totals three*)

Elective

(3 to 4 credits)

Select one of the following courses:

- PED 550 Psychology of Sport and Exercise (4 credits)
- PED 551 Applied Sport Psychology (3 credits)
- PED 560 Program Development and Management (4 credits)
- PED 572 Physiology of Aging (3 credits) (if not taken as a requirement)
- PED 677 Prevention and Rehabilitation of Cardiovascular Disease (3 credits)
- HED 570 Pathophysiology of Disease (4 credits)

Culminating Activity

Select one of the three options: comprehensive examination, project, or thesis.

Sport Management/Exercise Science (Combined)

Forty-five credit hours leading to the Master of Education degree.

Introduction

This specialization offers a combination of the Sport Management and Exercise Science programs described above. Students completing this combined program are prepared to organize, administer, understand, and design exercise programs for physical fitness-related environments. Students who wish to administer programs and manage facilities in a fitness, conditioning, or wellness setting should consider this program.

Program of Study

College Core

(13 credits)

- ETE 501 Technology Strand (2 credits)
- HPR 601 Research Methods in Health and Human Performance (4 credits)
- HPR 606 Human Development (3 credits)
- PED 565 Law and Policy Studies in Sport and Physical Education (4 credits)

Specialization

(32 credits)

Required:

- PED 560 Program Development and Management (4 credits)
- PED 566 Sport Facility Management (3 credits)

PED 675 Physiology of Human Performance I (4 credits) (Prerequisites: Courses in human anatomy and physiology, or equivalents)
 PED 676 Physiology of Human Performance II (4 credits) (Prerequisite: PED 675)
 HPR 681 or HPR 682 Practicum (4 or 5 credits) (register for 5 credits if electives total 12)

Electives: Select at least two courses in each area: (12 to 13 credits)

Exercise Science Courses:

PED 570 Seminar in Training and Conditioning (3 credits) PED 572 Physiology of Aging (3 credits) PED 677 Prevention and Rehabilitation of Cardiovascular Disease (3 credits) HED 570 Pathophysiology of Disease (4 credits) HED 575 Nutrition and Physical Activity (3 credits)

Sport Management Courses:

PED 551 Applied Sport Psychology (3 credits) PED 554 Sport Sociology (3 credits) PED 561 Sport Governance (3 credits) PED 567 Sport Marketing (3 credits) ACT 501 Financial Accounting (3 credits) ECN 503 Economic Concepts (3 credits) MLR 501 Management and Organizational Behavior (3 credits)

Culminating Activity

Select one of the three options: comprehensive examination, project, or thesis.

Community Health Education Program

Thirty-four credit hours leading to the Master of Education degree.

Introduction

This program provides a multidisciplinary approach for professionals interested in careers in community health education or in the private health care sector. A variety of undergraduate majors (e.g., nursing, gerontology, health education, sociology, psychology, allied health, physical education) may prepare students for employment opportunities in this professional field. A background in anatomy, physiology, and general health is required.

Program of Study

College Core

(10 credits)

ETE 501 Technology Strand (2 credits)
 HED 550 Theories in Health Education and Health Behavior (4 credits)
 HPR 601 Research Methods in Health and Human Performance (4 credits)

Specialization

(24 credits)

HED 551 Organization and Administration of Community Health Education Programs (4 credits)
 HED 552 Health Education Program Planning (3 credits)
 HED 553 Measurement and Evaluation of Health Education Programs (3 credits)
 HPR 680, HPR 681 or HPR 682 Practicum (3-5 credits) (register for 5 credits if elective credit total is 9)

Electives: Select three of the following courses: (9 to 11 credits)

HED 561 Methods and Materials for Health Education (3 credits) (Prerequisite: HED 551, or HED 560, or equivalent)
 HED 565 Analyzing Health Data for Grant Writing (3 credits)
 HED 570 Pathophysiology of Disease (4 credits)
 HED 571 Substance Abuse Education (3 credits)
 HED 572 Consumer Health (3 credits)
 HED 573 Teaching Human Sexuality (3 credits)
 HED 574 Stress Management (3 credits)
 HED 575 Nutrition and Physical Activity (3 credits)
 HPR 606 Human Development (3 credits)
 PED 677 Prevention and Rehabilitation of Cardiovascular Disease (3 credits)
 EDB 612 Curriculum Theory and Instruction (3 credits)
 HCA 510 Administrative Uses of Epidemiology (3 credits)
 HCA 515 Medical Care Organization (3 credits)
 HCA 640 Health Care Law (3 credits)
 Other approved course (3-4 credits)

Culminating Activity

Select one of three options: comprehensive examination, project, or thesis.

School Nurse Licensure Program (See addendum Effective August 2006)

The Department of Health, Physical Education, Recreation, and Dance (HPERD) offers courses leading to Ohio licensure for school nurses (Web site: www.csuohio.edu/healthed). The student shall be recommended for the licensure provided that he or she: 1) holds a current license to practice as a Registered Nurse (RN) in the State of Ohio, 2) has obtained a bachelor's degree from an approved college or university, and 3) has completed course work preparation for this licensure that conforms to the requirements listed.

Students should apply for graduate admission as a licensure student to register for courses. Upon completion of these courses, students must apply for licensure through the Education Student Services Center of the College of Education and Human Services (Rhodes Tower 1401, telephone (216) 687-4625). An overall grade-point average of 2.5 must be maintained throughout the program.

Course requirements are based on the National School Nurse Roles and Standards. Course work (24 to 26 credits minimum) must be distributed in the following areas:

Comprehensive School Health Program

HED 560 Foundations of a Coordinated School Health Program (4 credits)
 NUR 550 Legal Issues in School Nursing (2 credits)

Comprehensive School Health Education Delivery

HED 561 Methods and Materials for Health Education (3 credits) (Prerequisite: HED 551 or HED 560, or equivalent)

Children with Special Needs and School Assessment

NUR 530 Health Assessment Strategies of the School-Aged Child and Child with Special Needs (3 credits) NUR 532 Health Assessment of the School-Aged Child and Child with Special Needs Laboratory (2 credits)

Community Health Collaboration

HED 551 Organization and Administration of Community Health Programs (4 credits)

Research

NUR 360 Nursing Research (2 credits)
or NUR 310 if taken during summer

Elective (2 credits) Based on individual needs following transcript review.

Practicum for School Nurses

HPR 679, HPR 680, or HPR 681 Practicum (2, 3, or 4 credits, respectively). Clinical and field-based experiences, including a practicum for at least ten weeks, to ensure proficiency in performing the duties of a school nurse. School nurses with two years of full-time experience can complete 2 credits; all others must complete 3 or 4 credits. At least two-thirds of the course work must be completed. Includes a seminar and the development of a professional portfolio.

Curriculum and Instruction Programs Leading to the Master of Education Degree

Introduction

The program in Curriculum and Instruction is designed for teachers at all levels who wish to further develop their pedagogical expertise and improve their skills in educationally related disciplines. The College of Education and Human Services conceptual model for Teacher Education is the Teacher as a Responsive, Reflective Professional: A Partner in Learning. Cleveland State University teacher education graduates are known for distinctive abilities that reflect the four knowledge bases that compose this model: inquiry, partnership, contextualism, and professionalism.

All Curriculum and Instruction programs require the College Core courses, a Curriculum and Instruction core, and an area of specialization. The following specializations currently are available in the Curriculum and Instruction program:

- Educational Technology
- Early Childhood Education
- Elementary Education
- Educational Research
- Gifted and Talented Learners
- Health and Physical Education: School Health, Human Performance, Sport & Exercise Psychology, Physical Education Pedagogy (suspended)
- Health Education Master's and Teaching Licensure
- Literacy Development and Instruction (Reading, TESOL, Adult Literacy)

- Middle Childhood (Science, Mathematics)
- Secondary Education (all content fields, including Art, English, Social Sciences, Modern Languages, Mathematics, and Science)
- Urban Secondary Teaching (14-month master's program)
- Special Education: Early Childhood Intervention Specialist, Mild/Moderate Intervention Specialist, and Moderate/Intensive Intervention Specialist

Educational Technology

(33 credits)

Purpose

This specialization is for educators who wish to develop and enhance their ability to use computers and related informational technologies in a regular classroom setting. Students explore the use of a variety of hardware and software in the K-12 setting, including the use of distance education technologies (both Web-based and video). For students certified or licensed as classroom teachers in Ohio, this program also grants the Ohio computer/technology teaching endorsement.

Program of Study

College Core

(11 credits)

Educational Research and Technology

EDB 601 Educational Research (3 credits)

ETE 501 Technology Strand (2 credits)

Social Foundations

Select one of the following courses:

EDB 604 Social Issues and Education (3 credits)

EDB 606 Philosophy of Education (3 credits)

EDB 608 School and Society in the American Past (3 credits)

EDB 609 Comparative and International Education (3 credits)

Human Development

Select one of the following courses:

EDC 501 Child Development (3 credits)

EDB 620 Psychology of the Adolescent Learner (3 credits)

EDB 628 Psychology of Learning and Instruction (3 credits)

Curriculum and Instruction Core

(3 credits)

EDB 612 Curriculum Theory and Instruction (3 credits)

Specialization

(19 credits)

ETE 565 Technology in the Classroom (4 credits)

ETE 566 Technological Change and Schools (4 credits)

ETE 567 Telecommunications in Education (4 credits)

ETE 568 Programming the Computer (4 credits)

ETE 595 Seminar in Computer Uses in Education (3 credits)

Culminating Activity

Select one of the four options: comprehensive examination, project, thesis, or portfolio assessment (conducted in ETE 595, which must be completed with a grade of B or better).

Early Childhood Education

(39-40 credits)

This specialization provides advanced study in the field of early childhood education. It includes University and field-based experiences which focus on the development and education of children from ages three to eight, including typically developing children and those with mild and moderate disabilities.

While primarily intended to meet the professional development needs of practicing early childhood educators, a qualified applicant who possesses a baccalaureate degree in another teaching field or related discipline may apply required coursework toward a provisional teaching license in early childhood. Eligibility for this license requires 1) additional coursework beyond that needed for the master's degree, 2) a portfolio meeting specific criteria at course checkpoints (ECE 500, ECE 502, EST 570, EST 580) and demonstrating proficiency in the twelve college outcomes (see Student Portfolio Handbook at <http://www.csuohio.edu/coehs/students/portfolios>), and 3) successful completion of all Praxis II examinations required by the State of Ohio.

Built around a common College Core, specialized course work in early childhood education is integrated with required offerings in educational research, social foundations, and human development as outlined below. Taken as a whole, the curriculum

focuses on the development of teaching and learning practices associated with high-quality early childhood education for young children representing diverse cultures and abilities. These practices respect all children and provide them with equal opportunity to develop and learn emotionally, socially, physically, and intellectually.

For further information, contact the Department of Teacher Education at (216) 687-4600.

Program of Study

College Core

(11 credits)

Educational Research and Technology

EDB 601 Educational Research (3 credits)
ETE 501 Technology Strand (2 credits)

Social Foundations

Select one of the following courses:

EDB 604 Social Issues and Education (3 credits)
EDB 606 Philosophy of Education (3 credits)
EDB 608 School and Society in the American Past (3 credits)
EDB 609 Comparative and International Education (3 credits)

Human Development

EDC 501 Child Development (3 credits)

Note: ECE 511 may be substituted for EDC 501, with advisor permission, for students who have completed an equivalent course.

Specialization

(28 credits)

ECE 500 Foundations of Early Childhood Education (4 credits)
ECE 501 Developmental Curriculum for Early Childhood Education (4 credits)
ECE 502 Teaching Methods in Early Childhood Education (4 credits)
ECE 503 Teaching Children with Mild and Moderate Disabilities (3 credits)
ECE 695 Seminar in Early Childhood Education (4 credits)
EDC 500 Diversity in Educational Settings (3 credits)
EST 570 Practicum in Early Childhood Education (3 credits)

Elective (3 credits minimum, selected with advisor; see Master of Education checklist)

The additional courses listed below represent those required to attain an Early Childhood Education license as a first teaching credential at the graduate level:

ECE 512 Collaboration with Families and Professionals in Early Childhood Settings (4 credits)
ECE 514 Expressive Arts in Early Childhood Education (3 credits)
ECE 515 Mathematics Instruction and Assessment in Preschool and the Primary Grades (3 credits)
ECE 516 Social Studies Instruction and Assessment in Preschool and the Primary Grades (3 credits)
ECE 517 Science Instruction and Assessment in Preschool and the Primary Grades (3 credits)
EDL 500 Phonics Assessment and Instruction (3 credits)
EDL 501 Beginning and Intermediate Reading Instruction and Assessment (3 credits)
EDL 511 Emergent Literacy (3 credits)
EDL 512 Literature-based Reading Methods for Children (3 credits)
ESE 515 Assessing Young Children (4 credits)
EST 580 Student Teaching in Early Childhood Education (4 credits)
PED 516 Health and Physical Education for Classroom Teachers (3 credits)

Exit Requirement

Select one of the four options: comprehensive examination, project, thesis, or advocacy or action research project (conducted as part of ECE 695, which must be completed with a grade of B or better).

Elementary Education

(33 credits)

Designed to provide continued professional development to experienced teachers, the elementary education specialization is intended for individuals who wish to extend their understanding of teaching-learning processes and the situational contexts in which they occur. This specialization offers opportunity for the in-depth study of current theory, research, and practice, particularly related to the design and delivery of effective instruction in the primary and upper elementary or middle school grades. While built around a common College Core, degree requirements are sufficiently flexible to allow for individual needs and interests. For example, students may use elective credits to expand their knowledge of one or more academic disciplines in the elementary curriculum; investigate new teaching methods and technologies; explore the

educational needs of a particular age range or group of learners; or expand their understanding of the cognitive, affective, social, cultural, and motivational dimensions of learning. Students also may develop further skills to assume greater leadership roles in the planning, delivery, management, and evaluation of instructional programs. The Elementary Education Program does not provide for teacher licensure or any type of endorsement.

For further information, contact the Department of Teacher Education at (216) 687-4600.

Program of Study

College Core

(11 credits)

Educational Research and Technology

EDB 601 Educational Research (3 credits)
ETE 501 Technology Strand (2 credits)

Social Foundations

Select one of the following courses:

EDB 604 Social Issues and Education (3 credits)
EDB 606 Philosophy of Education (3 credits)
EDB 608 School and Society in the American Past (3 credits)
EDB 609 Comparative and International Education (3 credits)

Human Development

Select one of the following courses:

EDC 501 Child Development (3 credits)
EDB 628 Psychology of Learning and Instruction (3 credits)

Curriculum and Instruction Core

(3 credits)

EDB 612 Curriculum Theory and Instruction (3 credits)

Specialization

(19 credits)

EDC 500 Diversity in Educational Settings (3 credits)

Select one of the following courses based on your concentration area:

EDC 512 Instructional Development in Foreign Language Education (4 credits)
EDC 513 Instructional Development in English Language Arts Education (4 credits)

- EDC 514 Instructional Development in Art Education (4 credits)
 EDC 515 Instructional Development in Mathematics Education (4 credits)
 EDC 516 Instructional Development in Social Studies Education (4 credits)
 EDC 517 Instructional Development in Science Education (4 credits)

Electives:

(12 credits minimum, selected with advisor)

Exit Requirement

Select one of three options: comprehensive examination, project, or thesis.

Educational Research

(32 credits)

The Educational Research specialization is designed to ground students in applied research methodology in education. Unlike other programs that specialize in particular content areas, the Educational Research program provides students with research skills that can be applied in any field of education. A background in research methods can also be a valuable asset in social sciences like psychology or sociology. Students who are interested in how to evaluate research reports and create valuable and trustworthy knowledge in education should consider this specialization. Strong research skills are also beneficial for students who desire to pursue doctoral studies in education and the social sciences.

Program of Study**College Core**

(11 credits)

Educational Research and Technology

- EDB 601 Educational Research (3 credits)
 ETE 501 Technology Strand (2 credits)

Social Foundations

Select one of the following courses:

- EDB 604 Social Issues and Education (3 credits)
 EDB 606 Philosophy of Education (3 credits)
 EDB 608 School and Society in the American Past (3 credits)
 EDB 609 Comparative and International Education (3 credits)

Human Development

Select one of the following courses:

- EDC 501 Child Development (3 credits)
 EDB 620 Psychology of the Adolescent Learner (3 credits)
 EDB 628 Psychology of Learning and Instruction (3 credits)

Curriculum and Instruction Core

- EDB 612 Curriculum Theory and Instruction (3 credits)

Specialization

(12 credits)

- EDB 701 Advanced Educational Research (4 credits)
 EDB 711 Educational Evaluation and Innovation (4 credits)
 EDU 715 Applied Programming and Data Analysis with Statistical Packages (4 credits)

Culminating Activity

(6 credits)

- EDB 698 Project or EDB 699 Thesis

Gifted and Talented Learners

(33 credits)

The specialization in Gifted and Talented Learners is designed for previously certified/licensed teachers seeking an endorsement as an intervention specialist who teach gifted and talented learners. In addition, this degree or credential may allow teachers to work as Gifted Coordinators in many school districts. The multi-dimensional program provides training in meeting the needs of a broad range of gifted learners including culturally diverse children, females, those with dual exceptionalities (LD/Gifted, ADD/Gifted, etc.), underachievers, and those with special talents. The program provides opportunities for interested individuals to develop knowledge and skills in cultivating creativity and dealing with children's families and other professionals regarding gifted issues. Graduates are adept at understanding the continuum of services from which teachers and schools can choose to meet the needs of gifted, talented, high achieving and high performing students in a variety of settings. Participation in the program enhances classroom teaching skills, counseling skills, individualized intervention skills, as well as collaboration and leadership skills within the broader educational community.

Program of Study**College Core**

(12 credits)

Educational Research and Technology

- EDB 601 Educational Research (3 credits)
 ETE 501 Technology Strand (2 credits)

Social Foundations

Select one of the following courses:

- EDB 604 Social Issues and Education (3 credits)
 EDB 606 Philosophy of Education (3 credits)
 EDB 608 School and Society in the American Past (3 credits)
 EDB 609 Comparative and International Education (3 credits)

Human Development

- EGT 512 Nature and Developmental Needs of Learners with Gifts and Talents (4 credits)

Curriculum and Instruction Core

(3 credits)

- EDB 612 Curriculum Theory and Instruction (3 credits)

Specialization

(18 credits)

- EGT 513 Curriculum, Teaching Strategies, and Evaluation for Learners with Gifts and Talents (4 credits)
 EGT 517 Creativity, Inquiry, and Productive Thinking (4 credits)
 EGT 518 Working with Students with Gifts and Talents, Their Families, and Other Professionals (3 credits)
 EGT 519 Using Computers with Students with Gifts and Talents (3 credits)
 EGT 580 Practicum in Gifted and Talented Education (4 credits)

Culminating Activity

Select one of the three options: comprehensive examination, project, or thesis.

Health and Physical Education

(32 to 35 credits)

The program is designed for health and physical education teachers and coaches in school settings. Focus is placed on instructional development and advanced knowledge and skills in general educational principles. A curricular area of specialization is pursued to

increase awareness and understanding of current educational trends and issues. The areas of specialization are human performance, sport and exercise psychology, physical education pedagogy (suspended until further notice), and school health education, including options for initial or second licensure in multi-age health education.

Program of Study

College Core

(12 to 13 credits)

Educational Research and Technology

HPR 601 Research Methods in Health and Human Performance (4 credits)
ETE 501 Technology Strand (2 credits)

Social Foundations

Select one of the following courses:

EDB 604 Social Issues and Education (3 credits)
EDB 606 Philosophy of Education (3 credits)
EDB 608 School and Society in the American Past (3 credits)
EDB 609 Comparative and International Education (3 credits)

Human Development

For human performance, sport and exercise psychology area of specialization:

HPR 606 Human Development (3 credits)

For school health education area of specialization:

HED 550 Theories in Health Education and Health Behavior (4 credits)

Curriculum and Instruction Core

(3 credits)

EDB 612 Curriculum Theory and Instruction (3 credits)

Areas of Specialization

Select one specialization:

Human Performance

(18 to 19 credits)

Select five of the following courses:

PED 565 Law and Policy Studies in Sport and Physical Education (4 credits)
PED 570 Seminar in Training and Conditioning (3 credits)
PED 572 Physiology of Aging (3 credits)

PED 675 Physiology of Human Performance I (4 credits)
(Prerequisites: Courses in human anatomy and physiology, or equivalents)

PED 676 Physiology of Human Performance II (4 credits)
(Prerequisite: PED 675)

PED 677 Prevention and Rehabilitation of Cardiovascular Disease (3 credits)

HED 570 Pathophysiology of Disease (4 credits)

Sport and Exercise Psychology

(18 to 20 credits)

PED 550 Psychology of Sport and Exercise (4 credits)

PED 551 Applied Sport Psychology (3 credits)

PED 554 Sport Sociology (3 credits)

Electives

Select two or three of the following courses (minimum of 8 credits):

PED 565 Law and Policy Studies in Sport and Physical Education (4 credits)

PED 570 Seminar in Training and Conditioning (3 credits)

HED 574 Stress Management (3 credits)

HED 575 Nutrition and Physical Activity (3 credits)

EDB 620 Psychology of the Adolescent Learner (3 credits)

ALD 605 Psychology of the Adult Learner (3 credits)

ALD 631 Group Dynamics for Educational Leadership (4 credits)

ALD 645 Organizational Behavior and Change (4 credits)

School Health Education

(17 to 18 credits)

HED 552 Health Education Program Planning (3 credits)

HED 553 Measurement and Evaluation of Health Education Programs (3 credits)

HED 560 Foundations of a Coordinated School Health Program (4 credits)

Electives. Select two of the following courses (minimum of 7 credit hours):

HED 561 Methods and Materials for Health Education (3 credits)
(Prerequisite: HED 551 or HED 560, or equivalent)

HED 565 Analyzing Health Data for Grant Writing (3 credits)

HED 570 Pathophysiology of Disease (4 credits)

HED 571 Substance Abuse Education (3 credits)

HED 572 Consumer Health (3 credits)
HED 573 Teaching Human Sexuality (3 credits)

HED 574 Stress Management (3 credits)

HED 575 Nutrition and Physical Activity (3 credits)

HPR 606 Human Development (3 credits)

PED 677 Prevention and Rehabilitation of Cardiovascular Disease (3 credits)

Other approved course (3-4 credits)

School Health Education and Multi-Age Licensure

40-49 credit hours leading to the Master of Education degree and Ohio State licensure.

Introduction

This program is a combination of the curriculum and instruction Master's degree program in school health education and multi-age licensure in health education. Students analyze and interpret current research in the health field and become knowledgeable in areas of primary concern, such as nutrition and substance abuse in the schools. Particular focus is placed on recent developments and trends in health fields. Two program options are available: (1) Master's degree and second licensure for current holders of a multi-age license and (2) Master's degree and initial licensure for persons without a current teaching license.

School Health Education and Second Licensure

40-43 credit hours

Program of Study

College Core

(13 credits)

HPR 601 Research Methods in Health and Human Performance (4 credits)

ETE 501 Technology Strand (2 credits)
EDB 612 Curriculum Theory and Instruction (3 credits)

HED 550 Theories in Health Education and Health Behavior (4 credits)

Specialization*

(27-30 credits)

HED 552 Health Education Program Planning (3 credits)

HED 553 Measurement and Evaluation of Health Education (3 credits)

HED 560 Foundations of a Coordinated School Health Program (4 credits)**

HED 561 Methods and Materials for Health Education (3 credits)**
 HED 571 Substance Abuse Education (3 credits)
 HED 573 Teaching Human Sexuality (3 credits)
 HED 575 Nutrition and Physical Activity (3 credits)

Advisor approved elective (3 or 4 credits)

HED 580 Practicum in School Health Education (2-4 credits)

**Prerequisites: Personal health, first aid, and CPR certification or equivalent*

***Prerequisite: Foundations of health education (HED 359)*

****Prerequisites: Personal health, child psychology, adolescent psychology, or equivalent*

Culminating Activity

Select one of the three options: comprehensive examination, project, or thesis.

Licensure Requirements

Must pass Praxis II health content exam prior to practicum assignment

Criminal background check

Professional and employment portfolio

School Health Education and Initial Licensure

48-49 credit hours

Program of Study

College Core

(13 credits)

HPR 601 Research Methods in Health and Human Performance (4 credits)

ETE 501 Technology Strand (2 credits)

EDB 612 Curriculum Theory and Instruction (3 credits)

HED 550 Theories in Health Education and Health Behavior (4 credits)

Specialization*

(35-36 credits)

HED 552 Health Education Program Planning (3 credits)

HED 553 Measurement and Evaluation of Health Education (3 credits)

HED 560 Foundations of a Coordinated School Health Program (4 credits)**

HED 561 Methods and Materials for School Health Education (3 credits)**

HED 571 Substance Abuse Education (3 credits)

HED 573 Teaching Human Sexuality (3 credits)

HED 575 Nutrition and Physical Activity (3 credits)

HED 583 Student Teaching in Health Education (10 credits)

Advisor approved elective (3 or 4 credits)

**Prerequisites: Personal health, first aid, and CPR certification or equivalent*

***Prerequisite: Foundations of health education (HED 359)*

****Prerequisites: Personal health, child psychology, adolescent psychology, or equivalent*

Culminating Activity

Select one of the three options: comprehensive examination, project, or thesis.

Licensure Requirements

Must pass both Praxis II principles of learning and teaching (PLT) and health content exams prior to student teaching

Criminal background check

Professional and employment portfolio

Literacy Development and Instruction

(34 to 35 credits)

The specialization in literacy development and instruction meets the needs of teachers, clinicians, and others who provide literacy-related services to children or adults. The program also is of interest to those who wish to study reading and writing as language processes. Within this program, the acquisition and development of literate behaviors are viewed as inherent components of language learning in general, including second-language acquisition.

A wide range of available course offerings make this program attractive to individuals with diverse interests and career goals. Students may pursue concentrations leading to endorsement in either Reading or Teaching English to Speakers of Other Languages (TESOL) on an existing Ohio teaching license. There is a third concentration for non-school personnel with an interest in Adult Literacy.

In addition to completing all course work in the appropriate concentration, candidates for reading endorsement must pass the Praxis II Specialty Examination, Introduction to the Teaching of Reading. Similarly, candidates for TESOL endorsement must complete all course work in that concentration and pass the

Praxis II Specialty Test, Teaching English to Speakers of Other Languages.

For further information, contact the Department of Teacher Education at (216) 687-4600.

Program of Study

College Core

(11 credits)

Educational Research and Technology

EDB 601 Educational Research (3 credits)

ETE 501 Technology Strand (2 credits)

Social Foundations

Select one of the following courses:

EDB 604 Social Issues and Education (3 credits)

EDB 606 Philosophy of Education (3 credits)

EDB 608 School and Society in the American Past (3 credits)

EDB 609 Comparative and International Education (3 credits)

Human Development

One of the following courses must be selected in consultation with an academic advisor:

EDC 501 Child Development (3 credits)

EDB 620 Psychology of the Adolescent Learner (3 credits)

EDB 628 Psychology of Learning and Instruction (3 credits)

ALD 605 Psychology of the Adult Learner (3 credits)

Curriculum and Instruction Core

(3 credits)

EDB 612 Curriculum Theory and Instruction (3 credits)

Areas of Specialization

Reading Endorsement

(20 credits)

EDL 502 Foundations of Literacy: Theory and Practice (3 credits)

EDL 503 Assessment and Evaluation of Diverse Literacy Learners (4 credits)

EDL 504 Literacy Development: Meeting the Needs of Diverse Learners (4 credits)

EDL 505 Content Area Literacy (3 credits)

EDL 695 Seminar in Literacy Research (3 credits)

Select one of the following courses:

EDL 511 Emergent Literacy (3 credits)
 EDL 512 Literature-based Reading Programs for Children (3 credits)
 EDL 513 Literature-based Reading Programs for Adolescents (3 credits)

Teaching English to Speakers of Other Languages (TESOL)

(21 credits)

EDC 500 Diversity in Educational Settings (3 credits)
 EDL 506 Second Language Learning and Pedagogy (3 credits)
 EDL 507 TESOL Methods and Materials (3 credits)
 EDL 508 Applied Linguistics for Teachers (3 credits)*
 EDL 509 Assessment and Evaluation in the ESL/Bilingual Classroom (3 credits)
 EDL 510 Pedagogical Grammar (3 credits)*
 EST 573 Practicum in TESOL (3 credits)

*A graduate-level linguistics course (3 credits minimum, selected with advisor) can be used in place of EDL 508 or EDL 510

Adult Literacy

(20 credits)

EDL 502 Foundations of Literacy: Theory and Practice (3 credits)
 EDL 503 Assessment and Evaluation of Diverse Literacy Learners (4 credits)
 EDL 504 Literacy Development: Meeting the Needs of Diverse Learners (4 credits)
 EDL 505 Content Area Literacy (3 credits)
 EDL 514 Adult Literacy (3 credits)
 EDL 695 Seminar in Literacy Research (3 credits)

Exit Requirement

Select one of the three options: comprehensive examination, project, or thesis. Students in the Reading Endorsement specialization may substitute EDL 695, if completed with a grade of B or better.

Middle Childhood Education

(38 credits)

This specialization provides advanced study in the field of middle childhood education with particular emphasis being given to the design and delivery of effective mathematics or science

instruction in grades four through nine. Initial teacher licensure is not available through this program.

While primarily intended to meet the professional development needs of practicing elementary and middle school teachers, the qualified applicant who already possesses a middle childhood license can apply required course work toward additional subject credentialing in mathematics and/or science education. Eligibility to add subject areas to an existing middle childhood license may, however, demand further study beyond course work needed for the master's degree and requires successful completion of all Praxis II examinations required by the State of Ohio. Individuals seeking to add science and/or mathematics to a middle school licensure should contact the Education Student Service Center, at (216) 687-4625, early in their program for further information. Credits earned in the Graduate Certificate in Middle Childhood Mathematics or Science may be applied toward credit in this program.

Built around a common College Core, specialized course work in mathematics or science is integrated with required offerings in educational research, social foundations, human development, and instructional development as outlined below. The curriculum focuses on the development of practices associated with high-quality mathematics or science education for children ages eight through fourteen, with diverse cultural backgrounds and abilities. Candidates will be actively engaged in implementing inquiry teaching principles and engaging in self-reflection on learning and teaching during the field-based and research courses. The culminating exit requirement is an action research project that requires candidates to weave aspects of the content-based courses they participated in throughout the program into their own teaching.

For further information, contact the Department of Teacher Education at (216) 687-4600.

Program of Study

College Core

(15 credits)

Educational Research and Technology

EDB 601 Educational Research (3 credits)
 ETE 501 Technology Strand (2 credits)
 Social Foundations
 EDB 604 Social Issues and Education (3 credits)

Human Development

EDB 620 Psychology of the Adolescent Learner (3 credits)

Curriculum and Instruction Core

Select one of the following courses based on specialization:

EDC 515 Instructional Development in Mathematics Education (4 credits)
 EDC 517 Instructional Development in Science Education (4 credits)

Areas of Specialization

Select one specialization.

Mathematics Education

(20 credits)

MTH 526 Numbers, Patterns, and Operations for Middle School Teachers (4 credits)
 MTH 527 Algebra and Functions for Middle School Teachers (4 credits)
 MTH 528 Geometry for Middle School Teachers (4 credits)
 MTH 529 Data Analysis and Probability for Middle School Teachers (4 credits)
 MTH 530 Conversational Calculus for Middle School Teachers (4 credits)

Science Education

(20 credits)

BIO 580 Biology Content for Middle School Teachers (5 credits)
 CHM 580 Introductory Chemistry for Middle School Teachers (5 credits)
 EVS 580 Earth System Science for Middle School Teachers (5 credits)
 PHY 593 Special Topics in Physics: Conceptual Physics for Middle School Teachers (5 credits)

Exit Requirement

EDB 595 Seminar on Implementing Theory and Practice (3 credits)

P-6 Mathematics Specialist Endorsement

Secondary Education

(33 credits)

The secondary education specialization is intended for experienced teachers who wish to extend their understanding of teaching-learning processes and the situational contexts in which they occur. The specialization offers considerable opportunity for the in-depth study of current theory, research, and practice that is particularly related to the design and delivery of effective instruction in grades seven through twelve. While built around the College Core, degree requirements are sufficiently flexible to allow for individual needs and interests. For example, students may use elective hours in the professional specialization

sequence to increase their knowledge in their academic discipline; investigate new teaching methods and technologies; or explore further the educational needs of a particular group of learners.

Students also may choose to expand their understanding of the cognitive, affective, social, cultural, and motivational dimensions of learning, and/or develop additional skills needed to assume greater leadership roles in the planning, delivery, management, and evaluation of instructional programs. The Secondary Education program does not provide for any form of teacher licensure or endorsement.

For further information, contact the Department of Teacher Education at (216) 687-4600.

Programs of Study

College Core

(11 credits)

Educational Research and Technology

EDB 601 Educational Research (3 credits)

ETE 501 Technology Strand (2 credits)

Social Foundations

Select one of the following courses:

EDB 604 Social Issues and Education (3 credits)

EDB 606 Philosophy of Education (3 credits)

EDB 608 School and Society in the American Past (3 credits)

EDB 609 Comparative and International Education (3 credits)

Human Development

Select one of the following courses:

EDB 620 Psychology of the Adolescent Learner (3 credits)

EDB 628 Psychology of Learning and Instruction (3 credits)

Curriculum and Instruction Core

EDB 612 Curriculum Theory and Instruction (3 credits)

Specialization

(19 credits)

EDC 500 Diversity in Educational Settings (3 credits)

Select one of the following courses:

EDC 512 Instructional Development in Foreign Language Education (4 credits)

EDC 513 Instructional Development in English Language Arts Education (4 credits)

EDC 514 Instructional Development in Art Education (4 credits)

EDC 515 Instructional Development in Mathematics Education (4 credits)

EDC 516 Instructional Development in Social Studies Education (4 credits)

EDC 517 Instructional Development in Science Education (4 credits)

Electives

Minimum of 12 credits, selected with advisor.

Exit Requirement

Select one of three options: comprehensive examination, project, or thesis.

Curriculum and Instruction Urban Secondary Teaching (Initial Licensure)

44 credit hours leading to the Master of Education degree.

Program Description

This program prepares individuals with bachelor's degrees to teach in urban secondary schools. This intensive, fourteen-month, full-time program engages a cohort of twenty-five students in school-based classes and classroom experiences, studying theory and developing essential practices within school settings. Through reflection, collaboration, fieldwork, and inquiry, students develop responsive teaching and classroom management strategies that enhance learning. Students construct a critical perspective of schooling by examining and addressing the effects of race, class, and gender on pedagogy and learning.

Admission Information

Applicants to the program must:

1. Attend one of the information sessions offered during the fall semester
2. Complete a special MUST Graduate Program Admission Application form provided at the information sessions
3. Meet all College of Graduate Studies admission requirements noted in this *Catalog*
4. Hold a bachelor's degree in mathematics, science, English, social studies, or a related field with above-average grades
5. Be committed to a fourteen-month intensive program to include a nine-month, school-based internship
6. Have an interest in working in an urban school environment
7. Hold no concurrent employment

8. Agree to complete an independent teacher research project

9. Agree to develop a professional teaching portfolio

10. Agree to participate in all cohort activities

Eligible applicants to the program are invited for an interview.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Program of Study

EDB 502 Psychological Foundations of Education (3 credits)

EDB 505 Teaching and Management in the Secondary School (3 credits)

EDB 601 Educational Research (3 credits)

ETE 501 Technology Strand (2 credits)

ETE 565 Technology in the Classroom (4 credits)

ESE 504 Teaching Students of Varying Abilities (3 credits)

One of the following:

EDS 513 Secondary Language Arts Instruction and Assessment (4 credits)

EDS 515 Mathematics Education in the Secondary School (4 credits)

EDS 516 Social Studies Education in the Secondary School (4 credits)

EDS 517 Science Education in the Secondary School (4 credits)

Additional Required Courses:

EDB 604 Social Issues and Education (3 credits)

EDL 505 Content Area Literacy (3 credits)

EST 582-585 Practicum in Secondary English, Math, Social Studies or Science Education (3 credits)

EST 589-592 Student Teaching in Secondary English, Math, Social Studies or Science Education (10 credits)

Exit Requirement

EDB 595 Seminar on Integrating Theory and Practice (2 or 3 credits)

Special Education

(37 to 41 credits)

The program provides advanced course work in the education of learners with exceptional needs. Program options permit concentrated study in one of three areas: Early Childhood Special Education, Learners with Mild/Moderate Educational Needs, and Learners with

Moderate/Intensive Educational Needs. While all three concentrations include course work and fieldwork that may be applied toward Ohio licensure as an Intervention Specialist, eligibility for such licensure may require further study, depending on the student's previous educational background. In addition, students must successfully complete the appropriate Praxis II examinations required for licensure by the State of Ohio.

If courses were taken previously as part of a Cleveland State baccalaureate degree program, special education courses generally need not be repeated. However, students need to select appropriate graduate elective offerings in consultation with an academic advisor to make up the requisite number of credit hours for the desired concentration. The College of Education and Human Services is committed to preparing special educators to work within diverse educational settings and communities. Therefore, all three program options require that students have a working knowledge of issues related to the education of culturally and linguistically diverse students, gifted children, children with special needs, and gender issues in education concentrations. To that end, completion of EDC 500 Diversity in Educational Settings, or its equivalent, is a prerequisite to all special education concentrations.

Portfolio Requirement

All teaching license students are required to maintain a portfolio while completing their professional coursework and field experiences. The portfolio will evolve from a working portfolio to a professional portfolio and finally to an employment portfolio. Students are responsible for housing in their portfolio various required and optional artifacts that demonstrate their level of competency in each of the following twelve outcomes or standards:

- 1. Personal Philosophy.** The Cleveland State teacher education student articulates a personal philosophy of teaching and learning that is grounded in theory and practice.
- 2. Social Foundations.** The Cleveland State teacher education student possesses knowledge and understanding of the social, political, and economic factors that influence education and shape the worlds in which we live.
- 3. Knowledge of Subject Matter and Inquiry.** The Cleveland State teacher education student understands content, disciplinary concepts, and tools of inquiry related to the development of an educated person.

- 4. Knowledge of Development and Learning.** The Cleveland State teacher education student understands how individuals learn and develop and that students enter the learning setting with prior experiences that give meaning to the construction of new knowledge.
- 5. Diversity.** The Cleveland State teacher education student understands how individuals differ in their backgrounds and approaches to learning and incorporates and accounts for such diversity in teaching and learning.
- 6. Learning Environment.** The Cleveland State teacher education student uses an understanding of individual and group motivation to promote positive social interaction, active engagement in learning, and self-motivation.
- 7. Communication.** The Cleveland State teacher education student uses knowledge of effective verbal, non-verbal, and media communication techniques to foster inquiry, collaboration, and engagement in learning environments.
- 8. Instructional Strategies.** The Cleveland State teacher education student plans and implements a variety of developmentally appropriate instructional strategies to develop performance skills, critical thinking, and problem-solving, as well as to foster social, emotional, creative, and physical development.
- 9. Assessment.** The Cleveland State teacher education student understands, selects, and uses a range of assessment strategies to foster physical, cognitive, social, and emotional development of learners, and gives accounts of students' learning to the outside world.
- 10. Technology.** The Cleveland State teacher education student understands and uses up-to-date technology to enhance the learning environment across the full range of learner needs.
- 11. Professional Development.** The Cleveland State teacher education student is a reflective practitioner who evaluates his/her interactions with others (e.g., learners, parents/guardians, colleagues, and professionals in the community) and seeks opportunities to grow professionally.
- 12. Collaboration and Professionalism.** The Cleveland State teacher education student fosters relationships with colleagues, parents/guardians,

community agencies, and colleges/universities to support students' growth and well-being.

At various portfolio checkpoints, students must meet specific criteria in order to be eligible to continue to the next phase of their program. For complete information on portfolios, students are strongly encouraged to access the Student Portfolio Handbook available at:

<http://www.csuohio.edu/coehs/students/portfolios/>

The goal of the Early Childhood Intervention Specialist concentration is to prepare professionals to work with children from birth to age eight who have special needs. In addition to Ohio licensure as an Early Childhood Intervention Specialist, this concentration provides course work and fieldwork needed for the Mental Retardation/Developmental Disabilities (MR/DD) Early Intervention Certificate.

The Moderate/Intensive Intervention Specialist concentration prepares teachers and professionals from related disciplines to work with children and youth ages 5 through 21 who have moderate, severe, or profound mental retardation; severe emotional disorders; or multiple disabilities. The professional who completes this concentration will have advanced skills in curriculum design and implementation, interdisciplinary teaming, and working with parents of children with exceptional needs.

For further information, contact the Department of Teacher Education at (216) 687-4600.

Program of Study College Core

(11 credits)

Educational Research and Technology

EDB 601 Educational Research
(3 credits)

ETE 501 Technology Strand (2 credits)

Social Foundations

Select one of the following courses:

EDB 604 Social Issues and Education
(3 credits)

EDB 608 School and Society in the
American Past (3 credits)

ECE 500 Foundations of Early
Childhood Education (Early
Childhood Special Education
majors only) (4 credits)

Human Development

EDC 501 Child Development (3 credits)

Areas of Concentration**Early Childhood****Intervention Specialist***(26 credits)*

ESE 500 Introduction to Special Education (4 credits)***

ESE 501 Nature and Needs of Young Children with Disabilities and Those at Risk (4 credits)**

ESE 512 Collaboration and Partnerships among Parents and Professionals in Special Education (4 credits)

ESE 513 Supporting Medical and Intensive Educational Needs (4 credits)

ESE 514 Curriculum and Interventions for Infants and Young Children with Special Needs (4 credits)

ESE 515 Assessing Young Children (4 credits)

EST 576 Practicum in Early Childhood-Special Education (2 credits)

EST 586 Student Teaching in Early Childhood-Special Education (4 credits)

In order to obtain an Early Childhood Intervention Specialist License as a first teaching credential, additional course work (listed below) must be completed. For second licensure students, equivalencies must be approved for these courses by a licensure advisor; approval requires the course numbers for the proposed substitutions and an official transcript showing the courses.

EDL 500 Phonics Assessment and Instruction (3 credits)

EDL 501 Beginning and Intermediate Reading Instruction and Assessment (3 credits)

EDL 511 Emergent Literacy (3 credits)

EDL 512 Literature-based Reading Methods for Children (3 credits)

ECE 515 Mathematics Instruction and Assessment in Preschool and the Primary Grades (3 credits)

ESE 511 Classroom Management and Intervention for Severe Behavior Problems (4 credits)

Mild/Moderate**Intervention Specialist***(26 credits)*

ESE 500 Introduction to Special Education (4 credits)***

ESE 502 Introduction to Individuals with Mild/Moderate Disabilities (4 credits)**

ESE 511 Classroom Management and Intervention for Severe Behavior Problems (4 credits)

ESE 512 Collaboration and Partnerships among Parents and Professionals in Special Education (4 credits)

ESE 516 Life Skills and Career Planning in Special Education (2 credits)

ESE 517 Assessment of Mild/Moderate Disabilities (4 credits) or ESE 521 Assessment for Instructional Needs (4 credits) (to be taken by first licensure candidates)

ESE 518 Curriculum and Instruction for Students with Mild/Moderate Disabilities (4 credits) or ESE 522 Assessment-Based Curriculum and Instruction for Students with Mild/Moderate Disabilities (4 credits) (to be taken by first licensure candidates)

EST 587 Student Teaching for Mild/Moderate Disabilities (4 credits)

In order to obtain a Mild/Moderate Intervention Specialist License as a first teaching credential, additional course work (listed below) must be completed. For second licensure students, equivalencies must be approved for these courses by a licensure advisor; approval requires the course numbers for the substitutions and a copy of the transcript showing the courses.

EDL 500 Phonics Assessment and Instruction (3 credits)

EDL 501 Beginning and Intermediate Reading Instruction and Assessment (3 credits)

EDL 505 Content Area Literacy (3 credits)

EDL 512 Literature-based Reading Programs for Children (3 credits) or EDL 513 Literature-based Reading Programs for Adolescents (3 credits)

ECE 515 Mathematics Instruction and Assessment in Preschool and the Primary Grades (3 credits)

EDB 612 Curriculum Theory and Instruction (3 credits) (required for Initial Licensure only)

Moderate/Intensive Intervention Specialist*(30 credits)*

ESE 500 Introduction to Special Education (4 credits)***

ESE 503 Introduction to Individuals with Moderate and Severe Disabilities (4 credits)**

ESE 510 Diagnostic Assessment and Multi-factored Evaluation for Students with Moderate and Severe Disabilities (2 credits)

ESE 511 Classroom Management and Intervention for Severe Behavior Problems (4 credits)

ESE 512 Collaboration and Partnerships among Parents and Professionals in Special Education (4 credits)

ESE 513 Supporting Medical and Intensive Educational Needs (4 credits)

ESE 519 Life Skills Assessment, Curriculum, and Instruction (4 credits)

ESE 520 Assessment, Curriculum, and Instruction to Meet the Academic and Behavioral Needs of Students with Moderate and Intensive Disabilities (4 credits)

EST 588 Student Teaching for Moderate and Intensive Educational Needs (4 credits)

In order to obtain a Moderate/Intensive Intervention Specialist License as a first teaching credential, additional course work (listed below) must be completed. For second licensure students, equivalencies must be approved for these courses by a licensure advisor; approval requires the course numbers for the substitutions and a copy of the transcript showing the courses.

EDL 500 Phonics Assessment and Instruction (3 credits)

EDL 501 Beginning and Intermediate Reading Instruction and Assessment (3 credits)

EDL 505 Content Area Literacy (3 credits)

EDL 512 Literature-based Reading Methods for Children (3 credits)

ECE 515 Mathematics Instruction and Assessment in Preschool and the Primary Grades (3 credits)

ECE 517 Science Instruction and Assessment in Preschool and the Primary Grades (3 credits)

***EDC 500 Diversity in Educational Settings, or equivalent (3 credits) is a prerequisite for this course.*

****ESE 500 Introduction to Special Education (4 credits) is a prerequisite course for all first licensure candidates and for all students certified/ licensed in another teaching area.*

Exit Requirement

Select one of three options: comprehensive examination, project, or thesis.

Note: "Licensure Only" students (in all concentrations) must take all courses and meet all requirements listed except for the following: Educational Research, Technology Strand, Social Foundations, and the Culminating Experience.

Engineering

Doctor of Engineering ■

Master's Degree Programs:

Chemical Engineering ■

Civil Engineering ■

Electrical Engineering ■

Engineering Mechanics ■

Environmental Engineering ■

Industrial Engineering ■

Mechanical Engineering ■

Software Engineering ■

Doctor of Engineering

College of Engineering

Stilwell Hall 104
(216) 687-2555
www.csuohio.edu/engineering/2005_Engineering_Doctorate.htm

Dr. Bahman Ghorashi,
Doctoral Program Director

Faculty

All graduate faculty, including adjunct faculty, in the Fenn College of Engineering.

Introduction

The Doctor of Engineering degree is granted in recognition of high achievement in scholarship and an ability to apply engineering fundamentals to the solution of complex technical problems. Students are expected to pursue a broad program of study, pass all prescribed examinations, and submit an innovative, high-quality applied-engineering dissertation as described in the section on Degree Requirements.

Faculty Research and Publications

Faculty members of the Fenn College of Engineering are very active in research sponsored by government agencies and industry. Involvement in research activities provides an excellent educational opportunity for students to advance their technical knowledge and professionalism while accomplishing dissertation work. The majority of doctoral students are involved with faculty in sponsored research. All students are expected to be involved in some form of faculty/student research as part of the dissertation work. High-quality research should lead to publication of the project's contribution to the body of knowledge.

There are more than seventy active research projects in the College. The sampling of the topics listed below reflects the broad interests and capabilities of the faculty and students:

Thermodynamics and Phase Equilibria
Bioreactors and Bioseparations
Computational Fluid Dynamics
Multiphase Flow and Heat Transfer

Phase Change Heat Transfer
Stirling Power and Refrigeration Technology
Environmental Engineering
Tribology
Reactor Design
Adsorption and Diffusion
Sensor Technology
Modulation Techniques
Error Control Coding
Spread Spectrum Systems
Robust Communications
System and Control Theory
Power Electronics and Motor Drives
Intelligent System Monitoring
Intelligent Control
Computer Communication Networks
Modeling of Metabolic Systems
Power System Operation and Control
Neural Networks and Fuzzy Logic
Microwave Devices
Structural Analysis
Vibrations
Finite Element Methods
Material Synthesis and Processing
Ceramics and Composite Materials
Gear Dynamics
Turbomachinery
Rotor Dynamics
Robotics and Machine Vision
Dynamics and Control
Manufacturing Systems
Real World Scheduling
Quality Control
Productivity Enhancement
Data Mining
Non-Destructive Testing of Civil Infrastructure
Failure Analysis and Performance of Construction Materials
Innovative Concrete Paving Materials

Financial Assistance

All students interested in assistantships must meet and maintain the requirements specified by the College of Graduate Studies, as described in the front section of this Catalog under Expenses and Financial Aid: Graduate Assistantships.

Research assistantships are provided through sponsored research activities; the number available at a given time is dependent on the research activity within the College. Interested students are encouraged to discuss the availability of assistantships and potential research projects with the program director, department chairs, and faculty as soon as possible.

Teaching assistantships are provided by individual departments to provide assistance with classroom and laboratory courses. Responsibilities can include conducting classroom recitation sessions, setting up laboratory experiments, tutoring students in class work, grading, monitoring tests, and related activities. For further information, students should contact the respective department chairs.

All graduate teaching assistants who are international students are required to pass an English Language Proficiency Examination, which is administered by the University Testing Center.

Students are expected to work twenty hours per week on their assistantship assignments unless fewer hours are specified under the terms of their contracts. A limited number of graduate tuition grants also are available for which students are expected to work ten hours per week.

Career Information

The major objective of advanced graduate study in engineering is to enhance the student's preparation for a career as a professional in education or research. The doctoral program is designed to strengthen the individual's ability to apply creative leadership in the solution of important and complex technological problems. Graduates of the doctoral program have assumed positions in industry, government agencies, and educational institutions.

Cleveland State-Youngstown State University (YSU) Cooperative Agreement

Through a cooperative agreement between Cleveland State University and YSU, students who live in close proximity to YSU may pursue the Doctor of Engineering Degree offered by Cleveland State by completing some degree requirements at YSU, after admission and consultation with Cleveland State and YSU advisors. Youngstown-area students who choose a YSU faculty member as co-advisor with the Cleveland State dissertation advisor may complete a maximum of twelve credits of doctoral dissertation requirements at YSU. Students interested in this program should consult the

Doctor of Engineering Director at Cleveland State or the YSU advisor.

Admission Information [\(See addendum revised 06/07\)](#)

The applicant must hold a master's degree in engineering or in a related science discipline, such as chemistry, physics, or mathematics, or an MD. At least one degree (baccalaureate or master's) must be in engineering. A minimum master's grade-point average of 3.25 is required.

The GRE General section is required if one or more of the following conditions pertains:

- The student's most recent engineering degree was awarded by a college or university outside of the United States, or by a Canadian institution not accredited by the Canadian Engineering Accreditation Board of the Canadian Council of Professional Engineers.
- The student's graduate cumulative grade-point average is below 3.25.
- The year of the student's master's degree precedes the date of application to the College of Graduate Studies by more than six years.

If the GRE is required, a minimum score at the 80th percentile on the Quantitative section is usually required.

International students should refer to the section earlier in this Catalog for information on testing requirements to demonstrate English-language proficiency.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements [See Addendum](#)

The doctoral degree includes the following specific requirements:

1. A minimum of sixty-one credits beyond the master's degree. These credits must include:
 - a. Eight credits of doctoral core courses (select two of the following):
 - ESC 702 Applied Engineering Analysis I (4 credits)
 - ESC 704 Applied Engineering Analysis II (4 credits)
 - ESC 706 Applied Engineering Analysis III (4 credits)
 - b. Eight credits of graduate non-engineering courses related to the student's area of study and approved by

the advisory committee and the Engineering College Graduate Affairs Committee

- c. Twelve credits of 700-level engineering electives, of which at least four credits must be design electives.
 - d. Three credits of general graduate electives.
 - e. A minimum of thirty credits for the dissertation.
2. Satisfactory completion of the qualifying examination.
 3. Satisfactory completion of the doctoral candidacy examination.
 4. Completion of the dissertation and the final oral examination.
 5. Compliance with all requirements of the College of Graduate Studies for regular graduate student status and graduation.

Advising

When a student is admitted, the Graduate Director of the program assigns an interim advisor who assists the student in completing a preliminary study plan. Before sixteen credits of course work have been completed, the student must propose a dissertation advisor and begin plans for the dissertation. At the same time, an advisory committee is appointed, with the dissertation advisor serving as chair. The student's dissertation advisor, in consultation with the student, recommends five members of the graduate faculty for the advisory committee. One member must be external to the College of Engineering. Usually, an additional member is added when an off-campus, industrial advisor is involved in the dissertation work. This off-campus project advisor may be a member of the advisory committee but does not have voting rights, unless he or she holds graduate faculty status. Students in the ABE specialization (see below) may include faculty from The Cleveland Clinic Foundation on its advisory committees. The Graduate Affairs Committee (GAC) of the College reviews the composition of the advisory committee and recommends approval or changes to attain a membership balance that is knowledgeable in all facets of the dissertation topic. Finally, an additional member may be selected by the Dean of the College of Graduate Studies.

The functions of the student's advisory committee are to approve a study plan and a dissertation topic and proposal, each of which in turn must be approved by the College GAC. The student's advisory committee monitors the progress of the dissertation, approves the dissertation, and administers the oral defense.

Examination

Individuals admitted to the program become candidates for the Doctor of Engineering degree after:

1. Completing all prescribed course work;
2. Passing the qualifying examination; and
3. Passing the candidacy examination.

The purpose of the doctoral qualifying examination is to evaluate a prospective student's mastery of the subject matters that are fundamental to the chosen engineering discipline/concentration beyond what is demonstrated by the grades obtained prior to entering the doctoral program. The student must demonstrate broad understanding of engineering science and mathematics and special knowledge and readiness to pursue further study in a specific discipline/concentration. The examination should be taken as early as possible after admission to the doctoral program. Successful completion of this examination must be attained before the student exceeds twenty credit hours beyond the master's degree.

The student's performance on the qualifying examination determines the future course of study. Students who pass continue the program of study. Those who pass conditionally are subject to additional course work and/or re-examination (only one re-examination is possible). Students who fail are advised to leave the program. The qualifying examination is administered by the Graduate Committee of the student's respective department. The minimum College standards require the examination to be written, open-book, with at least two testing periods of three hours each. The examination is offered in fall and spring semesters. Students should determine from their department office the exact nature of their examination and the dates on which it is offered. All students intending to take the examination are required to notify their respective department office at least four weeks before the scheduled examination date.

The purpose of the doctoral candidacy examination is to assess a doctoral student's maturity and preparation to continue independent research in a specific research topic. The examination should be taken in a period of time not

to exceed two years after successful completion of the qualifying examination. For the candidacy examination, the student must prepare a written dissertation proposal based on a scholarly review of literature in the dissertation area. The student's advisory committee administers the doctoral candidacy examination and determines the nature and duration of the exam. Based on the examination results, the student either passes and has the proposal accepted with a general understanding that the successful completion of the work presented result in the award of the Doctor of Engineering degree, or fails and has the proposal rejected. A student may repeat the candidacy examination a maximum of three times.

Dissertation

The dissertation, a concentrated, in-depth, independent study of an appropriate engineering problem, is the most distinguishing feature of doctoral study. At least thirty credits of dissertation work are required, which correspond to at least one year of full-time study. The dissertation advisor and advisory committee, after approving a dissertation topic, monitor the student's progress and approve the final written dissertation after a successful oral defense. A maximum of ten hours of Doctoral Research may be counted as Doctoral Dissertation.

Once a student begins the dissertation study, he or she must register for a minimum of three credit hours per semester until the minimum of thirty credits is completed. After that, the student shall maintain a minimum registration of one credit hour per semester until the dissertation is completed.

The dissertation is not limited to the physical aspects of the engineering problem, but should include, where pertinent, economic considerations, environmental impact, social implications, and other interdisciplinary factors relevant to the specific topic.

In many cases, the dissertation study is conducted off-campus in an industrial or governmental setting. This type of off-campus study is defined as an internship; it gives the student an intimate and practical exposure to real problems of engineering. The student's industrial internship dissertation project must be cleared for publication by the industrial or governmental organization in which the work is done. This written clearance must be included in the dissertation proposal.

The student intern has an off-campus advisor who may become a member of the student's advisory committee. This off-campus advisor is expected to work closely with the student and with the faculty dissertation advisor. However, the faculty dissertation advisor remains the chair of the advisory committee,

ensuring that ultimate control of the dissertation resides with the University.

Applied Biomedical Engineering (ABE) Specialization

(See addendum revised 06/07)

The ABE specialization of the Doctor of Engineering program, initiated in the 1998 Fall Semester, is a unique partnership between the Fenn College of Engineering at Cleveland State and The Cleveland Clinic Foundation. The Department of Chemical and Biomedical Engineering at Cleveland State administers the ABE specialization. Faculty members from both the College and the Clinic provide academic instruction and research advising in ABE specialization areas.

ABE specialization is specifically designed for engineers who wish to pursue careers in biomedical research and development, primarily in industry. Students are expected to have a strong foundation in an engineering discipline, through their BS or MS degrees before entering the ABE program. The high-level course work and research empower the students to become productive employees immediately after graduation. ABE graduates are expected to:

- Understand disease mechanisms;
- Improve the quality of life for patients by utilizing technology;
- Educate the next generation of biomedical engineers;
- Contribute to the reduction of health care costs by diagnosing diseases more quickly and accurately and by introducing innovative technological solutions to health care costs; and
- Address major societal health care issues by forming multidisciplinary teams of experts to formulate innovative approaches to health care.

Two unique educational features distinguishing ABE are:

1. Strong biological fundamentals, including cell and molecular biology, and
2. Inclusion of tools for success in real-world research and development.

These two features, along with highly specialized courses in specific areas of biomedical engineering, enable ABE graduates to fill the gap between engineering and medicine.

Together, the Department of Chemical and Biomedical Engineering at Cleveland State University and the Department of Biomedical Engineering at the Cleveland

Clinic, offer a rich spectrum of teaching and research resources designed to:

- Provide quality education and training to students in Applied Biomedical Engineering;
- Undertake state-of-the-art applied research as complementary partners;
- Enhance the capacity for biomedical engineering teaching and research at regional, state, and national levels;
- Support personnel and technical needs of biomedical companies;
- Assist biomedical companies in moving from design to successful marketing of medical devices; and
- Enhance the biomedical infrastructure in the Northeast Ohio region.

ABE Requirements

As a specialization within the Doctor of Engineering program, studies in the ABE program are governed by the regulations of the Doctor of Engineering program as stated above.

In addition to Doctor of Engineering requirements, students in the ABE specialization must:

1. Possess a working knowledge of college-level physiology. If taken at the graduate level, physiology may count as an elective.
2. Complete 12 credits of core ABE electives:
 - CHE 751 Biomechanics (3 credits)
 - CHE 753 Tissue Engineering (3 credits)
 - CHE 757 Medical Device Design and Biomaterials (3 credits)
 - CHE 759 Medical Imaging (3 credits)
3. Complete the eight credits of graduate-level non-engineering courses required for the Doctor of Engineering degree through doctoral-level courses in areas such as biochemistry, cell biology, or other biomedical topics.

The required thirty credits of doctoral research may be performed at Cleveland State and/or the Cleveland Clinic Foundation, depending on the chosen research topic and availability of facilities.

**Molecular Medicine
Specialization (See
Addenda Effective Fall
2006)**

The Molecular Medicine Specialization is an interdisciplinary initiative linking the resources of the three Cleveland State/Cleveland Clinic joint doctoral programs: Regulatory Biology, Clinical-Bioanalytical Chemistry, and Applied Biomedical Engineering. The program forms a logical interface to coordinate collective efforts of the three joint doctoral programs. For more information about graduate assistantships for outstanding candidates, contact the Department of Chemical and Biomedical Engineering.

Master of Science in Chemical Engineering

Department of Chemical and Biomedical Engineering

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(216) 687-2569
E-mail: che@csuohio.edu
www.csuohio.edu/chemical_engineering/

Joanne M. Belovich, Chair,
Department of Chemical Engineering
Jorge E. Gatica,
Graduate Program Director

The Faculty

Current faculty information can be located on the Department of Chemical Engineering Web site.

Introduction

The graduate program in chemical engineering provides advanced training in core areas and allows the student to take courses on an advanced level in specific areas of interest.

The master's program is designed to meet the needs of both part-time and full-time students. It provides an opportunity for students to hold full-time employment and further their education on a part-time basis. Full-time students can complete the program in one year. The program meets the needs of students planning to continue their studies at the doctoral level, as well as students terminating their formal studies at the MS level.

Research activities of the faculty provide many opportunities for students to select projects applicable to a Master's Thesis (CHE 699) or a Master's Project (CHE 698). Research areas include reaction engineering, process modeling and control, tribology and surface phenomena, biochemical and biomedical engineering, material synthesis and processing, combustion, adsorption and diffusion in zeolites, transport phenomena, fluid mechanics, separation processes, statistical mechanics, glass forming, thermodynamics, and management of technology. The department is particularly strong in applications involving materials and biomedical engineering.

Faculty Research and Publications

Excellent facilities are available in support of student and faculty research. Faculty and students have local and remote access to personal and mainframe computer resources. Large-scale computational problems can be solved, via remote log-in, at national centers for supercomputer applications. The department has a number of new instruments and research units. These include a high-temperature TGA/DTA, two Cahn micro balances, two scanning electron microscopes with x-ray dispersion analysis capability, a laser doppler velocimeter, a high-performance Berthy reactor, a fully instrumented bioreactor, a wear-and-friction testing and analysis unit, a high-pressure liquid chromatographic unit, a mercury porosimeter, two surface-area analyzers, a FTIR spectrometer, and an atomic force microscope/scanning-tunneling microscope. In addition, each research laboratory has appropriate instrumentation specific to projects. The research equipment in the department, along with faculty activity, provides outstanding investigative opportunities for graduate students. Students specializing in biomedical engineering may perform their research at the world-class research laboratories of The Cleveland Clinic Foundation.

External agencies presently provide over \$1 million to support faculty research activities. Ongoing research projects, with the sponsoring agencies noted in parentheses, include:

- Characterization of zeolites (Engelhard Corporation, BOC, Air Products and Chemicals)
- Bioreactors for mammalian cell culture (NASA)
- Modeling of integrated metabolic systems (National Institutes of Health)
- Adsorption and diffusion in zeolites (State of Ohio, National Science Foundation)
- Advanced materials for fuel cell applications (U.S. Department of Energy)
- Glass fiber drawing (U.S. Department of Energy)
- Cardiovascular Magnetic Resonance Imaging and blood flow mechanics (Siemens, State of Ohio)

- Microsegregation in directionally solidified alloys (NASA)
- Influence of convection on solidification morphology (NASA)
- Multi-functional reactors in the chemical process industry (State of Ohio)
- Thin film technologies for high-temperature lubrication and protective/conversion coating applications (NASA)

Faculty members have presented their research at national and international conferences and have published in such prestigious journals as *The American Institute of Chemical Engineers Journal*, *Chemical Engineering Science*, *Combustion Science and Technology*, *Zeolites*, *Metallurgical Transactions*, *Journal of Colloid and Interface Science*, *Lubrication Engineering*, *Industrial Engineering Chemistry Research*, *Journal of Physical Chemistry*, *Computers and Chemical Engineering*, *Chemical Engineering Education*, *Latin American Applied Research*, *HVAC&R Research*, *International Journal of Fluid Mechanics*, and *International Journal of Engineering Science*. Detailed descriptions of ongoing research projects, as well as a list of recent faculty publications, are available from the department, on request, or from the department Internet home page: www.csuohio.edu/chemical_engineering/.

Financial Assistance

Graduate teaching and research assistantships are available to qualified students. Students receiving assistantships are required to complete a master's thesis. International students who wish to be considered for teaching assistantships are encouraged to take the Internet-based TOEFL or the Test of Spoken English (TSE). Interested students should check the appropriate box on the Graduate Application form. Assistantships policies appear in the front section of this Catalog.

Career Information

The Chemical Engineering program prepares students for careers in design, operation, research, or management. While graduates of this program traditionally find employment in the chemical

industry, more chemical engineering graduates are becoming employed in the areas of general manufacturing and computer engineering, including polymer and composite processing and materials engineering. Many companies seek graduate-level chemical engineers to work in the areas of bioengineering, energy management, and environmental engineering.

Admission Information

Admission to the graduate program in chemical engineering is open to qualified students with a baccalaureate degree in engineering or science, who present satisfactory evidence of the ability to pursue graduate studies. A minimum baccalaureate grade-point average of 2.75 usually is required. Programs of study may be developed for students with non-chemical engineering backgrounds. Such students are required to take prerequisite courses in chemical engineering, as described under the Preparatory Program section below.

Applicants should make arrangements to have official transcripts sent directly from their undergraduate institutions to the Graduate Admissions Office. Two letters of recommendation from individuals familiar with the student's undergraduate or graduate work also are required.

If applicable, the applicant also should request that official test scores for the Test of English as a Foreign Language (TOEFL) and Graduate Record Examination (GRE) be sent directly to the Graduate Admissions office by the testing agencies. The applicant must achieve satisfactory scores in these examinations.

The GRE General section is required if one or more of the following conditions is true:

- The undergraduate degree was awarded by a college or university outside of the United States, Australia, Canada, Ireland, New Zealand, or the United Kingdom.
- An unaccredited college or university awarded the undergraduate degree.
- The student's undergraduate cumulative grade-point average is below 2.75.
- The year of the baccalaureate degree precedes the date of application to the College of Graduate Studies by more than six years; however, in this case, the examination requirement may be waived, with program approval, if the applicant's undergraduate grade-point average is 3.0 or above.

If the GRE is required, a minimum score at the 80th percentile on the Quantitative section, and a score of 3.5 or higher in the Analytical Writing Qualitative section, are typically required.

International students should refer to an earlier section in this Catalog for information on testing requirements that demonstrate English-language proficiency.

There is a preparatory program designed for students without a sufficient background in chemical engineering. The program provides them with a common background in engineering science and mathematics.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

The Preparatory Program

Graduate students who have an undergraduate background in a field other than chemical engineering are required to enroll in the Preparatory Program. This program is intended to prepare students for graduate courses in chemical engineering. The program consists of course work in the following areas:

CHE 300 Chemical Engineering Principles (4 credits) (Offered fall and spring semesters)

CHE 302 Chemical Engineering Thermodynamics (4 credits) (Offered fall semester only)

CHE 306 Transport Phenomena (4 credits) (Offered fall semester only)

CHE 404 Chemical Reactor Design (4 credits) *Prerequisites: CHE 302 and CHE 306, or equivalents* (Offered spring semester only)

CHE 408 Separation Processes (4 credits) *Prerequisites: CHE 302 and CHE 306* (Offered spring semester only)

Depending on the student's background, additional courses in mathematics and chemistry may be required. Students should call the Chemical Engineering Department at (216) 687-2569 to set up an appointment with the Graduate Program Coordinator prior to registering for classes.

Prior to satisfactory completion of the entire Preparatory Program, no course may be taken toward the fulfillment of the graduate degree program unless authorized by the academic/research advisor.

Degree Requirements

The graduate program consists of a minimum of thirty credit hours of approved courses as follows:

1. Core courses (12 credits):
 - CHE 502 Advanced Thermodynamics (4 credits)
 - CHE 506 Advanced Transport Phenomena (4 credits)
 - and one of the following:*
 - CHE 504 Advanced Reactor Design (4 credits)
 - or*
 - CHE 508 Advanced Separation Processes (4 credits)
2. A minimum of nine credits of graduate elective courses, subject to advisor approval. One of these courses may be in a technical discipline outside of chemical engineering. This course also may be at the 400 level. No courses required in the undergraduate chemical engineering program may be applied toward the graduate degree.
3. All students are required to present a department seminar on their research. This should occur, preferably, one semester prior to the thesis defense.
4. Students must select either a thesis option or a project option. The requirements for each option, in addition to those described above, are as follows:
 - a. Thesis option (9 credits)
 - The student plans and completes a research project, which may lead to publication in a peer-reviewed scientific journal, under the direction of a faculty advisor. The student must complete a minimum of nine credits of supervised research (CHE 699 or a combination of CHE 698 and CHE 699 credits). The student must enroll in at least six credits of CHE 699 (Master's Thesis). This option is designed for the student who wants extensive research experience and a focus within a particular field.
 - b. Project option (9 credits)
 - The student completes a research project under the direction of a faculty advisor. The student must enroll in three credits of CHE 698 (Master's Project) and an additional six credits of chemical engineering graduate electives. This option is designed to provide the student with a broader education in chemical engineering, as well as to expose the student to modern research techniques in the discipline.

Exit Requirements

Students must achieve at least a 3.0 grade-point average to graduate. Thesis students must submit a thesis to their graduate committee that follows the Thesis and Dissertation Format Guidelines, available from the College of Graduate Studies, Keith Building, Room 1150. In order to graduate, students' theses must be accepted by the graduate committee, and students must pass an oral defense of the thesis. Non-thesis students must prepare and present a formal report of their research project and present their results in a public seminar.

Master of Science in Civil Engineering

Department of Civil and Environmental Engineering

Stilwell Hall 107
(216) 687-2400
www.csuohio.edu/civileng/
ms_civil_engr_.htm

Paul Bosela, Chair and Graduate
Program Director

The Faculty

Current faculty information can be located on the Department of Civil and Environmental Engineering Web site.

Introduction

The graduate program in civil engineering is designed to provide the student with a knowledge of advanced methods for analysis and design or for research and development. The student must select one of the following graduate specializations: Structures/Foundations, Water Resources Engineering, or Transportation. Full-time or part-time study may be pursued.

Each specialization requires the completion of a set of core courses shown below.

Structures and Foundations

Core Courses

CVE 511 Matrix Methods of Structural Analysis (3 credits)
CVE 512 Finite Element Analysis I or
MCE 580 Finite Element Analysis I
(3 credits)
CVE 517 Structural Vibrations (4 credits)
or CVE 530 Advanced Soil
Mechanics (3 credits)
CVE 531 Advanced Foundations
(3 credits)
Any 500-level CVE Structural Design I
Course

Water Resources

Core Courses

CVE 561 Hydrologic Analysis (3 credits)
CVE 562 Open Channel Hydraulics
(3 credits)
CVE 563 Water Resources Engineering
(3 credits)
CVE 564 Groundwater Hydrology
(3 credits)
EVE 570 Environmental Chemistry
(4 credits) or EVE 572 Biological
Principles of Environmental
Engineering (4 credits)

Transportation

Core Courses

CVE 504 Civil Engineering Systems
Analysis (4 credits)
CVE 505 Reliability (4 credits)
CVE 547 Highway Engineering
(4 credits)
Any 500-level CVE Transportation
Engineering or related course, with
advisor approval.

Faculty Research and Publications

Areas in which students may conduct thesis or project research are reflected by the research interests and publications of the faculty. These areas include concrete and steel structures, structural mechanics and dynamics, experimental and theoretical stress analysis, elasticity, constitutive modeling, composite materials, stress-wave propagation, ultrasonics, nondestructive evaluation, finite elements, fracture mechanics, soil mechanics, foundations, water resources, hydraulics, transportation and highway engineering, and construction materials.

Financial Assistance

Graduate teaching and research assistantships and graduate tuition grants are available to qualified students on a competitive basis. Applicants who are seeking an assistantship or tuition grant should so indicate on the Application for Graduate Admission.

Career Information

Graduates of the MS in Civil Engineering program work as project engineers for consulting firms; perform research in government laboratories; conduct analysis, design, and research in industry; and manage public works facilities. Recent graduates are working as a structural designer, a ceramics researcher, and a stress analyst. Job prospects for those with advanced degrees in civil engineering are excellent.

Admission Information

Admission to the graduate program in civil engineering is open to qualified students with a baccalaureate degree in engineering or science. A minimum

baccalaureate grade-point average of 2.75 typically is required. The applicant must have successfully completed those courses common to accredited undergraduate programs in engineering or engineering science, including the following: statics, dynamics, mechanics of materials, one year of physics, and mathematics up to and including ordinary differential equations. Additional course work may be required to satisfy deficiencies in the student's undergraduate preparation.

The GRE General section is required if one or more of the following conditions is true:

- The undergraduate degree was awarded by a college or university outside of the United States, or by a Canadian institution not accredited by the Canadian Engineering Accreditation Board of the Canadian Council of Professional Engineers.
- An unaccredited college or university awarded the undergraduate degree.
- The student's undergraduate cumulative grade-point average is below 2.75.
- The year of the baccalaureate degree precedes the date of application to the College of Graduate Studies by more than six years; however, in this case, the examination requirement may be waived, with program approval, if the applicant's undergraduate grade-point average is 3.0 or above.

If the GRE is required, the admission decision is based on the applicant's performance on the quantitative section of the GRE examination along with the undergraduate grade-point average. A minimum of the 50th percentile on the GRE quantitative is required, but this minimum score does not guarantee admission.

All non-native English speakers must demonstrate proof of English-language proficiency. Any individual who has earned a bachelor's degree (or higher) from a U.S. institution, where the primary language of instruction is English, is not required to take an English-language proficiency examination.

International students who want to be considered for teaching assistantships are advised to take the Test of Spoken English (TSE).

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements

In addition to meeting other University requirements, a master's candidate is subject to the following regulations:

1. Completion of the core courses for the selected specialization.
2. A minimum of twenty-four credits of course work is required for students following the thesis option. These students must complete a minimum of six credits of thesis (a maximum of six credits count toward the degree).
3. A non-thesis option also is available, with advisor approval. Students following the non-thesis option must complete a minimum of thirty credit hours for the degree.
4. A maximum of six credit hours of course work may consist of approved 400-level courses taken outside of the department.
5. Course work may include a maximum of nine credits of graduate-level course work taken at other institutions.
6. A maximum of four credits of Special Topics may be used for the master's degree.
7. A maximum of nine credits may be taken outside of the department with advisor approval.

Exit Requirements

Thesis students must submit a thesis to their graduate committee, following the Thesis and Dissertation Format Guidelines available from the College of Graduate Studies, Keith Building, Room 1150. In order to graduate, each student's thesis must be accepted by the graduate committee and pass an oral defense of the thesis.

(Addenda revised 03/2007)

Master of Science in Electrical Engineering

Department of Electrical and Computer Engineering

Stilwell Hall 332
(216) 687-2589

http://www.csuohio.edu/electrical_engineering/

F. Eugenio Villaseca, Chair
Chansu Yu, Graduate Program Director

The Faculty

Current faculty information can be located on the Department of Electrical and Computer Engineering Web site.

Introduction

The Master of Science in Electrical Engineering program integrates theory and applications. Courses are typically scheduled in the late afternoon and early evening to serve the needs of both full-time and part-time students. The program is suitable for students planning to continue their studies at the doctoral level, as well as those who do not plan formal studies beyond the master's degree.

Each student plans a program of study in consultation with an advisor appointed by the Department of Electrical and Computer Engineering. The program includes required courses and an integrated selection of courses in the student's field of interest.

The following areas of specialization are offered for graduate study and research:

- Communication Systems
- Computer Systems
- Control Systems
- Power Electronics and Power Systems

Facilities

The Electrical and Computer Engineering Department maintains the following laboratories for instructional purposes:

- **Communications and Electronics Laboratory**—Fully equipped to conduct experiments in analog and digital electronics and analog and digital communications, such as analog modulation and demodulation (AM and FM), digital modulation and demodulation (ASK, PSK, FSK), phase-locked loops, and baseband transmission.
- **Power Electronics and Electric Machines Laboratory**—Equipped with line-frequency single- and three-phase converters, and switch-mode converters, which in combination

with synchronous, induction, and DC machines allow for the experimental study of feedback-controlled motor drives.

- **Embedded Systems Laboratory**—Equipped with PCs for writing and implementing micro-controller-based assembly code software, which allows for the experimental study of real-time interrupt handling, analog-to-digital conversion, serial port reception/ transmission, data acquisition, communicating with external devices, and other issues associated with embedded systems.

- **Control Systems Laboratory**—Equipped to conduct experiments and projects in real-time data acquisition and control, including the capability for modeling and computer control of electromechanical and liquid-level systems.

- **Digital Signal Processing Laboratory**—Equipped to conduct experiments in real-time DSP, using A/Ds, D/As, and DSP boards.

- **Distributed Computing Systems Laboratory**—Equipped with Pentium Xeon dual-processor servers, Pentium Dual-core workstations, and a number of laptops. The research is focused on studying the security, dependability, and concurrency of enterprise-distributed computing systems and platforms, such as CORBA and Web services.

- **Mobile Computing Research Laboratory**—Equipped with a number of laptops, more than ten PDAs (iPAQs), a dozen wireless sensor nodes, and high performance network simulators. Studies energy efficiency, capacity, mobility support, and interoperability issues in wireless networks, such as mobile ad hoc networks, wireless sensor networks, wireless mesh networks, and pervasive computing systems.

- **Digital Systems Laboratory**—Equipped with logic analyzers, testing equipment, prototyping boards, and workstations running synthesis and simulation software. It is used to conduct basic digital circuit experiments, as well as to design, create prototypes, and test large systems.

The following facilities also are available to support research:

- **Applied Control Research Laboratory**—Equipped to conduct joint research projects with industry, giving students the opportunity to apply state-of-the-art technology in real-world problem solving.

- **Digital Communication Research Laboratory**—Equipped with electronics and communications instruments, high-speed workstations, and computer -simulation packages (such as Matlab-Simulink) to conduct research projects in digital modulations, error-control codes, satellite communications, mobile wireless communications, and spread-spectrum communications.

- **Digital Systems Research Laboratory**—Equipped with work-stations and testing equipment to do prototyping and implement research projects.

- **Embedded Control Systems Research Laboratory**—Focuses on the development of real-time control and signal processing software. The software is implemented in micro-controllers and digital-signal processors (DSPs), and the target applications include field-oriented motor control.

- **Power Electronics and Electric Machine Research Laboratory**—Centered around the following: two integrated test benches, on which each machine has its own power electronic converter; a state-of-the-art DSP development system used to generate digital control algorithms for power converters in combination with electric machines; and a range of commercial machines, dynamometers, and modern digital instrumentation.

- **Power Systems Research Laboratory**—Fully equipped to conduct research projects in power engineering, requiring personal computers, workstations, or mainframe computers.

- **Computer Networks Laboratory**—Equipped with sixteen workstations and one server computer running the Linux operating system, four Cisco routers, and numerous switches. This lab is used to conduct various computer network experiments and projects, for example, ARP, DHCP, Internet routing, TCP performance evaluation, and IP multicast. It is fully reconfigurable, a luxury that few universities provide.

- **Distributed Computing Systems Laboratory**—Equipped with eight Pentium Xeon dual-processor sixty-four-bit servers. This lab is used to conduct various distributed computing systems experiments and projects. Examples include cluster computing, grid computing, peer-to-peer computing, fault tolerant computing, and Web services.
- **Laboratories at the NASA Glenn Research Center** for students supported by NASA.

Faculty Research and Publications

The members of the Electrical and Computer Engineering faculty are engaged in research in a number of areas suitable for student theses and dissertations. These include computer architectures, reconfigurable computing systems, computer communication networks, bandwidth and power-efficient modulation schemes, error-control coding, multi-carrier communications, spread-spectrum systems, mobile communication systems, robust communications, power systems operation and control, power electronics and motor drives, system identification, advanced control algorithms, and intelligent control systems. Results of research in these areas are published regularly in refereed journals, such as *Transactions of IEEE* and *IEE Proceedings*, and are presented at scholarly conferences and symposia.

Financial Assistance

The Department of Electrical and Computer Engineering offers a number of research and teaching assistantships and graduate tuition grants. In addition, internships sponsored by the NASA Glenn Research Center and General Electric, and fellowships awarded by the Ohio Space Grant Consortium are available.

Admission Information

Admission to the graduate program in electrical engineering is open to qualified students with baccalaureate degrees in engineering or science. A minimum baccalaureate grade-point average of 3.0 is usually required.

The GRE General section is required if one or more of the following conditions is true:

- The undergraduate degree was awarded by a college or university

outside of the United States or Canada, or by a Canadian institution not accredited by the Canadian Engineering Accreditation Board of the Canadian Council of Professional Engineers.

- An unaccredited college or university awarded the undergraduate degree.
- The undergraduate degree was in a discipline unrelated to electrical or computer engineering.
- The student's undergraduate cumulative grade-point average is below 3.0.
- The year of the baccalaureate degree precedes the date of application to the College of Graduate Studies by more than six years.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements

Students in the MS in Electrical Engineering program may elect a thesis option or a non-thesis option. All students, and particularly those intending to pursue a doctoral degree, are encouraged to select the thesis option.

Each student in the program must meet all College of Graduate Studies requirements and the following departmental requirements:

Program Options

1. Thesis Option:
 - a. A minimum of thirty total credit hours, including six credit hours of thesis, and at least two 600-level EEC courses.
 - b. Successful completion and defense of a thesis. A graduate committee guides the thesis work.
2. Non-thesis Option:
 - a. A minimum of thirty-two total credit hours, including at least three 600-level EEC courses.
 - b. A maximum of eight credit hours of graduate course work outside of the department may be applied toward the degree with advance approval from the student's advisor.
 - c. The seminar course EEC 601 and 400-level courses may not be applied for credit toward the MS degree.

- d. On or before completing eight credit hours of course work, a student must submit a plan of study that requires both advisor and program committee approval.
- e. Thesis students must give an oral presentation of the thesis.

Exit Requirements

Thesis students must follow the Thesis and Dissertation Format Guidelines, available from the College of Graduate Studies. Acceptance of the thesis by the thesis committee and the passing of an oral defense of the thesis are required.

Non-thesis students must complete the course requirements.

For further information about the MS in Electrical Engineering program, contact the department at (216) 687-2589.

Master of Science in Engineering Mechanics

An interdisciplinary program administered by the Department of Civil and Environmental Engineering

Department of Civil and Environmental Engineering

Stilwell Hall 107
(216) 687-2400
www.csuohio.edu/civileng/MS.htm

Paul Bosela, Chair and Graduate Program Director

The Faculty

The Engineering Mechanics program is an interdisciplinary program involving faculty members from the departments of Chemical, Civil and Environmental, and Mechanical Engineering.

Introduction

The objective of the degree program is to train students in the analytical and computational methods of structural mechanics, the analysis of the mechanical behavior of solids, the fundamentals of material science, and the processing of materials. Recent advances in computational solid mechanics with computer-based algorithms have revolutionized the ability to simulate intelligently both linear and nonlinear structural phenomena. The engineering of advanced materials requires expertise ranging from stress analysis to materials science. Due to this diversity, the program is interdisciplinary in nature with contributions from the Chemical, Civil and Environmental, and Mechanical Engineering graduate programs. It also prepares students for continued study in the Doctor of Engineering program. Two areas of specialization are available:

1. Structural Mechanics
2. Mechanics and Materials

The Structural Mechanics track considers analytical and computational approaches to mechanics and materials. It emphasizes numerical formulations and computer simulations of basic structural and material phenomena from a stress/strain viewpoint. The Mechanics and Materials track concentrates on the material science aspects of materials,

including the laboratory testing and development and investigation of new engineered materials. All students must complete a common set of core courses specified.

Faculty Research

Students may become active participants in the following areas of faculty research:

- Research in nonlinear finite-element analysis, including the development of automatic, incremental algorithms and the formulation of advanced shell-element capabilities.
- Deformation processing of materials, including computer simulation of forging, rolling, and extrusion.
- Non-Destructive Evaluation (NDE) of material properties, including location and size of flaws, voids, and impurities; materials include concrete, polymer, matrix, and ceramic composites.
- Solidification processing, development of elevated temperature materials, atomization-consolidation, and evaluation of powder metallurgy super alloys.
- Development of optimal methods for vapor-phase lubrication of metals, ceramics, and composites.
- Structural reliability and probabilistic mechanics, inelastic deformation, analysis of powdered metals, metal matrix composites, and ceramic matrix composites.
- Construction materials, including high-performance concrete, concrete paving materials and tests, performance of materials, and composites.

Facilities

New laboratory facilities are available as part of the renovation of Stilwell Hall. A strength of materials laboratory, an experimental stress lab, a materials laboratory, and concrete mixing and testing lab are available. The College of Engineering has a scanning electron microscope, an X-ray diffraction system, an ultrasonic testing facility, four tension-compression testing machines, a computer-controlled MTS dynamic/fatigue test machine, and various NDE Systems.

Financial Assistance

Graduate teaching and research assistantships are available to qualified students. Assistants receive tuition support and a stipend. Information about assistantships may be obtained by contacting the Civil and Environmental Engineering Department.

Admission Information

Students with undergraduate degrees in civil or mechanical engineering may be admitted directly to the Structural Mechanics track. Students with undergraduate degrees in chemical, civil, mechanical, or materials engineering may be admitted directly to the Mechanics and Materials track. Students with degrees in other areas of engineering or science may qualify for admission after completing prerequisite courses. A minimum baccalaureate grade-point average of 2.75 usually is required.

The GRE General section is required if one or more of the following conditions is true:

- The undergraduate degree was awarded by a college or university outside of the United States, or by a Canadian institution not accredited by the Canadian Engineering Accreditation Board of the Canadian Council of Professional Engineers.
- An unaccredited college or university awarded the undergraduate degree.
- The student's undergraduate cumulative grade-point average is below 2.75.
- The year of the baccalaureate degree precedes the date of application to the College of Graduate Studies by more than six years; however, in this case, the examination requirement may be waived, with program approval, if the applicant's undergraduate grade-point average is 3.0 or above.

If the GRE is required, a minimum score at the 80th percentile on the Quantitative section usually is required.

All non-native English speakers must demonstrate proof of English-language proficiency. Any individual who has earned a bachelor's or higher degree from a U.S. institution, in which the primary language of instruction is

English, is not required to take an English-language proficiency examination.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements

In addition to the College of Graduate Studies degree requirements, students in either track must satisfy the following requirements:

1. Thirty credit hours are required for the degree.
2. A student must complete the following core courses:

Structural Mechanics Track

MME 510 Structure of Materials
(4 credits)

MME 511 Matrix Methods of Structural Analysis (3 credits)

MME 512 Finite Element Analysis I
(3 credits)

MME 513 Advanced Strength of Materials
(4 credits)

MME 604 Elasticity (4 credits)

Mechanics and Materials Track

MME 510 Structure of Materials
(4 credits)

MME 513 Advanced Strength of Materials
(4 credits)

MME 524 Nondestructive Evaluation
(4 credits)

MME 604 Elasticity (4 credits)

3. With advisor approval, a maximum of six credits of 400-level courses that are not offered by the departments of Chemical, Civil and Environmental, and Mechanical Engineering may be applied toward the degree. The remaining elective courses are selected from engineering courses numbered 500 and above, with advisor approval. Most MME courses are cross-listed with courses in the Chemical, Civil and Environmental, and Mechanical Engineering departments. Non-MME courses must be approved in advance by the graduate review committee.
4. A six-credit thesis or three-credit research project is required of each student. A graduate committee is formed to guide thesis work. A faculty advisor is required for the research project.

5. On or before completing nine credit hours of course work, a student must submit a plan of study, which requires both advisor and program committee approval.

Exit Requirements

Theses must follow the format noted in Thesis and Dissertation Format Guidelines, available from the College of Graduate Studies, Keith Building, Room 1150. Acceptance of the thesis by the committee and the passing of an oral defense of the thesis are required.

Research project students must present an acceptable written report to their faculty advisor and give an oral presentation of the research activity to the program faculty.

Master of Science in Environmental Engineering

Department of Civil and Environmental Engineering

Stilwell Hall 107
(216) 687-2400
[www.csuohio.edu/civileng/
ms_environmental_engr_.htm](http://www.csuohio.edu/civileng/ms_environmental_engr_.htm)

Paul Bosela, Chair and Graduate
Program Director

The Faculty

Current faculty information can be located on the Department of Civil and Environmental Engineering Web site.

Introduction

The Master of Science in Environmental Engineering degree is offered through the Department of Civil and Environmental Engineering in the Fenn College of Engineering. This program represents the engineering component of the cross-disciplinary, environmental academic studies program at Cleveland State University.

Although this program is designed for individuals with a bachelor's degree in engineering, non-engineering graduates also can take advantage of this program.

Faculty Research and Publications

Faculty research and publications reflect areas in which students may conduct their theses or project investigations. Faculty research areas include adsorption, waste-site remediation, pollution prevention, green manufacturing, industrial waste treatment, brownfields, air-pollutant control, biological treatment processes, waste recycle and reuse, solid-waste engineering, physiochemical treatment processes, soil decontamination, combustion-process emissions, energy conversions, risk assessment, environmental policy, and real-time environmental monitoring.

Financial Assistance

University-supported assistantships and graduate tuition grants are available to qualified graduate students on a competitive basis. Additional assistantships and support are available through

the Department of Civil and Environmental Engineering; the Environmental Institute; and external federal, state, and industrial grants of program faculty. Applicants should indicate their interest in assistantships or tuition grants on the Application for Graduate Admission.

Admission Information

Admission to the graduate program in environmental engineering is open to qualified students with a baccalaureate degree in engineering or science. A minimum baccalaureate grade-point average of 3.0 usually is required. Applicants from undergraduate programs other than environmental, civil, and chemical engineering may be required to take additional courses.

The GRE General section is required if one or more of the following conditions is true:

- The undergraduate degree was not in environmental, civil, or chemical engineering.
- The undergraduate degree was awarded by a college or university outside of the United States, or by a Canadian institution not accredited by the Canadian Engineering Accreditation Board of the Canadian Council of Professional Engineers.
- An unaccredited college or university awarded the undergraduate degree.
- The student's undergraduate cumulative grade-point average is below 2.75.
- The year of the baccalaureate degree precedes the date of application to the College of Graduate Studies by more than six years; however, in this case, the examination requirement may be waived, with program approval, if the applicant's undergraduate grade-point average is 3.0 or above.

If the GRE is required, the admission decision is based on the applicant's performance on the quantitative section of the GRE along with the undergraduate grade-point average. A minimum of the 50th percentile on the GRE quantitative is required, but this minimum score does not guarantee admission.

All non-native English speakers must demonstrate proof of English-language proficiency. Any individual who has

earned a bachelor's (or higher) degree from a U.S. institution, in which the primary language of instruction is English, is not required to take an English-language proficiency examination. International students who want to be considered for teaching assistantships are advised to take the Test of Spoken English (TSE).

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements

Students in the MS in Environmental Engineering program may elect a thesis or non-thesis option. In addition to University requirements, a master's candidate must meet the following departmental requirements:

1. Students following the non-thesis option must complete a minimum of 33 credit hours for the degree, including the core-competency requirements, the engineering core curriculum, and two additional courses from the environmental engineering elective courses listed in this section.
2. Students following the thesis option must complete a minimum of 31 credit hours for the degree, including the core competency requirements, the engineering core curriculum, and a minimum of six credit hours of thesis.

Core Competency Requirements (8 to 10 credits)

Competency requirements introduce students to areas outside of their major area of study and promote an interdisciplinary approach to solving environmental problems. All students enrolled in environmental graduate-degree programs are required to complete these courses, which are listed below. The environmental engineering faculty determines whether completion of a similar course(s) satisfies a specific competency requirement.

Core competencies for the MS in Environmental Engineering program are fulfilled through courses in science, law/policy, and technical writing.

1. Science

EVS 506 Ecosystem Science (3 credits)
or PHY 570 Environmental Physics
(4 credits)

2. Law/Policy

LAW 671 Environmental Law (3 credits)
or ENV 652 Environmental Policy and
Administration (4 credits)

3. Technical Writing

ENG 509 Technical Writing (2 credits)

Core Curriculum

(17 credits)

Required core courses in the MS in Environmental Engineering program provide a sound foundation for environmental work, regardless of an individual's background in engineering. Since some of these core courses are prerequisites for elective courses, it is generally helpful to complete core courses early in the program.

The core courses are:

EVE 534 Environmental Transport Phenomena (4 credits)

EVE 570 Environmental Chemistry (4 credits)

EVE 572 Biological Principles of Environmental Engineering (4 credits)

EVE 595 Environmental Seminar (1 credit)

EVE 671 Physical and Chemical Principles of Environmental Engineering (4 credits)

If a student has already completed a course with content very similar to a core course, he or she may be able to substitute an elective course for the specific required core course, with program approval.

Elective Courses:

Non-thesis students are required to take two elective courses from the list below:

EVE 533 Pollution Prevention and Sustainability (4 credits)

EVE 540 Soil Stabilization and Decontamination (4 credits)

EVE 564 Groundwater Hydrology (3 credits)

EVE 566 Groundwater Modeling (3 credits)

EVE 574 Industrial Wastewater Treatment (4 credits)

EVE 575 Solid and Hazardous Waste Engineering (4 credits)

EVE 576 Environmental and Occupational Health Engineering (4 credits)

EVE 578 Water Treatment Plant Design (4 credits)

EVE 579 Wastewater Treatment Plant Design (4 credits)

EVE 581 Air Pollution and Abatement (4 credits)

EVE 585 Hazardous Waste Site Remediation (4 credits)

In addition to the courses listed, a maximum of four credits of Special Topics (EVE 593) courses may count toward master's degree requirements. Students must obtain approval from their advisors prior to registration for Special Topics.

Thesis/Research Courses

EVE 697 Master's Research (1-8 credits per semester)

EVE 699 Master's Thesis (1-8 credits)

Transition Courses

Transition courses prepare incoming students, who do not have a background in engineering, for the graduate program. The requirements are presented below. Courses previously completed—and to some extent the applicant's professional experience—are compared to the content of the transition courses. Based on an evaluation of the applicant's academic and professional background, the specific courses required to satisfy the Transition curriculum are determined. Transition courses do not count toward the degree.

A non-degree graduate student may take up to three courses in the MS program, provided that all prerequisites are satisfied, while taking the Transition courses.

Transition Curriculum**Science Requirements**

One year of chemistry (CHM 261/266 and CHM 262/267*)

One year of physics (PHY 241/242*)

Mathematics Requirements

One year of calculus (MTH 181 and MTH 182*)

Statistics (ESC 310*)

Differential equations (ESC 250*)

Linear algebra (ESC 350*)

Engineering Requirements

Statics (ESC 201*)

Fluid mechanics (ESC 301*)

Thermodynamics (ESC 321*)

Hydraulics (CVE 361*)

*Cleveland State equivalent

Personalized MS Program

A faculty advisor is assigned to each student when he or she enters the MS program. The student must meet with the advisor to establish a personalized program plan.

The personalized program plan addresses which core competency courses are required, any engineering core courses for which a substitution is sought, the elective area of concentration, and thesis/project requirements. This plan must be approved by the Environmental Engineering Coordinating Committee (EECC), which is comprised of Environmental Engineering faculty.

If Core Competency Courses are required, the EECC may allow these courses to count as electives toward the degree, but not toward the elective area of concentration.

To receive approval for an Engineering Core Course, the student must submit a petition to the EECC requesting a course substitution for a specific elective course. If granted, this does not reduce the number of credit hours needed for graduation, but allows individuals to take other electives.

Selecting a thesis faculty advisor should be done early in the program. The advisor helps the student establish a thesis Advisory Committee of faculty from the student's area of interest. After the committee has been established, the student is required to prepare a research proposal that must be approved by the Advisory Committee. The committee members also monitor the progress of the student's thesis.

Exit Requirements

Thesis students must follow the Thesis and Dissertation Format Guideline, available through the College of Graduate Studies. Students must have their thesis approved by the graduate faculty committee and pass an oral defense of the thesis. Non-thesis students must complete all course requirements.

Master of Science in Industrial Engineering

Department of Industrial and Manufacturing Engineering

Stilwell Hall 212
(216) 687-2044
www.csuohio.edu/engineering/ime/

Joseph Svestka, Chair
Paul Petersen, Graduate Program Director

The Faculty

Current faculty information can be located on the Department of Industrial Engineering Web site.

Introduction

The objectives of the Master of Science in Industrial Engineering program are to enable the student to continue professional development beyond the baccalaureate degree and to prepare the student for higher-level management responsibilities in a changing technological environment. The program also provides a foundation for doctoral studies.

Programs are structured to accommodate students holding undergraduate degrees in industrial engineering, engineering degrees in other fields, or science degrees with appropriate engineering experience. Students holding undergraduate degrees in disciplines other than industrial engineering may be required to take pertinent undergraduate engineering courses, depending on their educational and professional experience.

Courses are scheduled in the late afternoon and evening to permit students to follow a full-time or part-time program of study.

Faculty Research and Laboratories

Students have ample opportunities to pursue research in the areas of facility planning; quality systems; industrial automation; in-process sensing and adaptive control; machining; process simulation and control; engineering design/production interaction; engineering and technology management; work measurement; and human performance with interdepartmental cooperation; as well as materials and manufacturing processes and systems.

The Industrial and Manufacturing Engineering (IME) Department has several state-of-the-art laboratories in the fields of human factors, quality control, quantitative analysis, facility planning, industrial automation, manufacturing processes, and metrology. The Rockwell Industrial Automation Laboratory contains state-of-the-art programmable logic controllers, machine vision, robotics, and precision material-handling systems. The Nondestructive Evaluation and Process Control Laboratory contains an ultrasonic CAT-scan system along with optical fluorescence, eddy current, and several other types of sensors and controllers. The Manufacturing Processing Laboratory contains several lathes, computer numerical controlled milling machines, grinders, and force dynamometers, and a PC-based data acquisition system. The Manufacturing Research and Process Simulation Laboratory focuses on the development of process simulation models and continuous process improvement by applying deterministic, condition monitoring, and artificial intelligence techniques. Current research activities include predictive machining simulation and monitoring, high-speed dry-milling technology, and micro-mechanical machining of ceramics.

The IME department works closely with local industry, focusing on applied research and development in the areas of machine performance, manufacturing operations, quality engineering, and the transfer of technology to industry. There is a close, collaborative relationship between the department and a large number of local industries.

Financial Assistance

A limited number of graduate assistantships are available to highly qualified students. Some assistantships are funded through sponsored research projects that require the student to complete a thesis. International students interested in assistantships are encouraged to take the Internet-based TOEFL or the Test of Spoken English (TSE).

Career Information

Industrial engineering graduates typically are employed in manufacturing, service, government, and health care industries

and agencies. The demand for industrial engineers continues to increase. Some recent graduates have obtained senior-level management positions with a variety of local organizations. Employment prospects for students trained in industrial engineering generally are good. Several national surveys have predicted that industrial engineering will be one of the highest career growth and opportunity areas for the next decade.

Admission Information

Admission to the graduate program in industrial engineering is open to qualified students with a baccalaureate degree in engineering or science. A minimum baccalaureate grade-point average of 2.75 usually is required. Students who hold other undergraduate degrees need to complete undergraduate background courses in the day or evening. A list of background courses required for students without an engineering degree is available on the IME Web site under "Forms" or from the IME department. All applications are reviewed by the department's Graduate Program Committee.

The GRE General section is required if one or more of the following conditions is true:

1. The undergraduate degree was awarded by a college or university outside of the United States or Canada, or by a Canadian institution not accredited by the Canadian Engineering Accreditation Board of the Canadian Council of Professional Engineers.
2. An unaccredited college or university awarded the undergraduate degree.
3. The student's undergraduate cumulative grade-point average is below 2.75.
4. The year of the baccalaureate degree precedes the date of application to the College of Graduate Studies by more than six years; however, in this case, the examination requirement may be waived, with program approval, if the applicant's undergraduate grade-point average is 3.0 or above.

If the GRE is required, a composite score of 1300 or greater is required. The composite score is based on the formula of: 200 times the undergraduate grade point average plus the quantitative score on the GRE. A minimum of the 50th percentile on the quantitative section of the GRE, and a minimum of a 2.75 GPA, are required. The student also must demonstrate an acceptable level of verbal comprehension and writing ability.

All non-native English speakers must demonstrate proof of English-language proficiency. Any individual who has earned a bachelor's degree (or higher) from a U.S. institution, in which the primary language of instruction is English, is not required to take an English-language proficiency examination.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements

The requirements for the MS in Industrial Engineering degree are as follows:

1. A program of study must be completed in conference with the student's faculty advisor within the first semester of enrollment. Students are expected to follow the plan of study. The student's program of study must be approved by the Graduate Committee of the department.
2. Two options are available—thesis or course work only.
 - a. The thesis option requires a minimum of twenty-seven hours of course work and a minimum of three hours of IME 699 Master's Thesis. Thesis registration may begin after completion of nine credit hours of work in residence. A completed Thesis and Dissertation Proposal Form must be on file with the College of Graduate Studies prior to registering for this course. See the course description for IME 699 for details.
 - b. The course-only option requires a minimum of thirty hours of course work. Students may be required to take certain undergraduate background or prerequisite courses to be prepared for 500- and 600-level courses.

3. A minimum of twenty-one credits for the thesis option and twenty-four credits for the course work option must be taken at the 500 or 600 level in the Industrial and Manufacturing Engineering Department. A maximum of two technical electives (six hours) may be taken outside of the department with departmental approval.

Areas of Concentration

The MSIE degree has four areas of concentration. A student must select one of these areas as part of his or her plan of study:

- Advanced Industrial Engineering
- Engineering Management
- Manufacturing Engineering
- Quality Engineering

Required Core Courses

(To be taken by all Industrial Engineering students)

IME 520 Applied Engineering Design
(3 credits)

IME 530 Operations Research I
(3 credits)

IME 560 Manufacturing Systems
Engineering (3 credits)

IME 562 Production and Inventory
Control (3 credits)

Exit Requirements

Students pursuing the thesis degree option must successfully defend their work in an oral examination in person, before their committee. The examination is open to the public, and a notice must be posted two weeks prior to the examination. All graduating students must complete an exit evaluation form. This form is available from faculty advisors.

Master of Science in Mechanical Engineering

Department of Mechanical Engineering

Stilwell Hall 232
(216) 687-2567
www.csuohio.edu/mce/

Paul Lin, Chair & Graduate Program
Director

The Faculty

Current faculty information can be located on the Department of Mechanical Engineering Web site.

Introduction

The Mechanical Engineering Department offers a program leading to the Master of Science in Mechanical Engineering. Major areas of specialization within the department are:

- Thermal-Fluid Mechanics and Energy Systems
- Mechanical Systems and Design
- Dynamics and Control
- Mechatronics

The program structure is flexible. It is tailored to individual career goals in order to meet the needs of the broad spectrum of engineers in general, and particularly those in the highly industrialized Greater Cleveland area. Numerous and continuous opportunities exist for exposure to the engineering problems and developments within the industrial/research complex of Northeastern Ohio. In addition to substantial interdisciplinary research activities in the College of Engineering, faculty and students participate in research programs of the U.S. Department of Energy, the NASA Glenn Research Center, and local industry. The program is designed to stimulate creativity, to provide a deep understanding of the basic physical phenomena involved in mechanical systems, and to provide an ability to use modern techniques in the analysis, control, and design of mechanisms, machines, and fluid/thermal systems.

Students may enter the program immediately after receiving a bachelor's degree or after a period of employment in industry. In either case, students may

pursue their studies on a full-time or part-time basis. Classes also are available through distance-learning technology, including interactive, live video, and asynchronous Internet systems.

Faculty Research Activities

The department has excellent research facilities, including one of the state's largest anechoic chambers, state-of-the-art laboratories of energy and power systems, Stirling engine, wind tunnel, machine vision and system monitoring, rotor-bearing dynamics and diagnostics, and machine systems. The Fenn College of Engineering's computer network, workstations, PC laboratory, and associated software such as Matlab, AutoCAD, and SolidWorks, are available for research and academic activity.

Faculty Research Areas Include:

- *Computer modeling of manufacturing processes*
- *Analysis and modeling of gear trains*
- *Turbomachinery analysis, design, and optimization*
- *Rotor-bearing dynamics and diagnostics*
- *Tribology and control of Rotor-bearing systems*
- *Magnetic bearings*
- *Prediction and control of vibrations in machinery*
- *Intelligent system monitoring*
- *Machine vision and 3D optical measurements*
- *Gravitational effects on two-phase flow*
- *Spray evaporative cooling*
- *Enhanced heat transfer*
- *Non-Newtonian fluid mechanics/heat transfer*
- *Computational fluid dynamics and heat transfer*
- *Combustion*
- *Applied Nonlinear Control*
- *Mechatronic Systems*

Financial Assistance

The department offers a limited number of graduate research assistantships. Additional opportunities for assistantships exist through the Ohio Aerospace Institute. Information about assistantships is available from the Department of Mechanical Engineering at (216) 687-2567.

Career Information

Upon successful completion of program requirements, students will have a solid education based on the fundamentals of engineering science. Graduates are well prepared for practical applications of engineering design, analysis, and research, and for employment in industry and research laboratories.

Admission Information

Admission to the graduate program in mechanical engineering is open to qualified students with a baccalaureate degree in mechanical engineering or other fields of engineering. A minimum baccalaureate grade-point average of 3.0 (or 2.75 for students from EAC/ABET accredited programs) normally is required. Students without a degree in mechanical engineering are required to take prescribed undergraduate courses in mechanical engineering to ensure adequate preparation for the graduate program. These courses are available both during the day and evening. Undergraduate courses taken to remediate deficiencies do not count toward graduate degree requirements.

The GRE General examination is required if one or more of the following conditions is true:

- The undergraduate degree was awarded by a college or university outside of the United States or Canada, or by a Canadian institution not accredited by the Canadian Engineering Accreditation Board of the Canadian Council of Professional Engineers.
- An unaccredited college or university awarded the undergraduate degree.
- The student's undergraduate cumulative grade-point average is below 2.75.

- The year of the baccalaureate degree precedes the date of application to the College of Graduate Studies by more than six years; however, in this case, the examination requirement may be waived, by the program, if the applicant's undergraduate grade-point average is 3.0 or above.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements

The Department of Mechanical Engineering offers two program options. The thesis option requires a minimum thirty credit hours of course work and master's thesis research. The non-thesis option requires a minimum thirty-three credit hours of course work and master's project. The Department of Mechanical Engineering further restricts the content of each student's master's program to contain:

1. A minimum of twenty credit hours of course work in the department's 500- or 600-level courses, which includes a minimum of four credit hours of advanced engineering analysis or applied mathematics. (Completion of one course from among MCE 501, MCE 504, MCE 509, or approved substitutes meets this requirement.)
2. A maximum of nine credit hours of graduate course work transferred from other universities.

The graduate program must include thesis or project work on a topic approved by the student's graduate advisor and thesis committee. The project or thesis work typically should start only after the student completes sixteen credit hours or more of approved course work at the master's level. A thesis proposal approval form must be completed and approved by the Dean of the College of Graduate Studies before registering for MCE 699 (thesis).

At least one semester prior to graduation, an application-for-graduation form must be submitted to the department and the Office of the University Registrar.

Thesis Option

With the thesis option, a student plans and carries out a research project. It is expected that the project will yield a refereed journal article. The requirements are:

1. A minimum of thirty credit hours with a grade-point average of 3.0 or better. This includes a minimum of twenty-four credit hours of course work and at least six credit hours for the master's thesis.
2. Selection of a major advisor and an advisory committee and approval of a program of study and the research project by the major advisor and advisory committee.
3. Completion of all requirements noted above under Degree Requirements.
4. Continuous thesis enrollment from the time the research plan is approved until completed.
5. Defense of the thesis before the advisory committee.

Non-Thesis Option

The non-thesis option is intended for students who already have had the equivalent of a thesis experience. Equivalence of such an experience must be approved by both the student's advisor and the department chair. Students following this option earn the MS degree by completing the following requirements:

1. A minimum of thirty-three credit hours with a grade-point average of 3.0 or better. The thirty-three hours includes a minimum of twenty-eight credits of course work and at least five credit hours for the master's project.
2. Selection of a major advisor to supervise and approve the student's program of study.
3. Fulfillment of all requirements noted above under Degree Requirements.
4. Approval of the master's project report by the major advisor and two additional faculty members in the department.

Master of Science in Software Engineering

An interdisciplinary program with the Department of Computer and Information Science administered by the Department of Electrical and Computer Engineering

Department of Electrical and Computer Engineering

Stilwell Hall 332
(216) 687-2589
www.csuohio.edu/electrical_engineering/

Department of Computer and Information Science

Ahuja Hall 344
(216) 687-4760
<http://cis.csuohio.edu>

F. Eugenio Villaseca, Chair,
Electrical and Computer Engineering
Santosh Misra, Chair,
Computer and Information Sciences
Yongjian Fu, Graduate Program Director

The Faculty

Faculty members from the Department of Electrical and Computer Engineering and the Department of Computer and Information Science participate in the program.

Introduction

The Master of Science in Software Engineering (MSSE) program is the first of its kind in Ohio. It is a joint, interdisciplinary program between the College of Engineering's Department of Electrical and Computer Engineering (ECE) and the College of Business Administration's Department of Computer and Information Science (CIS). The program is the successor to the Graduate Certificate Program in Software Engineering and is intended for both practicing professionals, as well as full-time students in the areas of software engineering, computer engineering, electrical engineering, computer science, or information management.

The program introduces students to current and best practices in the engineering of software systems. A distinguishing feature is its emphasis on the architecture, coding, deployment, management, economics, security, and

reliability aspects of software engineering. Students take a project from start to completion, learning the requirements of specific deliverables and the development life cycle. Critical management issues, such as risk assessment, project planning, and market analysis, are also covered. The program exposes students to new technological developments in an advancing field and how to apply their knowledge in the workplace. Graduates meet the demands of industry and address the needs of information technology professionals, in general, and software engineers, in particular.

The Electrical and Computer Engineering Department recently commissioned a new state-of-the-art Software Engineering instructional laboratory, fully equipped with hardware and software required to meet the needs of all courses in the curriculum. The department also maintains the Software Engineering Research Laboratory to support research. The lab is equipped with desktop computers and servers connected via a LAN. Students have the opportunity to work on cutting-edge research in Software Engineering.

Two major computer facilities are used by the Department of Computer and Information Science to support teaching and research: a networked laboratory of basic and advanced personal computers; and clusters of UNIX workstations, including HP Itanium, Sun Sparc/Ultra, SGI Indy/O2, IBM RS/6000, and Dell Linux workstations. These machines are connected to Fast Ethernet, ATM, and/or FDDI LANs. All laboratories are available to students for both course work and research. The networks are connected to the University fiber backbone which, in turn, is linked to national networks.

Faculty Research

The members of the Software Engineering faculty are engaged in research in several areas suitable for student theses and dissertations. These include software design, component-based software engineering, middleware systems, embedded software, data mining, mobile computing, fault-tolerant computing, computer and network security, peer-to-peer and grid computing, distributed computing, operating systems, languages, algorithm design and analysis, computer

graphics and computational geometry, performance evaluation, object-oriented programming, software metrics, program analysis, multimedia computing, and bioinformatics. Results of research in these areas are published regularly in referred journals, such as transactions of IEEE, and are presented at scholarly conferences and symposia.

Financial Assistance

The Department of Electrical and Computer Engineering offers a number of research and teaching assistantships and graduate tuition grants. In addition, internships in local industry are available.

Admission Information

Admission to the program requires a minimum undergraduate cumulative grade-point average of 3.0. The Graduate Record Examination (GRE) and the Test of English as a Foreign Language (TOEFL) are required for all international students.

The GRE is also required if one or more of the following conditions is true:

- The undergraduate degree was awarded by a college or university outside of the United States or Canada, or by a Canadian institution not accredited by the Canadian Engineering Accreditation Board of the Canadian Council of Professional Engineers.
- An unaccredited college or university awarded the undergraduate degree.
- The undergraduate degree was in a discipline unrelated to software engineering, electrical engineering, computer engineering, computer science, or information management.
- The student's undergraduate cumulative grade-point average is below 3.0.
- The year of the baccalaureate degree precedes the date of application to the College of Graduate Studies by more than six years.

Applicants with a bachelor's degree in computer science and computer engineering are encouraged to apply. All applicants must demonstrate prerequisite knowledge in the following areas:

- Data structures and algorithms
- Programming languages
- Databases
- Discrete mathematics
- Probability and statistics
- Computer organization
- Computer networks
- Operating systems
-

Applicants in related fields will also be considered for admission, but they may be required to take additional prerequisite courses. Credits earned for prerequisite courses cannot be used to meet the MSSE requirements.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements ([addenda revised 06/2007](#))

The MSSE program requires twenty-eight credit-hours of course work and six hours of thesis. The MSSE program is planned around a core of required topics and a number of technical electives. A student must complete the core courses listed below.

Core Courses

- EEC 521 Software Engineering (4 credits)
- EEC 623 Software Quality Assurance (4 credits)
- CIS 634 Object-Oriented Software Engineering (4 credits)
- CIS 635 Software Engineering Metrics, Economics, and Management (4 credits)

Elective Courses ([addenda revised 06/2007](#))

- CIS 650 Compiler Design (3 credits)
- CIS 675 Information Security (3 credits)
- EEC 517 Embedded Systems (4 credits)
- EEC 522 Modeling and Analysis in Software Systems (4 credits)
- EEC 525 Data Mining (4 credits)
- EEC 530 Digital Signal Processing (4 credits)
- EEC 581 Computer Architecture (4 credits)
- EEC 623 Software Quality Assurance (4 credits)
- EEC 624 Software Testing (4 credits)
- EEC 625 Software Design and Architecture (4 credits)

- EEC 681 Distributed Computing Systems (4 credits)
- EEC 684 Parallel Processing Systems (4 credits)

- EEC 687 Mobile Networks (4 credits)

- EEC 692 Special Topics in Software Engineering (4 credits)

- EEC 695 Individual Problems In Software Engineering (1-4 credits)

- EEC 699 Master's Thesis (1-9 credits)

Only one of the following courses is permitted to count towards degree requirements for the MSSE program:

- CIS 620 Comparative Operating Systems Interfaces (4 credits)
- CIS 630 Enterprise Application Development (4 credits)

Exit Requirements ([addenda revised 06/2007](#))

Acceptance of the thesis by the thesis committee and passing an oral defense of the thesis are required. Students must follow the Thesis and Dissertation Format Guidelines, available from the College of Graduate Studies.

For further information about the MS in Software Engineering program, please contact the Department of Electrical and Computer Engineering at (216) 687-2589.

Health Professions

Health Sciences ■

Nursing ■
MBA/MSN

Occupational Therapy ■

Physical Therapy ■

Public Health ■

Speech Pathology and Audiology ■

Doctor of Physical Therapy

For information on the Health Care Administration concentration in the MBA program, see the Business Administration section of this *Catalog*.

Master of Science in Health Sciences

Department of Health Sciences

Health Sciences 101
(216) 687-3567
www.csuohio.edu/healthsci/ms.html

John Bazyk, Chair
Mary K. Milidonis, Graduate
Program Director

The Faculty

Current faculty information can be located on the Department of Health Sciences Web site.

Introduction

The Master of Science in Health Sciences (MSHS) is a post-baccalaureate professional degree designed to prepare practicing healthcare professionals for emerging leadership roles in the rapidly changing healthcare environment and to expand opportunities for professional advancement. The Program goals are for graduates to:

1. demonstrate self-directed learning skills in order to continue independent and life-long learning;
2. demonstrate the ability to assume diverse roles in today's rapidly changing healthcare, social, and community service environments;
3. identify and analyze cultural influences on practice and emerging healthcare practice issues;
4. utilize outcome measures and evidence-based research to evaluate the effectiveness of health, social, or community systems; and
5. utilize information technology to improve health, social, or community systems.

Courses are offered in two formats for the convenience of part-time students: on-campus, during the evening, and online. The Program has a core of five courses. In addition, it requires three courses in an area of emphasis, three electives, and a capstone research project or thesis. Students are encouraged to periodically contact the Director or a Program advisor for advising, to review the student's progress and plans.

Faculty Research

Cleveland State faculty have research specializations in biomechanics, culture and health, meaning of occupation, epidemiology, exercise physiology, feeding interventions, gerontology, mental health, motor control, neuromuscular disorders, orthopedics, pediatrics, the psychology of trauma, outcomes measurement, and therapy-related legal issues. The Motion Analysis Lab is a significant resource for a variety of research endeavors, including gait analysis, vestibular concerns, and sports medicine.

Financial Assistance

A limited number of graduate assistantships are available to full-time students (minimum of nine credit hours per semester). Assistantships cover resident tuition. Assistants may be involved in departmental projects or work with individual faculty on teaching, research, or work-related assignments. The Director of the MSHS Program will notify all MSHS students as assistantships become available.

Career Information

Graduates of the MSHS Program are well-prepared for careers in professional practice, education, applied research, or management in healthcare. Career opportunities are available in a variety of healthcare settings, including hospitals, clinics, schools, eldercare facilities, and others.

Admission Information

An applicant must hold a baccalaureate or advanced degree from an accredited institution and be a healthcare professional. Those interested in the MSHS degree, who are not healthcare professionals, must request permission to apply.

Two application forms must be submitted for admission to the MSHS Program. The first application is made to the College of Graduate Studies and can be submitted online (www.csuohio.edu/admissions/gradForm). Applicants must also submit official transcripts for all colleges and universities attended, official test scores for the Graduate

Record Examination (waived if GPA is above 3.0), and two letters of recommendation. All scores on the GRE must be at the 50th percentile or above for admission to the MSHS Program. Non-native English speakers must demonstrate proof of English-language proficiency. See Admission to the College of Graduate Studies for applicable policies and procedures. Transcripts must be sent directly from colleges and universities previously attended. Test scores must be sent directly from the testing service. Application materials are to be sent to the Office of Graduate Admissions.

A second, more detailed application, is made to the MSHS Program and must be submitted in paper form. It is available at www.csuohio.edu/healthsci/mshsapplication.htm.

Program of Study

All core courses and many other courses are offered in both classroom and online formats. Students may take courses in only one format (e.g., online) or both (e.g., some online courses and some in the classroom). The required curriculum, which follows, is the same for both classroom and online students.

Core Courses (15 credits)

Required of all students:

- HSC 501 Issues in Health Sciences (3 credits)
- HSC 502 Leadership Roles in Health Sciences (3 credits)
- HSC 503 Research and Analysis in Health Sciences (3 credits)
- HSC 504 Seminar in Health Sciences Professions (3 credits)
- HSC 505 Culture and Health Care (3 Credits)

Area of Emphasis (9 credits)

Select one course from the following list:

- HSC 510 Principles of Evidence-Based Practice (3 credits)
- HSC 513 Outcomes Assessment (3 credits)
- HSC 523 Educational Evaluation in Health Sciences (3 credits)
- HSC 533 Program Development and Assessment (3 credits)

Select two additional HSC courses to meet professional interests:

- HSC 512 Evolving Technologies in Health Sciences (3 credits)
- HSC 514 Occupational Therapy and Physical Therapy in the Schools (3 credits)
- HSC 521 Current Issues in Clinical Education (3 credits)
- HSC 522 Fundamentals of Curriculum in Health Sciences (3 credits)
- HSC 524 Functional Anatomy (3 credits)
- HSC 525 Clinical Application of Current Theories of Motor Development (3 credits)
- HSC 526 Functional Performance of Older Adults (3 credits)
- HSC 531 Principles of Management for Health Sciences (3 credits)
- HSC 532 Advocacy and Environmental Change (3 credits)
- HSC 541 Environmental Health (3 credits)
- HSC 543 Legal and Policy Issues in Health Sciences (3 credits)
- HSC 544 Social Issues and Health Sciences (3 credits)
- HSC 545 Work Physiology (3 credits)
- HSC 546 Occupational Biomechanics (3 credits)
- HSC 547 Assistive Technology for Computer Access (3 credits)
- HSC 548 Human Sexuality and Health Care (3 credits)
- HSC 570 Special Topics in Health Sciences (3 credits)
- HSC 690 Independent Study (3 credits)

Electives (9 credits)

Students select three additional courses from HSC and/or from other departments. Students are encouraged to discuss their selection with the Director or a Program advisor in order to develop a concentration of courses that meets their professional and educational goals. Up to nine credits of graduate courses from an accredited institution may be transferred as electives, with approval from the Program Director and the College of Graduate Studies. Students may also complete a related graduate certificate to satisfy the elective requirement.

Capstone Experience (3-6 credits)

Every student must complete a significant, original research project by completing one of the following courses:

HSC 691 Thesis

or

HSC 692 Master's Project

The Thesis is usually completed by students who have plans to pursue doctoral studies. It requires a committee of three faculty—an advisor and two readers. It customarily takes three semesters beyond all course work to complete the Thesis. It is strongly preferred that students participate in some aspect of their advisor's research to complete the Thesis.

The Master's Project is the more common method of completion of the MSHS degree. It requires a committee of two faculty—an advisor and one reader. It usually takes two semesters beyond all course work to complete the Master's Project. It is strongly preferred that students participate in some aspect of their advisor's research to complete the Master's Project.

Note: HSC 504 Seminar in Health Sciences Professions directly prepares students for the Capstone Experience. For that reason, it is recommended that HSC 504 be taken later in the curriculum, just prior to beginning the Thesis or Master's Project.

MSHS with a Concentration in Physician Assistant (PA) Science

The MSHS Program will offer a Concentration in Physician Assistant Science for students enrolled in the PA Program at Cuyahoga Community college (Tri-C) beginning Summer 2007. These students need to be admitted into the PA Program at Tri-C and the MSHS Program at CSU at the same time. This requires that they have already earned a bachelor's degree and are eligible for admission to both programs. Students take courses in both programs simultaneously. The program of study in the MSHS Program consists of thirty-six credits. The MSHS degree with the Concentration in PA Science, along with the credential earned at Tri-C by completing the PA Program, will meet the licensing requirements for practice in Ohio.

Physician assistants seeking a master's degree may also apply to this program and earn the MSHS degree with a Concentration in Physician Assistant Science.

Graduate Certificate Programs

Graduate Certificate Programs are offered through the MSHS Program and by other departments at Cleveland State University. Detailed information about these programs can be found elsewhere in this *Catalog*; please refer to the index. In addition, certificate programs may be added at any time. Check the MSHS Web site for updates (www.csuohio.edu/healthsci/ms).

Master of Science in Nursing

School of Nursing

Rhodes Tower 915
(216) 687-3598

www.csuohio.edu/coehs/departments/nursing/gradprogram/index.htm

www.csuohio.edu/coehs/departments/nursing/gradprogram/forensicnursing.htm

Noreen Frisch, Director
Sharon Radzynski, Graduate
Program Director

Programs of Study

MSN Degree

**Population Health: Specialized
Populations Track**

Population Health: Forensic Track

**Population Health: Clinical Nurse
Leader Track**

MSN/MBA Degree

The Faculty

Current faculty information can be located on the School of Nursing Web sites.

Introduction

The MSN program is based on the principles of population health and is designed to prepare graduates with advanced knowledge, competencies, and skills in the nursing care of populations (aggregates). The graduate will have in-depth skills in population assessment, demography, epidemiological assessment and data analysis, evaluation of research, survey research, data projections, cost-benefit analysis, and the ability to apply nursing theory, population theory, ethics, cultural awareness, and political strategies to design, implement, and evaluate population health programs. Students may select from one of three tracks available, according to their interests and professional goals. In keeping with the rules and regulations of the Ohio Nurse Practice Act, the program does not prepare nurse practitioners or clinical

nurse specialists; graduates are not eligible to apply for a certificate of authority in the State of Ohio.

Accreditation

The graduate program in Nursing is accredited by the Commission on Collegiate Nursing Education (CCNE).

Faculty Research

Program faculty members have research specializations in epidemiology, population health issues, culture and health, gerontology, mental health, nursing theory, and nursing diagnosis. In addition, the Center for Nursing Research provides resources to faculty and students, including a forum for interdisciplinary research, assistance with proposal development, and identification of funding sources. The departmental partnership with the Visiting Nurse Association of Cleveland also provides opportunities for collaboration with practitioners in community settings.

Financial Assistance

Graduate assistantships (registration for a minimum of nine credit hours per semester) are available on a competitive basis to full-time students who apply and are eligible. Assistantships cover tuition and provide stipend support. Assistants may be involved in three types of graduate assistantships: teaching, research, and administrative. Each type of assistantship is designed to meet the needs of the University and to assist in the professional development of students.

Non-Degree Status

A total of nine credits of graduate nursing courses may be taken as a non-degree graduate student, with permission of the faculty. No nursing course may be taken beyond this limit. Students who wish to progress in nursing course work must complete the application process for admission to the College of Graduate Studies and to the MSN program.

Admission Information

Applicants to the Master of Science in Nursing program must meet the

minimum requirements established by the College of Graduate Studies and the MSN program faculty. Applicants are advised to begin the admissions process by scheduling an advising appointment with the Department's Recruiter/Advisor at (216) 687-3810. The general requirements for admission are:

1. A baccalaureate degree in nursing.
2. A valid, active license as a Registered Nurse in Ohio.
3. An undergraduate grade-point average of 3.0 or above, documented through submission of academic transcripts from all schools attended.*
4. Completion of a statistics course (contact the School of Nursing for specifics).
5. Submission of two letters of recommendation, preferably from individuals who can address the applicant's ability to be successful in graduate study.
6. Identification of a population on which the student will focus during his or her program of study.
7. Submission of a three-to-five page typed essay explaining why the applicant wants to earn an MSN; how such a graduate degree fulfills the applicant's personal and professional goals; and the knowledge, skills, attitudes, and competencies that the applicant hopes to develop during the educational process.
8. Applicant to the MSN/MBA program must meet the admission requirements of both the MSN and the MBA programs; GMAT scores are an additional requirement.

**An applicant who does not meet the minimum 3.0 GPA requirement may still be considered for admission as a non-degree graduate student. See the requirements set forth by the College of Graduate Studies which appear in this Catalog.*

Applicants must submit the Cleveland State University application for Graduate Admission with a check or money order for the \$55 admission application fee. All application materials should be submitted to the Graduate Admissions Office. The admissions office will forward materials to the MSN Program Director.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Applications for fall semester are reviewed by the School of Nursing Graduate Committee beginning March 1. Applications received after that date are considered for fall semester on a space-available basis.

Students may pursue the program on a full- or part-time basis. The University mandates a six-year time limit to complete master's degree requirements.

**Population Health:
Specialized Population Track**
38 credit hours leading to the Master of Science in Nursing Degree.

The specialized population track allows students to select a population of interest with approval of the faculty. Students in this track follow the program described under the MSN degree. The track enables nurses to practice with populations across care settings.

Career Information

The focus in population health prepares graduates to practice in the evolving health care delivery system. Currently, managed care puts all decisions in the context of population-based data. Nursing activities—designed and implemented according to care maps and critical pathways—are grounded in aggregate data analysis. Graduates are prepared to function collaboratively in acute care settings or community-based settings, to manage health care of population groups, and to work with populations to plan programs to address health concerns. The program enables graduates to practice with populations across care settings, to assume leadership roles in the health care delivery system, and to pursue doctoral education.

Exit Requirements

There is no thesis requirement for the MSN program. Graduation is based on the successful completion of the required courses and clinical experiences. NUR 606 Practicum in Population Health Care is the capstone course for the program. Students are expected to plan and implement a clinical project to address the needs of their population of focus. Each student is expected to make an oral presentation of his or her project and develop a manuscript for submission to a refereed journal.

Students may, however, elect to substitute a thesis for the practicum course as part of their program of study. The thesis option requires the student to plan and carry out a research project, or develop a scholarly essay. Any student who selects this option will develop and submit a paper for publication to a refereed journal and publicly present and defend the thesis.

A student who chooses to complete a thesis should select a thesis advisor early in the program, preferably by the completion of Phase I courses (500-level courses). The advisor helps the student establish an Advisory Committee of faculty from the student's area of interest and an external member from a cognate area. After the committee has been established, the student must prepare a research proposal that must be approved by the Advisory Committee. The committee members also monitor the thesis project.

Students should enroll in NUR 699 each semester in which they are involved with their thesis.

See the Academic Regulations section of this Catalog for additional information on Thesis requirements.

Degree Requirements

A minimum of thirty-eight credit hours of study is required, including courses in advanced nursing knowledge, population health, a capstone project, and a cognate, or area of interest.

Advanced Nursing Knowledge Courses (17 credits)

- NUR 500 Professional Role Development for Population Health Nursing I (1 credit)
- NUR 501 Introduction to Population Health Nursing (3 credits)
- NUR 502 Theory Development in Nursing (3 credits)
- NUR 503 Nursing Research Methods I (3 credits)
- NUR 601 Nursing Research Methods II (3 credits)
- NUR 602 Health Care Policy (2 credits)
- NUR 603 Health Care Financing for Nursing Practices (2 credits)

Population Health (16 credits)

- NUR 505 Introduction to Epidemiology and Demography: A Nursing Perspective (3 credits)
- NUR 604 Nursing of Populations I (4 credits)
- NUR 605 Nursing of Populations II (4 credits)
- NUR 606 Practicum in Population Health Care (4 credits)

- NUR 607 Professional Role Development for Population Health Nursing II (1 credit)
- NUR 699 Thesis (optional; 1-3 credits)

Cognate or Area of Concentration
(elective: minimum of 5 credits)

Annual Documentation

Once accepted into the program, each student is required to present, at the time of entrance and annually thereafter, documentation of licensure as a registered nurse, professional liability insurance, CPR certification, and current immunizations. This information is required by clinical sites, as well as accrediting agencies. Students are responsible for their own transportation to clinical sites.

Clinical Placement

Students admitted to Phase II of the MSN Program take three courses—NUR 604, NUR 605, and NUR 606—each of which includes a lecture and clinical component. In the clinical component, students develop competencies enacting the roles of the population health nurse expert with their population of focus in several different care environments. During these learning experiences, students interact with members of their population, health care professionals, interest groups, and others who are involved with their population. These opportunities enable the student to use the Precede-Proceed Model, nursing theory, and other concepts, theories, and frameworks to promote the health of aggregates. Students are encouraged to identify their population of interest soon after they enter the program to facilitate identification of clinical sites for optimal learning.

**Population Health:
Forensic Track**

38 credit hours leading to the Master of Science in Nursing Degree.

The forensic track allows students to choose victims or perpetrators of crime or traumatic events as their population of interest. Students will apply the principles of population health to nursing strategies required for the scientific investigation, treatment, and health care of victims/perpetrators due to violence, criminal activity, or traumatic events across care settings. Students will acquire the in-depth knowledge and skills required to interface the law, forensic science, law enforcement, mental health and health care with nursing.

Career Information

The track in forensic nursing prepares the nurse to function in a variety of roles in the evolving health care delivery system. These include, but are not limited to:

- **Sexual Assault Nurse Examiner**—Nurse expert who cares for patients who have been sexually assaulted. These nurses are employed by a variety of institutions, including hospitals, crisis centers, and government agencies.
- **Forensic Nurse**—Nurse expert who cares for all types of victims of violence. This nurse conducts forensic evaluations for any patient who presents medico-legal needs. Any living victim and/or suspect may benefit from the objective forensic evaluation that is conducted. Forensic nurses are often employed by hospital emergency rooms, crisis centers, trauma centers, correctional facilities, medical examiner's offices, and government agencies.
- **Legal Nurse Consultant**—Nurse expert who works with attorneys. A variety of cases are handled, from malpractice to personal injury. Policies and procedures are studied, and documentation of nursing actions is reviewed. This nurse also assists attorneys with preparing for trial proceedings and may testify in some instances.
- **Forensic Psychiatric Nurse, Correctional Nurse, and Institutional Nurse**—Nurse expert who works with the accused in institutions and facilities. Forensic needs are identified and treatments are made available.
- **Death Investigation Nurse**—Forensic nurse experts may assist coroners and death investigators. The holistic nursing approach is integral to care of the deceased victim's family, community, and the investigation.

Degree Requirements

The thirty-eight-credit-hour curriculum is structured so that the student will take all of the core courses in the Population Health major. This allows students to gain a strong foundation in population health, as well as theory and research. This also affords an opportunity for student interaction with persons in other areas of interest related to population health and nursing. In addition, the student is required to take courses related to the specific population of victims/perpetrators of crime, violence, or traumatic events on which he or she has chosen to focus.

Advanced Nursing Knowledge Courses (12 credits)

NUR 500 Professional Role Development for Population Health Nursing (1 credit)
 NUR 502 Theory Development in Nursing (3 credits)
 NUR 503 Nursing Research Methods I (3 credits)
 NUR 601 Nursing Research Methods II (3 credits)
 NUR 602 Health Care Policy (2 credits)
 Population Health Courses (6 credits)
 NUR 501 Introduction to Population Health Nursing (3 credits)
 NUR 607 Professional Role Development for Population Health Nursing (1 credit)
 Ethics Elective (2 credits)

Area of Concentration— Forensics (21 credits)

NUR 511 Introduction to Forensic Nursing (2 credits)
 NUR 512 Strategies for Population Health Assessment in Forensic Nursing (3 credits)
 NUR 614 Nursing of Populations I (Forensics) (4 credits)
 NUR 615 Nursing of Populations II (Forensics) (4 credits)
 NUR 616 Practicum in Population Health Care (Forensics) (4 credits)
 NUR 617 The Legal System (4 credits)

Clinical Placement

Students admitted to Phase II in the graduate program will take NUR 614 and NUR 615, each of which includes a lecture and clinical component. During these learning experiences, students interact with members of their population, health care professionals, interested groups, and others involved in their population. Students in the forensic track interact with law enforcement officials, attorneys, medical examiners, crisis specialists, correctional facility officials, and other nursing professionals involved in the promotion of health/ nursing care of victims/perpetrators of crime, violence, or traumatic events.

Population Health: Clinical Nurse Leader Track 38 credit hours leading to the Master of Science in Nursing degree.

The Clinical Nurse Leader (CNL) track is designed to meet the Ten Assumptions listed below developed by the American Association of Colleges of Nursing (AACN, 2004). This track prepares nurses to be leaders in the health care delivery system across all settings in which health care is delivered. Courses prepare students to design, implement, and evaluate client care

by coordinating, delegating, and supervising direct care provided by the health care team.

Ten Assumptions for Preparing Clinical Nurse Leaders (AACN, 2004)

- Practice is at the Microsystems level.
- Client care outcomes are the measure of quality practice.
- Practice guidelines are based on evidence.
- Client-centered practice is intra- and inter-disciplinary.
- Information will maximize self-care and client decision-making.
- Nursing assessment is the basis for theory and knowledge development.
- Good fiscal stewardship is a condition of quality care.
- Social justice is an essential nursing value.
- Communication technology will facilitate the continuity and comprehensiveness of care.
- The CNL must assume guardianship for the nursing profession.

*Note: The CNL role is not one of administration, but rather a provider and manager of care to individuals or cohorts within a unit or health care setting.

Program of Study

Students will follow the same course of study as those in the MSN: Specialized Populations Track with the added expectation that elective hours be used to complete a course in pharmacology and ETE 501 (Technology Strand). Students will focus on the 10 assumptions of the CNL role in courses that include a clinical component (NUR 604, 605, 606), and they will be placed with preceptors from practice partners involved in the development of the CNL role.

Population Health:

Nursing Education Track [\(new 05/06\)](#)

Nursing Executive Track [\(new 12/06\)](#)

The MSN/MBA Program

The program leading to a joint Master of Science in Nursing and Master of Business Administration degree is designed for students with an undergraduate degree (BSN) in nursing and is offered jointly by the School of Nursing and the Nance College of Business Administration. The School of Nursing administers the program. The purpose of the program is to prepare nurses for careers in

management and leadership positions. This unique program offers students advanced knowledge, competencies, and skills in nursing of populations (aggregates) and a foundation for their growth into competent business managers. The graduate will have in-depth skills in demography, epidemiological assessment, data analysis, evaluation research, survey research, data projections, and cost-benefit analysis, and the ability to apply nursing theory, business theory, ethics, cultural awareness, and political strategies to design, implement, manage, and evaluate health programs, departments, and facilities.

Students in the MSN/MBA program develop competencies in administration and management of different environments of health care.

In keeping with the rules and regulations of the Ohio Nurse Practice Act, the program does not prepare nurse practitioners or clinical nurse specialists; graduates are not eligible to apply for a certificate of authority in the State of Ohio.

For additional information, visit the Web sites at:

www.csuohio.edu/cba/academic/graduate/nursing.html
or

www.csuohio.edu/coehs/departments/nursing/gradprogram/msnmba.htm.

Accreditation

AACBS International, the Association to Advance Collegiate Schools of Business, accredits the MBA program of the Nance College of Business Administration. The graduate program in nursing is accredited by CCNE, the Commission on Collegiate Nursing Education.

Admission Information

Applicants to the MSN/MBA program must meet the admission requirements for both the College of Business Administration and the School of Nursing.

College of Business Administration Requirements:

1. A total of at least 950 points based on the following formula: 200 times the overall undergraduate grade-point average plus the Graduate Management Admission Test (GMAT) score; or at least 1,000 points based on the following formula: 200 times the upper division grade-point average plus the GMAT score. Students scoring below the required score on the

GMAT may be required to take pre-requisite courses prior to admission into the program. Refer to the Admission Information section of the Master of Business Administration program for details.

2. An official transcript from each college and university previously attended.

School of Nursing Requirements:

1. A baccalaureate degree in nursing.
2. An undergraduate grade-point average of 3.0 or above.
3. A statistics course (may be at the undergraduate level).
4. Two letters of recommendation.
5. A valid, active license as an RN in Ohio.
6. An official transcript from each college and university previously attended.
7. Submit the Application for Graduate Admissions with the \$55 admission application fee.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Annual Documentation

Once accepted into the program, each student is required to present annual documentation of licensure as a registered nurse, professional liability insurance, CPR certification, and current immunizations.

Program of Study

Students must meet all course and exit requirements for the Master of Science in Nursing and the Master of Business Administration. Refer to the Degree Requirements for the Master of Science in Nursing and the Master of Business Administration for details. Students can pursue the program on a full-time or part-time basis.

The MSN/MBA course sequence for the full-time program is as follows:

Semester One

- ACT 501 Financial Accounting (3 credits)
- ECN 503 Economic Concepts (3 credits)
- MLR 501 Management and Organizational Behavior (3 credits)
- NUR 500 Professional Role Development for Population Health Nursing I (1 credit)

- NUR 503 Nursing Research Methods I (3 credits)

Semester Two

- HCA 640 Health Care Law (3 credits)
- MKT 501 Marketing Theory and Practice (3 credits)
- NUR 502 Theory Development in Nursing (3 credits)
- NUR 602 Health Care Policy (3 credits)

Semester Three

- FIN 501 Financial Management (3 credits)
- GAD 515 Communication for Managers (3 credits)
- NUR 601 Nursing Research Methods II (3 credits)
- OMS 511 Operations Management (3 credits)

Semester Four

- ACT 600 Managerial Accounting (2 credits)
- HCA 601 Health Care Finance (3 credits)
- MKT 601 Marketing Management (3 credits)
- NUR 605 Nursing of Populations II (4 credits)*

Semester Five

- MBA 602 International Business (3 credits)
- MLR 601 Human Resource Management and Labor Relations (3 credits)
- NUR 505 Introduction to Epidemiology and Demography: A Nursing Perspective (3 credits)
- NUR 606 Practicum in Population Health Care (3 credits)*

Semester Six

- ACT 660 Integrative Business Strategy (4 credits)
- MBA 600 Team Dynamics (1 credit)
- MBA 660 Integrative Business Strategy (4 credits)
- MBA 603 Management of Innovation and Technology (3 credits)
- NUR 606 Practicum in Population Health Care (2 credits)*
- Ethics Elective (3 credits)

*These courses include a lecture and clinical component.

As a dual degree, the MBA program will accept nine hours of core MSN courses as elective credit, and the MSN program will accept ten hours of core MBA courses as elective credit.

Master of Occupational Therapy

See Addendum

Department of Health Sciences

Health Sciences 101
(216) 687-3567
www.csuohio.edu/healthsci/ot.html

John Bazyk, Chair
Glenn Goodman, Graduate
Program Director

The Faculty

Current faculty information can be located on the Department of Health Sciences Web site.

Introduction

Occupational Therapy, which began in 1917, is a health field that focuses on individuals' ability to do their everyday occupations in self-care, work, and leisure (such as dressing, homemaking, working, and recreating). Its goal is to help people achieve their own unique, desired lifestyles. It requires getting to know individuals personally, understanding their goals, and identifying creative ways to allow them to reach their desired levels of independence and productivity. This work is highly personal and creative. In addition to working directly with clients, occupational therapists often consult with others important to the client about adapting the client's lifestyle or environment. Occupational Therapists also design programs for themselves or others to implement, they speak on behalf of clients and their families, and they participate in research.

The Occupational Therapy Program is accredited by the Accreditation Council for Occupational Therapy Education, 4720 Montgomery Lane, Bethesda, MD 20824-1220; (301) 652-2682. Students must complete a minimum of 79 credits, including 24 weeks (940 hours) of full-time fieldwork in order to be eligible to sit for the national certification examination and to apply for state licensure. The fieldwork must be completed within 24 months after completion of the academic course work. The certifying body for occupational therapists is the National Board for Certification in Occupational Therapy (NBCOT). *Note:* A felony conviction may affect a graduate's ability

to sit for the NBCOT certification examination or to attain state licensure.

Faculty Research

The Occupational Therapy Program faculty has an outstanding record of research and publications. Areas of expertise within the core faculty include outcome studies, assistive technology, gerontology, quality of life, legal issues in occupational therapy, occupational therapy education, psychopathology and function, international health care issues, work-related injuries, feeding interventions, parent-professional collaboration, fine motor function and emergent literacy, and development of occupational therapy assessments.

The program has collaborative arrangements with many health care and service organizations that enhance research and learning opportunities. Some of these include The Benjamin Rose Institute, The Cleveland Clinic Foundation, Cleveland Public Schools, the Cuyahoga County Board of Mental Retardation and Developmental Disabilities, the Hispanic Senior Center, the City Mission, MetroHealth Medical Center, St. Vincent Charity Hospital, and University Hospitals of Cleveland.

Financial Assistance

A limited number of graduate assistantships (minimum of nine credit hours per semester) are available to full-time students. Assistantships may cover tuition and a stipend. Assistants may be involved in departmental projects or work with individual faculty on specific research and teaching endeavors. Contact the Health Sciences Department at (216) 687-3567 or via e-mail at healthsci@csuohio.edu for more details.

Admission Information

Admission to the program is limited to thirty students. A rolling admissions process begins August 1 until May 15. Candidates who meet all admission requirements are accepted on a first-come, first-served basis.

Admission Criteria

Students must have:

1. A bachelor's degree from an accredited institution.
2. An overall grade-point average of at least 3.0 or a score at the 50th percentile or above in each area of the GRE.
3. A minimum GPA of 2.8 in the most recent forty-eight semester credit hours of course work, and a minimum GPA of 2.8 in natural science courses, with at least two of the science prerequisites taken prior to application.

Application Procedures

Students must meet all College of Graduate Studies admission requirements and submit to the Graduate Admissions Office an Application for Graduate Admission, the \$55 application fee, and all admission materials (official transcripts, test scores submitted by the testing agency directly to the University, letters of recommendation, department application packet, etc.).

In addition, applicants for the MOT program must:

1. Submit a completed MOT program application (available from the Health Sciences Department) with a \$55 non-refundable application fee to the Graduate Admissions Office.
2. Complete the Graduate Record Exam (GRE), if the overall undergraduate grade-point average is less than 3.0.
3. Non-native English speakers must demonstrate proof of English-language proficiency. See Admission to the College of Graduate Studies for applicable policies and procedures.
4. Complete all prerequisite courses with a grade of C or better by the end of spring semester of the year of application.

Students who are enrolled in the Pre-therapy Track of the BSHS degree at Cleveland State University may apply for provisional acceptance into the Master of Occupational Therapy program at any time. The student must complete an intent-to-enroll form that

identifies the anticipated year of enrollment into the MOT program. The form also lists the application procedures and academic standards that must be maintained to be eligible for admission into the MOT program. Students must meet with a department advisor to initiate this process.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Required Prerequisites

- 1. Pathology (HSC 381, if taken at Cleveland State).** Introduction to medical diagnosis and treatment, covering basic concepts and nomenclature of pathology, major diseases of body systems, epidemiology, biopsychosocial concepts, pharmacology, infectious disease, cellular injury, tissue repair, neoplasia, genetic disorders, musculoskeletal disorders, nervous system disorders, and psychiatric disorders.
- 2. Physiology with lab (HSC 422 or BIO 422/423, if taken at Cleveland State).** Must be a 300-level or above course. Human or vertebrate physiology is recommended.
- 3. Human Anatomy with lab (HSC 475, if taken at Cleveland State).** Must be a 300-level or above course. Human cadaver dissection or prosection is recommended.
- 4. Neurosciences with lab (HSC 476, if taken at Cleveland State).** Study of structure and function of human central and peripheral nervous systems, including vascular components and special senses.
- 5. Lifespan (PSY 223, if taken at Cleveland State).** Examination of human development from infancy to old age preferred.
- 6. Abnormal Psychology (PSY 345, if taken at Cleveland State).** Survey of major psychological disorders and their classification, etiology, and management.
- 7. Social Science Statistics (PSY 311, if taken at Cleveland State).** Content should include measures of central tendency, correlations, t-tests, analysis of variance, nonparametric statistics, application of descriptive and inferential statistics to analysis and interpretation of data in the social sciences, and hypothesis testing.

8. Medical Terminology (HSC 203, if taken at Cleveland State). Evidence of completion of medical terminology course or self-study.

Although not mandatory, it is strongly recommended that applicants volunteer and/or work under the direct supervision of an occupational therapist in at least two areas of practice.

Requests for applications and advising appointments (also recommended) can be made with the Health Sciences Department by calling (216) 687-3567.

Program of Study

The Master of Occupational Therapy curriculum consists of seventy-nine to eighty-one credits, including fifty-one credits in the core area, twenty-two credits of fieldwork, and six to eight credits of electives. A capstone research project is required as part of the core curriculum. The two-year program begins fall semester. A part-time option is available for students who wish to complete the program in three or four years.

Students are required to meet with an advisor and select two elective courses as part of the required MOT academic course work. These courses are meant to enhance the students' skills in practice administration and/or teaching.

The courses are offered in the following sequence:

Fall Year I

- HSC 506 Medical Conditions and Occupational Function (3 credits)
- HSC 516 Occupational Therapy Foundations (4 credits)
- HSC 518 Occupational Development (4 credits)
- HSC 528 Psychosocial Evaluation and Intervention (3 credits)

Spring Year I

- HSC 517 Occupational Therapy Theory and Process (4 credits)
- HSC 527 Neuromusculoskeletal Evaluation and Intervention (4 credits)
- HSC 529 Sensory and Cognitive Evaluation and Intervention (3 credits)
- HSC 589 Occupational Therapy Research I (3 credits)

Summer Year I

- HSC 560 Interdisciplinary Team Development (3 credits), or elective
- HSC 569 Occupational Environments (3 credits)
- HSC 579 Occupational Therapy Administration and Management (3 credits)

Elective

Fall Year II

- HSC 535 Occupation and Participation I (4 credits)
- HSC 536 Occupation and Participation II (4 credits)
- HSC 558 Occupational Therapy Practicum I (3 credits)

Elective

Spring Year II

- HSC 537 Occupation and Participation III (3 credits)
- HSC 559 Occupational Therapy Practicum II (3 credits)
- HSC 591 Occupational Therapy Research II (3 credits)

Summer Year II

- HSC 595 Level II Fieldwork I (8 credits)

Fall Year III

- HSC 596 Level II Fieldwork II (8 credits)

Graduate Certificate Programs

Three interdisciplinary graduate certificate programs are administered through the Department of Health Sciences: Advanced Study in Culture, Communication, and Health Care; Ergonomics/Human Factors; and Occupational and Physical Therapy in the Schools. Detailed information about these programs can be found elsewhere in this *Catalog*; please refer to the index.

Master of Physical Therapy

Department of Health Sciences

Health Sciences 101
(216) 687-3567
www.csuohio.edu/healthsci/mpt.html

John Bazyk, Chair
Ann Reinthal, Graduate Program
Director

The Faculty

Current faculty information can be located on the Department of Health Sciences Web site.

Introduction

The emphasis of the Master of Physical Therapy (MPT) Program at Cleveland State University is to develop competent entry-level practitioners who are well prepared to meet the demands of the health care arena in the 21st century, especially the emerging leadership roles that are necessary in a rapidly changing health care environment. Graduates are prepared to assume the diverse roles of the physical therapist, including clinical practice, consultation, teaching, management, participation in research, and advocacy. The ability to understand health systems through interactions with practitioners from numerous disciplines is emphasized in all aspects of the curriculum. The Commission on Accreditation in Physical Therapy Education accredits the physical therapy program.

Faculty Research

Cleveland State University faculty have research specializations in biomechanics, culture and health, epidemiology, exercise physiology, gerontology, motor learning, motor control, neuromuscular disorders, orthopedics, and pediatrics. A state-of-the-art Motion Analysis Laboratory is available for biomechanics research.

Admission Information

Admission to the program is selective and limited. Admissions are conducted once a year beginning in the summer and continuing through fall. The deadline for application is November 1.

In addition to meeting College of Graduate Studies requirements for admission, applicants to the program must:

1. Submit to the Graduate Admissions Office an Application for Graduate Admission, the \$55 application fee, and all admissions materials (official transcripts, test scores submitted by the testing agency directly to the University, letters of recommendation, department application packet, etc.).
2. Submit a completed MPT program packet (available from the Health Sciences Department).
3. Complete the Graduate Record Exam (GRE).
4. Non-native English speakers must demonstrate proof of English-language proficiency. See Admission to the College of Graduate Studies for applicable policies and procedures.
5. Have minimum grade-point averages of at least 3.0 overall and 3.0 in prerequisite course work. All prerequisite courses must be completed with a letter grade of C or better. Pre-professional prerequisites for admission to the program are:
 - a. Chemistry: two-course sequence with laboratories
 - b. Physics: two-course sequence with laboratories
 - c. General biology with laboratory
 - d. Vertebrate, human, or mammalian physiology (junior- or senior-level)
 - e. Human gross anatomy with cadaver laboratory
 - f. Neuroscience with laboratory
 - g. General pathology
 - h. Psychology: two courses
 - i. Sociology: one course
 - j. Statistics: one course
 - k. Medical terminology (not calculated in prerequisite grade-point average)

Submit all materials to the Graduate Admissions Office, which will forward material to the MPT Program Director.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at

www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Program of Study

The curriculum for the Master of Physical Therapy consists of eighty-three semester credits, including:

1. Fifty-nine credits in the core areas (including a required research project designed to integrate core graduate course work and clinical experiences)
2. Twenty credits of clinical experience (including a capstone clinical experience incorporating all preceding didactic and clinical content)
3. Two elective courses (4-8 credits total)

Program Requirements

Students in the MPT program must be enrolled full-time and complete six semesters, including all courses listed in the following sequence.

MPT Curriculum

Spring Year I

- HSC 538 Life Span Development (4 credits)
- HSC 542 Functional Anatomy for Physical Therapists (3 credits)
- HSC 550 Physical Therapy Theory and Practice I (3 credits)
- HSC 562 Physical Therapy Interactions I (3 credits)
- HSC 592 Physical Therapy Scientific Inquiry (3 credits)

Summer Year I

- HSC 552 Physical Therapy Theory and Practice II (3 credits)
- HSC 560 Interdisciplinary Team Development (3 credits)
- HSC 564 Physical Therapy Interactions II (2 credits)
- HSC 566 Physical Therapy Interactions III (2 credits)
- HSC 580 Physical Therapy Clinical Seminar I (1 credit)
- HSC 583 Physical Therapy Professional Issues in Clinical Education I (1 credit)
- HSC 590 Physical Therapy Organization, Administration, and Management I (2 credits)

Fall Year I

- HSC 554 Physical Therapy Theory and Practice III (3 credits)
- HSC 572 Physical Therapy Management of Complex Conditions I (5 credits)
- HSC 574 Physical Therapy Management of Complex Conditions II (5 credits)
- HSC 582 Physical Therapy Clinical Seminar II (1 credit)
- HSC 585 Physical Therapy Professional Issues in Clinical Education II (1 credit)
- HSC 598 Special Topics in Physical Therapy Research—Master's Capstone Project (1 credit)

Spring Year II

- HSC 586 Applied Physical Therapy I (10 credits)

Summer Year II

- HSC 556 Physical Therapy Theory and Practice IV (3 credits)
- HSC 576 Physical Therapy Management of Complex Conditions III (5 credits)
- HSC 584 Physical Therapy Clinical Seminar III (1 credit)
- HSC 587 Physical Therapy Professional Issues in Clinical Education III (1 credit)
- HSC 593 Organization, Administration & Management II (1 credit)
- HSC 598 Special Topics in Physical Therapy Research – Master's Capstone Project (1 credit)

Fall Year II

- HSC 588 Applied Physical Therapy II—Capstone Clinical Education Experience (10 credits)
- HSC 598 Special Topics in Physical Therapy Research—Master's Capstone Project (1 credit)

Note: Students must complete two elective courses during the MPT program

Elective Course Requirements

In addition to the MPT courses described above, students are required to take two graduate courses external to the MPT curriculum during the professional program.

Master of Public Health

Department of Management and Labor Relations

Ahuja Hall 433
(216) 523-7232 or (216) 687-4711
E-mail: mph@csuohio.edu or
pubhlth@neoucom.edu
www.neoucom.edu/MPH/index.html

Brenda Stevenson Marshall, Director

The Faculty

Current faculty information can be located on the Master of Public Health Web site.

Program Description

The Master of Public Health (MPH) at Cleveland State University is part of the Consortium of Eastern Ohio Master of Public Health (CEOMPH) program. The CEOMPH is a multidisciplinary, inter-departmental, and Inter-institutional program that provides opportunities for graduate studies in public health. Although the MPH degree is awarded by Cleveland State University, the MPH program is partnership-based. The six partners are Cleveland State University, the Northeastern Ohio Universities College of Medicine (NEOUCOM), Youngstown State University, Kent State University, Ohio University, and the University of Akron. The program is accredited by the Council on Education for Public Health (CEPH).

The mission of the program is to enhance the health and well being of the community by providing an educational program that fosters collaboration among the participating academic institutions, students, public health practitioners, and the public health system. The program prepares graduates in the knowledge, skills, and analytic capabilities required to improve the health of diverse populations at the local, state, and national levels via community practice, research, and service.

Admission Information

In addition to meeting Cleveland State University College of Graduate Studies admission requirements, applicants must meet the following criteria:

1. Applicants must have successfully completed a college-level mathematics or statistics course, and a college social science or natural science course.
2. Applicants must have acceptable GRE scores within the last five years. The GRE requirements may be waived if the applicant has a professional degree (master's or doctorate) in a related area.
3. The TOEFL is required of applicants from countries where English is not the language of instruction in their college/university studies; the minimum required score is 550 for the paper-based examination and 213 for the computer based examination.
4. Two years of work experience in a relevant field is highly recommended.
5. The applicant must provide three letters of recommendation from individuals familiar with his or her academic or professional background. If the bachelor's degree was earned more than two years prior to application to the program, an applicant may submit letters of recommendation by supervisors from his or her place of employment. The letters should include an assessment of the applicant's work quality and ability to successfully complete a graduate degree.

The application deadline is January 15. Students are admitted fall semester only. Applicants must submit the special Eastern Ohio Universities Master of Public Health application form, a \$35 non-refundable application fee, and all admission materials to the MPH Admissions Committee (see address below). **The special application form is available at www.neoucom.edu/MPH.** The MPH admissions committee reviews application materials and forwards files to the Cleveland State MPH Program Director. The Director submits files and admission recommendations to the Cleveland State Graduate Admissions Office. Applicants are encouraged to review the admission requirements on the MPH Web site prior to submitting their application materials. Submit application materials to:

MPH Admissions Committee
CEOUCOM, Division of Community Health Sciences, 4509 State Route 44, PO Box 95, Rootstown, OH 44272.

Degree Requirements

The curriculum consists of six core courses that students take as a cohort. In addition, one grant project, a capstone project, a portfolio, and an exit presentation are required. The MPH is structured as a weekend program with the core courses scheduled on Saturdays from 9 a.m. to noon and from 1-4 p.m. Alternate scheduling will be considered to accommodate students with special circumstances.

Students may take the core courses at any one of the distance-learning classrooms at any one of the partner universities. Electives may be taken at any time during the program. Students may select electives from a list of approved courses offered by the partner universities. If the student is interested in an elective that is not on the approved list, an Elective Approval Form must be submitted along with a course syllabus for review by the NEOUMPH curriculum committee.

Students are assigned an advisor upon entering the program. The advisor offers guidance on choosing electives appropriate to the student's career goals and interests. Students must maintain a minimum grade-point average of 3.0 to remain in the program.

Total requirements for the degree: 39 credits

Core courses (24 credits)

- MPH 601 Public Health Concepts (3 credits)
- MPH 602 Social and Behavioral Sciences in Public Health (3 credits)
- MPH 603 Epidemiology in Public Health (3 credits)
- MPH 604 Biostatistics in Public Health (3 credits)
- MPH 605 Health Services Administration in Public Health (3 credits)
- MPH 606 Environmental Health Sciences in Public Health (3 credits)
- MPH 696 Public Health Practicum (3-6 credits)
- MPH 697 Public Health Capstone Project (3-6 credits)

Electives (15 to 18 credits)

Master of Arts in Speech Pathology and Audiology

Department of Speech and Hearing

Main Classroom 430
(216) 687-3807
www.csuohio.edu/speech/programs/graduate.html

Steve Slane, Interim Chair
Monica Gordon Pershey, Graduate Program Director

The Faculty

Current faculty information can be located on the Department of Speech and Hearing Web site.

Introduction

The Master of Arts degree program in Speech Pathology provides students with the necessary clinical and academic expertise to function in varied clinical, teaching, and research positions. The department maintains an active, nationally accredited, speech-language and hearing clinic and has student-training liaisons with many hospitals, clinics, and schools in the Greater Cleveland area. The graduate academic program holds accreditation from the Council on Academic Accreditation (CAA) of the American Speech-Language-Hearing Association (ASHA).

Faculty Research and Publications

Faculty members are active in a wide variety of research areas and their research findings are published in international and national scholarly journals. The program features state-of-the-art facilities for research, instruction, and service delivery. Graduate students are encouraged to pursue independent research by completing a master's thesis.

Financial Assistance

The department offers graduate research and teaching assistantships from both University and grant support. Any student interested in applying for a graduate assistantship should so indicate on the Application for Graduate

Admission. Please refer to the section on Expenses and Financial Aid: Graduate Assistantships in this Catalog.

Career Information

Graduates of the program meet the requirements for ASHA certification and licensure. Graduates hold positions in public schools, hospitals, community clinics, and nursing homes. Increasingly, experienced speech-language pathologists are establishing themselves as private practitioners. Program graduates also may elect to pursue a doctorate at another university to seek employment at a university or research facility.

Admission Information

Admittance into the program is limited by the capacity of the department to provide needed supervised clinical experience in multiple settings. Because admission is selective, not all applicants who meet the minimum requirements for College of Graduate Studies admission can be accepted.

Applicants for admission are required to submit the results of the Graduate Record Examination (GRE) or Miller Analogies Test (MAT) and two letters of recommendation from individuals who are familiar with their undergraduate academic and/or clinical performance.

Although an undergraduate major in communication disorders is not required for admission to the program, students whose major is not communication disorders must complete six undergraduate courses before admission is possible. These courses are SPH 228—Phonetics, SPH 229—Speech and Language Development, SPH 231—Introduction to Communication Disorders, SPH 232—Introduction to Audiology, SPH 353—Clinical Methods in Communication Disorders, and SPH 351—Anatomy and Physiology of the Speech and Hearing Mechanism. Two additional undergraduate courses or their equivalents are required for ASHA certification and must be completed by master's candidates who have not previously taken these courses. These are SPH 485—Speech and Hearing Science and SPH 481—Aural Rehabilitation.

The application deadline is March 1. Submit the Application for Graduate Admission, the \$30 application fee, and all admission materials (official transcripts, official test scores, and letters of recommendation) to the Graduate Admissions Office. An optional statement of interest also may be submitted.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements

1. Students must earn a 3.0 grade-point average or higher in all required graduate courses, including any required graduate course(s) taken as a non-degree student.
2. Students must fulfill the course of study approved by their advisor.
3. Students must complete a minimum 375 of supervised clinical hours of direct client/patient contact plus twenty-five hours of clinic observation.
4. Students must successfully complete the following courses:

SPH 510 Fundamentals of Research and Design (3 credits)
 SPH 522 Diagnostic Methods (3 credits)
 SPH 524 Motor Speech Disorders/Dysphagia (3 credits)
 SPH 532 Voice and Resonance Disorders (4 credits)
 SPH 533 Neurogenic Communication Disorders (4 credits)
 SPH 537 Fluency Disorders (3 credits)
 SPH 539 Advanced Practicum in Speech-Language Pathology (1-3 credits)
 SPH 561 Phonological and Articulatory Disorders (3 credits)
 SPH 562 Advanced Language Disorders (4 credits)
 SPH 564 Behavioral Neurology for Communication Disorders (3 credits)
 SPH 586 Practicum in Audiology or SPH 589 Practicum in Aural Rehabilitation (1 credit each)
 SPH 591 Comprehensive Examination (3 credits), or SPH 599 Thesis (1-3 credits)

Students also must complete a minimum of two credit hours from the following courses:

- SPH 525 Augmentative Communication (2 credits)
 - SPH 526 Medical Speech-Language Pathology (2 credits)
5. Students must successfully complete either a comprehensive examination or a master's thesis. A maximum of four credits may be counted toward the master's thesis. (See Exit Requirements)
 6. Students seeking Ohio certification as a public school speech-and-language pathologist must enroll in student teaching during their graduate study program. Approval for Ohio certification will be withheld until the successful completion of the master's program. (See EST 575 Practicum in Speech and Hearing Therapy, which is offered by the College of Education.) Three courses (ESE 402/502—Introduction to Mild/Moderate Disabilities, SPH 435—Organization and Administration of a Public School Speech and Hearing Program, and SPH 438/594—Dialect Difference in the Schools) must also be completed.

Exit Requirements

The department offers both a thesis and a comprehensive examination option. Students interested in pursuing a thesis must first complete an independent study with a graduate faculty member who is interested in directing the thesis. The thesis can begin upon completion of at least eight credit hours of graduate study plus the independent study preparatory to the thesis. The student must have a minimum 3.3 grade-point average in order to obtain approval for the thesis proposal. The student selects a committee that is composed of at least three graduate faculty members, including the chair and at least two other members. After the student's thesis proposal is approved, he or she carries out the study with the support of the thesis committee. Upon acceptance of the completed thesis by the committee, the student is awarded the Master of Arts degree, provided all other academic and clinical requirements have been met.

Students electing to write a comprehensive examination in place of a thesis must have successfully completed at least twenty-four credit hours of graduate study with a minimum 3.0 grade-point average. The comprehensive examination consists of essay questions. Students must register for SPH 591

Comprehensive Examination with the permission of their advisor.

Curriculum Structure

In planning a curriculum leading to a Master of Arts degree in Speech Pathology and Audiology, a student must satisfy the specific requirements established by the American Speech-Language-Hearing Association (ASHA). These requirements partially fulfill the criteria leading toward the Certificate of Clinical Competence (CCC) in speech-language pathology. In addition, a student must satisfy the specific requirements established by the State of Ohio Board of Speech Pathology and Audiology for State of Ohio Licensing in Speech-Language Pathology. Students must meet with their assigned advisors to ensure that all clinical and academic requirements for national certification and state licensure are fulfilled by the time they plan to complete their program of study.

Specific ASHA Guidelines

1. Students must earn at least seventy-five credit hours that reflect a well-integrated program of study regarding:
 - a) biological/physical sciences and mathematics;
 - b) behavioral and/or social sciences, including normal aspects of human behavior and communication; and
 - c) the nature, prevention, evaluation, and treatment of speech, language, hearing, and related disorders. All areas of academic course work must address issues pertaining to normal and abnormal human development and behavior across the life span and for culturally diverse populations. These seventy-five credit hours reflect the forty-one credits required for the Master of Arts in Speech Pathology and Audiology plus relevant course-work taken at the bachelor and post-baccalaureate levels. At least twenty-seven of the seventy-five credit hours must be in Basic Science course work, with a minimum of six credit hours in the biological/physical sciences and mathematics, and six credit hours in behavioral and/or social sciences. At least fifteen credit hours must be in basic human communication processes, including course work in each of the following three areas of speech, language, and hearing:
 - a) the anatomic and physiologic bases;
 - b) the physical and psychophysical bases; and
 - c) the linguistic and psycholinguistic aspects.

2. The student must earn at least forty-one credit hours in courses that concern the nature, prevention, evaluation, and treatment of speech, language, and hearing disorders. In accordance with the 2005 Council on Academic Accreditation Standards, students must demonstrate all clinical competencies as defined by the department.
3. A maximum of six credit hours associated with clinical practicum may be counted toward the minimum forty-one credit hours of professional course work.
4. Students must complete at least twenty-five clinical clock hours of supervised observation prior to beginning the initial clinical practicum. All supervision must be provided by an individual who holds a Certificate of Clinical Competence in the appropriate area of practice.
5. The student must submit evidence of the completion of a minimum of 400 supervised clinical clock hours of which at least 375 hours must be in direct client/patient contact. The department requires that students whose major is speech-language pathology must have completed the following supervised clinical hours at a minimum of three sites:
 - a. twenty clinical hours each in the evaluation of speech disorders in children and speech disorders in adults;
 - b. twenty clinical hours each in the evaluation of language disorders in children and language disorders in adults;
 - c. twenty clinical hours each in the treatment of speech disorders in children and speech disorders in adults;
 - d. twenty clinical hours each in the treatment of language disorders in children and language disorders in adults;
 - e. a minimum of twenty clinical hours in audiology with experience in both screening and aural rehabilitation.

Students must demonstrate clinical competencies across the life span as indicated by ASHA in the following "big nine" areas: Articulation, Fluency, Voice and Resonance, Receptive and Expressive Language, Hearing, Swallowing, Cognitive Aspects of Communication, Social Aspects of Communication, and Communication Modalities/Augmentative/Alternative Communication Systems.

Natural Sciences and Mathematics

Biology ■

Ph.D. in Regulatory Biology

MS in Regulatory Biology

Chemistry ■

Ph.D.

MS

Environmental Science ■

Mathematics ■

Physics ■

[JD/MS in Environmental Science Program \(06/2007\)](#) ■

Doctor of Philosophy in **Regulatory Biology**

A joint program with The Cleveland Clinic Foundation

Master of Science in **Biology**

Department of Biological, Geological, and Environmental Sciences

Science Building Room 219
(216) 687-2440
<http://web.bges.csuohio.edu/>

Michael Gates, Chair
Jeffrey Dean, Graduate Program Director

The Faculty

Current faculty information can be located on the Department Web site.

Graduate Programs

The Department of Biological, Geological, and Environmental Sciences (BGES) offers programs of course work and research leading to the Master of Science degree in Biology, the Master of Science degree in Environmental Science, and the Doctor of Philosophy in Regulatory Biology. The Doctor of Philosophy may include an optional Molecular Medicine Specialization. These programs are open to full-time and part-time students.

Department faculty and staff members of The Lerner Research Institute (LRI) of The Cleveland Clinic Foundation (CCF) work in cooperation to offer graduate training in a broad range of biological sciences. For example, molecular and cell biologists at both Cleveland State and the LRI study regulation of signal transduction and gene transcription in cell division, programmed cell death, and cell differentiation in the context of normal development and disease states that include cancer, cardiovascular disease, and autoimmune and neurological disorders. Other Cleveland State faculty participate in several programs focusing on local ecological and environmental issues that provide opportunities for graduate research. These include the Cuyahoga River Watershed Project and the OhioView consortium on remote sensing.

As a joint venture with the Cleveland Clinic's Lerner Research Institute, the doctoral program provides a unique opportunity for students to conduct research at one of the nation's top medical-research institutes. The Research Institute is directly connected to the medical facilities of the CCF, enabling basic-research scientists to address clinically relevant research questions, collaborate with medical practitioners, and utilize clinical material for research. The optional Molecular Medicine Specialization is designed to capitalize on this resource.

Facilities

Departmental facilities include a large animal-care facility, cold rooms, dark-rooms, fluorescent and light microscopes, environmental chambers, a greenhouse, and an assortment of computers with Internet access. The department also utilizes the newly established DNA Sequencing Facility and space in field stations in the Cuyahoga Valley National Park and in Belize. Most CCF faculty are located in the new Research and Education Building of The Lerner Research Institute, with its state-of-the-art facilities, including a vivarium and core facilities for biotechnology, transgenic mice, flow cytometry, microscopy, protein sequencing, and hybridoma work.

Career Information

Graduates are employed in research, teaching, and administrative positions in private industry, hospitals, governmental agencies, environmental action groups, and colleges and universities in the Cleveland area, throughout the United States and abroad. The graduate program also attracts established teachers, research scientists, and management and staff in diverse businesses with a biological or biomedical focus. The graduate program is open to full-time and part-time students as well as to non-degree students who are preparing themselves for entry into degree programs or are seeking to keep abreast of new developments in their fields of interest.

Admission Requirements

Applicants must meet College of Graduate Studies admission requirements regarding grade-point average, Graduate Record Examination (GRE) scores, and TOEFL results. Applicants must have submitted official transcripts for all undergraduate and any previous graduate study, the GRE General Test scores, two letters of recommendation, and a statement of personal career goals and research interests. Applicants whose native language is not English must demonstrate English-language proficiency by submitting official scores for the TOEFL, the Michigan Test, or an equivalent examination, unless they hold a degree from a U.S. institution. (See the section on International Students in this Catalog.)

Applicants must have completed a minimum of one semester of statistics or calculus, one semester of organic chemistry, one semester of physics, and have a strong background in biology that is essentially equivalent to the Cleveland State undergraduate core curriculum. Questions should be directed to the BGES Graduate Program Director.

Submit application materials to the Graduate Admissions Office (U.S. citizens and permanent residents) or the Center for International Services and Programs (international applicants and current visa holders).

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Graduate Assistantships/ Fellowships

Full-time graduate students pursuing thesis or dissertation research may be supported through teaching assistantships or fellowships by the department for a period that, as a rule, should not exceed three years for the MS or five years for the Ph.D. This support

includes tuition and a stipend. Full-time teaching assistants are expected to work twenty hours per week and must enroll as full-time students (currently nine credit hours, including research credits). Research assistantships may be available through the research grants of individual faculty. A limited number of graduate tuition waivers, which carry a service requirement of ten hours of work per week, may be awarded to students with superior credentials, as funds are available. Requests for assistantships should be indicated on the Application for Graduate Admission or by letter to the BGES Graduate Program Director. Awards are competitive, based on all application materials. Initial decisions usually are made based on completed applications on hand in March for fall semester and, if assistantships are available, in November for spring semester. Required minimums for grade-point average, GRE scores, and TOEFL score are higher than those for admission to the program. In order to hold a teaching assistantship, non-native, English-speaking teaching assistants must be assessed and certified as proficient in spoken English.

Cleveland State/Cleveland Clinic Molecular Medicine Specialization (See Addenda Effective Fall 2006)

Depending on their research interests, applicants to the Ph.D. program may wish to consider participation in the Molecular Medicine Specialization, an interdisciplinary initiative linking the resources of the three Cleveland State/ Cleveland Clinic joint Ph.D. programs: Regulatory Biology, Clinical-Bioanalytical Chemistry, and Applied Biomedical Engineering. Together, these units provide unparalleled opportunities for faculty, students, and staff. The Molecular Medicine Specialization is not an independent academic program and does not replace existing doctoral programs. BGES students must fulfill the requirements for the Ph.D. in Regulatory Biology.

The Molecular Medicine Specialization forms a logical interface to coordinate collective efforts of existing programs in four ways: 1) by creating a significant presence in the challenging and exciting new area of Molecular Medicine; 2) by establishing a critical mass of researchers around a topic of national scientific and applied medical interest; 3) by realizing the commitment of Cleveland State and CCF in their long-standing collaboration to become

major contributors in biomedical engineering and biomedical technology; and 4) by expanding the existing doctoral programs beyond their present state of development. As part of its contribution to these efforts, the Molecular Medicine Specialization makes available several graduate assistantships to allow outstanding candidates to concentrate on their research for two years. Additional details can be obtained from the BGES Graduate Program Director or from the Director of the Molecular Medicine Specialization.

Common Degree Requirements

Before registering for courses, all newly admitted students must meet with the BGES Graduate Program Director. All students are required to enroll in the BGES Graduate Orientation course (BIO 500) and to attend departmental seminars. Students also must comply with all College of Graduate Studies requirements and procedures.

Minimum grade-point averages exist for particular degree options, as described below. A student who receives two grades of B– or one grade of C or below is subject to review by the BGES Graduate Committee; dismissal from the Biology graduate program may be recommended. Complete, current program requirements and any changes are described in the BGES Graduate Program Handbook, available from the BGES Graduate Program Office.

Doctor of Philosophy Degree in Regulatory Biology

The Ph.D. program provides a comprehensive background in biological science with a focus on regulation in biological systems ranging from the molecular to the ecosystem level. Cleveland State University and The Cleveland Clinic Foundation offer the program jointly. Besides course work, a comprehensive exam, and teaching experience, the degree requires a written dissertation, based on original scientific research of sufficient quality for publication in a peer-reviewed scientific journal.

Requirements

1. Selection of a Major Advisor and an Advisory Committee. The Major Advisor typically is the primary supervisor and source of support for the student's dissertation research. Together, the Major Advisor and Advisory Committee supervise the student's plan of study and research

proposal, monitor the student's progress, certify that requirements have been met in a timely fashion, and process all petitions, progress reports, and other communications with the BGES Graduate Committee.

2. Completion of a minimum of 90 credit hours with a minimum grade-point average of 3.0 distributed as follows:

a. Total course work and research

Courses (minimum) 32 credits
Research (minimum) 40 credits
Additional courses or research 18 credits

Total minimum 90 credits

b. Required courses: Each Ph.D. student must complete BIO 700 and BIO 702 (Graduate Orientation), BIO 704 (Biological Chemistry), BIO 740 (Biostatistics) or an equivalent graduate statistics course, and BIO 784 (Writing and Editing Grant Proposals) or an equivalent.

c. Seminars: Each Ph.D. student must complete at least four seminar courses (BIO 888) and complete two credits of BIO 884 (Research Seminar).

d. Remaining courses: Each Ph.D. student formulates an individual plan of study in consultation with the Major Advisor and the Advisory Committee. This includes areas of course-work concentration as well as any additional elective courses needed to fulfill degree requirements described above.

e. Research: The student's individual research project should be of sufficient quality to be published in a refereed scientific journal.

3. Satisfactory fulfillment of a teaching requirement consisting of the following:

a. Two one-hour lectures under the supervision of a professor in (preferably) one introductory and one advanced course.
b. Service as a teaching assistant is not required, but such service in one lower-division and one upper-division laboratory is strongly recommended for students pursuing an academic career.

4. Admission to candidacy. Satisfactory completion of the Doctoral Candidacy Examination admits the student to candidacy for the Ph.D. This oral examination takes as its point of departure an original research grant proposal written by the student in the general area of the student's research. The intent of the examination is to provide a fair appraisal of the student's general knowledge and understanding of biology and in-depth knowledge of the areas relevant to the student's

doctoral research and cognate areas indicated by the student's course work and plan of study. Additional study or course work may be required as a result of this examination. Two unsuccessful attempts to pass this examination shall result in a recommendation for dismissal from the program.

5. Completion of at least one year (i.e., three consecutive terms) in residence as a full-time student (as defined by the University) after admission to candidacy. Degree candidates must be continuously enrolled for a minimum of one credit hour from admission to candidacy until graduation.
6. Exit requirements:
 - a. Presentation of the dissertation research at a departmental seminar.
 - b. Defense of the dissertation before a faculty committee. Two unsuccessful attempts to defend the dissertation shall result in a recommendation for dismissal from the program.
 - c. Submission of the approved dissertation together with an article or manuscript based on the dissertation, in a format suitable for submission to a refereed scientific journal.

Master of Science Degree in Biology

The Master of Science degree may be earned through either a thesis or a non-thesis program. A student will be admitted to candidacy when the following requirements are met:

1. Deficiencies in undergraduate preparation are satisfied.
2. Eight graduate hours of course work are completed with a grade-point average of 3.0 or better.
3. A plan of study and, for the thesis option, the research proposal are approved by the Advisory Committee and accepted by the Graduate Committee, and the Cleveland State Thesis Proposal Approval Form is submitted to and approved by the Dean of the College of Graduate Studies.

Thesis Option

Besides course work, the degree requires a thesis, based on original scientific research of sufficient quality for publication in a peer-reviewed scientific journal.

Requirements

1. Selection of a Major Advisor and an Advisory Committee. The Major Advisor typically is the primary supervisor and source of support for

the student's thesis research. Together, the Major Advisor and Advisory Committee supervise the student's plan of study and research proposal, monitor progress, certify that requirements have been met in a timely fashion, and process all petitions, progress reports, and other communications with the Graduate Committee.

2. Completion of a minimum of 32 credit hours with a minimum grade-point average of 3.0 distributed as follows:

a. Total course work and research	
Courses (minimum)	23 credits
Research (minimum)	8 credits
Additional courses or research	1 credit
Total minimum*	32 credits

*College of Graduate Studies regulations specify that all BIO courses must be 500-level or above; not more than seven credit hours of 400-level courses in related areas and not offered by the BGES Department may be included, if approved by the Advisory Committee and the BGES Graduate Committee.

- b. Required courses:** Each student must complete BIO 500 and BIO 502 (Graduate Orientation), BIO 504 (Biological Chemistry), and BIO 540 (Biostatistics) or an equivalent college statistics course.
- c. Seminars:** Each MS student must complete at least three seminar courses (BIO 688) and complete one credit of BIO 684 (Research Seminar).
- d. Remaining courses:** Each student formulates an individual plan of study in consultation with the Major Advisor and the Advisory Committee. This includes areas of course-work concentration as well as any additional elective courses needed to fulfill degree requirements described above.
- e. Thesis research:** The student's individual research project should be of sufficient quality to be published in a refereed scientific journal.

3. Continuous enrollment for a minimum of one credit hour from admission to candidacy until graduation.

4. Exit Requirements:

- a. Presentation of the thesis research at a departmental seminar.
- b. Defense of the thesis before a faculty committee. Two unsuccessful attempts to defend the thesis shall result in a recommendation for dismissal from the program.

- c. Submission of the approved thesis together with an article or manuscript, based on the thesis, in a format suitable for submission to a refereed scientific journal.

Non-Thesis Option

Students in the non-thesis option may earn the MS degree in Biology by completing a minimum of 32 credit hours of course work and passing a comprehensive examination, based on a Library Research Paper, containing a critical review of original scientific literature on a topic chosen by the student. The Graduate Program Director serves as the Advisor.

Requirements

1. Completion of a minimum of 32 credit hours with a minimum grade-point average of 3.2 distributed as follows:

a. Total course work*	32 credits
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*May not include research credits (e.g., BIO 691 or BIO 695) or BIO/EVS courses below the 500-level; not more than seven credit hours of 400-level courses in related areas and not offered by the BGES Department may be included, if approved by the Advisor and the BGES Graduate Committee.

- b. Required courses:** Each MS student must complete BIO 500 (Graduate Orientation), BIO 504 (Biological Chemistry), BIO 690 (see Exit requirements), and a course in statistics if not previously taken.

- c. Seminars:** Each MS student must complete at least three seminar courses (BIO 688) and complete one credit of BIO 684 (Research Seminar).

- d. Remaining courses:** Each MS student formulates an individual plan of study in consultation with the Graduate Program Director. This includes areas of course-work concentration, as well as any additional elective courses needed to fulfill degree requirements described above.

2. Exit requirements:

- a. Selection of an Examining Committee to supervise the Library Research Paper.
- b. Successful completion of the comprehensive examination (BIO 690) by presenting and defending the Library Research Paper before the Examining Committee. Two unsuccessful attempts to pass the comprehensive examination shall result in a recommendation for dismissal from the program.

Doctor of Philosophy in

Clinical-Bioanalytical Chemistry

A joint program with the Cleveland Clinic Foundation

Master of Science in

Chemistry

Department of Chemistry

Science and Research 397
(216) 687-2451
www.csuohio.edu/chemistry

Lily Ng, Chair Yan Xu, Graduate Program
Director

The Faculty

Current faculty information can be located on
the Department of Chemistry Web site.

Introduction

The Ph.D. program in Clinical/Bioanalytical Chemistry is offered jointly by Cleveland State University and the Lerner Research Institute of The Cleveland Clinic Foundation (CCF). The program is also affiliated with the Rammelkamp Center for Education and Research of the MetroHealth Medical Center of Cleveland. This unique program attracts students from all over the world. Clinical/Bioanalytical Chemistry applies the knowledge of chemistry and, in particular, chemical analysis to the study of the origins and diagnoses of diseases. Graduates of this Ph.D. program are employed in many clinical-bioanalytical settings. They become directors of clinical laboratories and research scientists in biomedical and biotechnology fields, in *in vitro* diagnostics, in reference and analytical laboratories, in academic institutions, and in many other settings. Because of the concentration of chemical, medical, and related industries and institutions in the Cleveland area, many graduates of this program have found fulfilling positions locally. Others have selected employment outside of the Cleveland area, including employment outside of the United States. Chemists with advanced degrees generally have a variety of career opportunities, and Cleveland State graduates are no exception.

The program has outstanding faculty with whom students conduct their dissertation research. Students have the opportunity to do research with faculty and research scientists at Cleveland State, The Cleveland Clinic Foundation, and other medical centers. The program has more than fifty faculty members who have a broad range of research interests in disease mechanism and diagnosis, bioanalytical chemistry, biomedicine, and molecular biology. State-of-the-art facilities and advanced bioanalytical technologies are available to students in the program, including (but not limited to) mass spectrometry (including MALDI-TOF and LC-ESI-triple quadrupole MS, LC-ESI-ion-trap MS), HPLC, conventional and capillary electrophoresis, immunoassays, ultracentrifugation, NMR, EPR, FTIR, absorption spectroscopy, spectrofluorometry, X-ray crystallography, molecular biology techniques, and computational chemistry and chemical imaging techniques.

Clinical Chemistry Specialization:

The doctoral degree with a Clinical Chemistry Specialization is an internationally recognized program that examines the origins, mechanisms, and diagnosis of disease. Students who complete the program may obtain certification from the American Board of Clinical Chemistry after appropriate work experience and upon successful completion of the certification examination. This program is the only doctoral program in the United States accredited by the Commission on Accreditation in Clinical Chemistry. The Clinical Chemistry Ph.D. specialization is also an option within the Molecular Medicine Ph.D. specialization for students in both programs. It is the responsibility of the Director of the Clinical Chemistry program to certify that doctoral students in the clinical chemistry specialization have completed the necessary course and research requirements for professional certification. All recipients of the Ph.D. degree with clinical chemistry specialization are strongly urged to take, following graduation, the examination offered for certification by the American Board of Clinical Chemistry.

Molecular Medicine Ph.D. Program: (See Addenda Effective Fall 2006)

The doctoral degree with a Molecular Medicine Specialization (MMS) is an umbrella program within the three Cleveland State/Cleveland Clinic doctoral programs in Regulatory Biology, Clinical/Bioanalytical Chemistry, and Applied Biomedical Engineering, and is administered outside of the Chemistry Department. Depending on their research interests, applicants to the Clinical/Bioanalytical Chemistry Ph.D. program can participate in the Molecular Medicine Specialization through the completion of the required core curriculum and participation in research in molecular medicine. For additional information, visit the MMS Web site at www.csuohio.edu/mms/.

MS Program in Chemistry:

The Master of Science degree in chemistry is designed for both full-time and part-time students. It provides advanced training for those who wish to further their careers in industry, laboratory medicine, or teaching, as well as students who feel the need for more study before pursuing a Ph.D. or MD. Graduate course offerings are scheduled in the evening so employed students can earn the degree on a part-time basis, taking one or two courses per semester. Graduate training at the MS level is offered in analytical, clinical, inorganic, organic, physical, and environmental chemistry. The MS degree in the area of clinical chemistry includes practical training in the dynamics of operating modern, well-equipped medical laboratories. The MS program in chemistry offers both thesis and non-thesis options, except in the area of clinical chemistry, which is a course-work-only program.

Student and Faculty Research Examples

Ph.D. dissertation title examples:

- High-Performance Ion-Exchange Chromatography of Fibrinogen and Fibrinogen Degradation Products: Domain Binding Model; Development of Ionic Focusing HPLC: Improved Gradient Techniques

- *Synthetic and Structural Studies of Selected Gallium, Indium, Vanadium, and Hafnium Coordination Compounds*
- *Analysis of DNA Using MALDI-TOF Mass Spectrometry*
- *Fluorometric Detection of Biological S-Nitrosothiols*
- *Molecular Modeling Studies of Peptide and Protein Systems*
- *Development of Capillary Electrophoretic Enzyme Immunoassay and Enzyme Microassay*
- *Development of LC/MS Methods for the PK & PD Studies of Drugs*
- *Mass Spectrometric Studies of the Inhibition of SHV-1 Beta-Lactamases*
- *Structural Studies of Integrin Mediated Signaling by NMR*

Financial Assistance

Graduate assistantships are available on a competitive basis. They include tuition support and a stipend during the academic year. Students who are awarded teaching assistantships are required to teach classes. After two consecutive semesters of teaching, students holding teaching assistantships may be eligible for a summer term of financial support. Non-native English-speaking students who are awarded teaching assistantships may not be assigned direct instructional activities until they have been assessed and certified as proficient in spoken English.

Research assistantships also are available, depending on external funding.

Career Information

Graduates of the Ph.D. program go on to a variety of professional positions in the clinical-bioanalytical field, some pursuing postdoctoral studies before obtaining their first professional position. Examples of positions held by Ph.D. graduates include:

- Director, SmithKline Beecham Reference Laboratory
- Vice President, Operations/Quality Assurance, Laboratory Corporation of America
- Research Scientist, Boehringer Mannheim
- Director, St. Thomas Hospital Laboratory
- Postdoctoral Fellow, Lerner Research Institute, The Cleveland Clinic Foundation

- Postdoctoral Fellow, National Institutes of Health
- Postdoctoral Fellow in Clinical Chemistry, Mayo Clinic Foundation
- Director, Lipid/Lipoprotein Laboratory, Mayo Clinic Foundation
- Group Leader, Lederle Pharmaceutical
- Associate Professor, Old Dominion University
- Associate Professor, Harvard Medical School
- Research Scientist, Amgen
- Associate Professor, Medical Technology, University of Wisconsin
- President, Medical Specialties, Inc.
- Associate Professor, Center for Macromolecular Crystallography, University of Alabama
- Postdoctoral Fellow, Genentech, Inc.
- President, Alpha Omega Chemical Co.
- Associate Director, Bioanalytical R&D, Wyeth Research
- Vice President, Quality and Business Effectiveness, Quest Diagnostics
- Contract Projects Officer, U.S. Department of Agriculture

Admission Information

Students who wish to enter the Clinical/Bioanalytical Ph.D. program must meet the requirements of the College of Graduate Studies and Department of Chemistry for admission to the chemistry graduate program as detailed below.

In addition to meeting the College of Graduate Studies requirements for admission, applicants for graduate study (Master's and Ph.D.) in chemistry must have had one year of general, organic, analytical, and physical chemistry; a year of physics; and mathematics through partial derivatives and multiple integrals. Applicants lacking any of these requirements may be admitted, but any deficiency must be made up as soon as possible. Credits earned in remedial courses do not count toward degree requirements.

Typically, chemistry applicants are required to submit an official report of their performance on both the aptitude and chemistry subject area tests from the Graduate Record Examination (GRE) to the University by the Educational Testing Service (ETS). However, applicants with outstanding records (grade-point average above 3.0 in addition to other evidence of solid preparation) may request that this requirement be waived by the Graduate

Committee of the Chemistry Department. However, the GRE requirement cannot be waived for international students. International students who do not have a degree from an institution in the United States must also arrange to have the results of their performance on the TOEFL sent to the University by ETS.

The application deadline each year is January 15. Submit all materials to the Graduate Admissions Office, Rhodes Tower West, Room 204. (International applicants submit materials to the Center for International Services and Programs, University Center, Room 302).

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time is longer for paper application forms.

Placement Examinations

All full-time students admitted into the chemistry graduate program are required to take four placement examinations: Physical Chemistry, Organic Chemistry, Analytical Chemistry, and Inorganic or Biochemistry. The purpose of these examinations is to evaluate students' undergraduate preparation. If the results indicate that a student has a deficiency in his or her undergraduate background, the student may be required to take appropriate course work to remedy that deficiency. This remedial course work is determined in a joint decision by the director of the Chemistry graduate program and the coordinator of the area of chemistry in which the student is deficient.

Part-time students admitted into the program are required to take the appropriate placement examination before registering for a graduate course. For non-degree students, the instructor of the graduate course decides whether the student needs to take the appropriate placement examination before being admitted into the course.

Students who do not have the required undergraduate background may be admitted conditionally and are required to follow the above guidelines for placement examinations.

Ph.D. Candidacy

Chemistry graduate students who have completed at least twenty credit hours of graduate study with a cumulative grade-point average of at least 3.0 may take the examination for Ph.D. candidacy. The examination consists of the preparation of an acceptable, written, fully referenced proposal, describing

the student's research plans and an oral presentation and committee examination. Successful performance in the candidacy examination qualifies the student to be a Ph.D. candidate in Clinical/Bioanalytical Chemistry.

Ph.D. Degree Completion Requirements

Clinical/Bioanalytical Chemistry Ph.D. students are required to complete at least twenty-eight credit hours of graduate courses (separate from Ph.D. Dissertation credits) with at least one course from each of three broadly defined areas of chemistry and at least two credit hours in a Chemistry Seminar. Other courses and/or more than twenty-eight credit hours of course work may be required by the student's advisor.

Graduate students also are required to register for the Ph.D. Candidacy Examination in the appropriate semester and the Ph.D. Dissertation course when conducting research and to successfully write and defend a dissertation. The primary objective of Ph.D. candidacy is the completion of a major research project under the direction of the student's doctoral advisor(s). Once the project is completed, the student must write a dissertation describing the project (prepared in the format prescribed by the College of Graduate Studies and acceptable to the student's dissertation committee) and publicly defend the research and the written dissertation. The time required for the completion of the research and the defense of the resulting dissertation cannot be predicted in any individual case. Ph.D. students must complete at least ninety credit hours of graduate study before becoming eligible for graduation.

MS Degree Completion Requirements

The MS degree requires the completion of at least thirty-two credit hours of core and elective courses. The formal course work for the MS degree is structured around a core of courses that includes nine to twelve credit hours of advanced chemistry courses from three chemistry categories and two credit hours of chemistry seminar. The remaining credit requirements may be fulfilled with any combination of elective courses suitable to a desired concentration and approved by the student's advisor.

MS students in the clinical chemistry program fulfill the departmental thirty-two-credit-hour requirement by completing the sequence of courses specified by the program.

Part-time students employed as professional chemists usually complete the credit requirement by taking appropriate courses as arranged by their advisor.

Full-time students in all areas (except clinical chemistry) ordinarily complete their program by taking appropriate courses for a total of at least sixteen credits (excluding credit for CHM 600 Chemistry Teaching) and then at least sixteen credits in experimental research (CHM 699 MS Thesis) under the direction of a faculty advisor selected by the student. Upon completion of the research, each student is required to produce and defend a thesis accepted by a thesis committee. The committee consists of the student's advisor and at least two other graduate faculty members.

Exit Requirements

MS students must either complete at least thirty-two credit hours of approved course work with a grade-point average of 3.0 or higher or complete at least sixteen credit hours of approved course work with a GPA of 3.0 or higher, at least 16 credit hours of CHM 699 MS Thesis, and successfully defend a master's thesis. Ph.D. students must complete at least ninety credit hours of approved course work (including CHM 899 Ph.D. Dissertation) and successfully defend a doctoral dissertation.

Research Facilities

The Chemistry Department is housed in the Basic Science Building and the Science and Research Center. In addition to well-equipped research laboratories, there are special function rooms, such as a cold room, glass and electronic shops, a computer room, and a dark-room. Generally, graduate students occupy research space near their research advisors, which leads to frequent interaction.

Major instrumentation available in the program includes superconducting multinuclear NMR, automated X-ray diffractometer, GC-ion-trap MS, MALDI-TOF and LC-ESI-triple quadrupole and LC-ESI-ion-trap mass spectrometers, capillary electrophoresis, HPLC, GC-FTIR, FTIR spectrometers, UV-visible spectrophotometers, liquid scintillation counter, immunoassay instrumentation, fluorescence spectrometer, atomic absorption spectrometers, EPR, and extensive computer capabilities. Students also have ready access to the facilities and the state-of-the-art instrumentation available at the Cleveland Clinic Foundation. The Cleveland State Mass Spectrometry

Facility is located in the department and serves the research and service needs of Cleveland State faculty and students. Opportunities for graduate training in mass spectrometry are afforded through the facility.

Master of Science in **Environmental Science**

This degree is part of the Environmental Studies Program coordinated by the Cleveland State University Environmental Institute

Department of Biological, Geological, and Environmental Sciences

Science Building Room 219
(216) 687-2440
<http://web.bges.csuohio.edu/>

Michael Gates, Chair
Jeffrey Dean, Graduate Program Director

The Faculty

Current faculty information can be located on the Department Web site.

Introduction

The Master of Science degree in Environmental Science is offered by the Department of Biological, Geological, and Environmental Sciences (BGES) as one of three interdisciplinary graduate programs, coordinated by the Environmental Institute (EI). The degree program prepares students for a wide range of professional careers that require knowledge of biology, chemistry, or earth sciences in order to address environmental issues. The program is open to both full-time and part-time students.

The program is administered by the department's graduate faculty, which includes Cleveland State faculty, research scientists at The Lerner Research Institute of the Cleveland Clinic Foundation, and several Cleveland State University adjunct faculty members from other local institutions.

Faculty Research

Faculty research in the environmental science area includes plant and animal ecology, species evolution, urban ecology and geology, remote sensing, local flora and fauna, microbiology, population genetics, ecological physiology, parasitology, modeling, pollution, waste management, and aquatic biology. The department is active in several cooperative projects that provide additional research opportunities for graduate study. The Cuyahoga River Watershed Project, supported by a group of local institutions, including several colleges and universities and the Ohio EPA, involves an interdis-

ciplinary study of the ecology of an urban river. The OhioView consortium studies the application of remote sensing to a variety of environmental issues.

Career Information

The MS degree program, with its research thesis focus, prepares students conceptually and technically for careers in applied or basic research in academic, government, or business settings. The graduate program attracts teachers, environmental scientists, and management and staff in diverse businesses with an environmental focus. The graduate program is open to full-time and part-time students, as well as to non-degree students who are preparing themselves for entry into a degree program or are seeking to keep abreast of new developments in their field of interest.

Admission Information

Applicants must meet the College of Graduate Studies admission requirements regarding grade-point average, Graduate Record Examination (GRE) scores, and TOEFL results. A bachelor's degree is preferred in a science appropriate to the student's area of concentration (biology, chemistry, or geology). Transcripts must be submitted for all undergraduate and any previous graduate study. Scores for the GRE General Test must be submitted by ETS, and two letters of recommendation and a statement of personal career goals and research interests must be submitted by the applicant. Scores on the GRE must average at the 50th percentile or above. Applicants whose native language is not English must demonstrate English language proficiency by submitting official scores for the TOEFL, the Michigan Test, or an equivalent examination, unless they hold a degree from a U.S. institution. (See the section on International Students in this Catalog.)

Applicants must have a minimum of one year of calculus, one year of physics, one year of either biology, geology, or chemistry, and one term of a computer course or demonstrated proficiency in computer usage. Questions should be directed to the BGES Graduate Program Director.

Submit application materials to the Graduate Admissions Office (U.S. citizens and permanent residents) or the Center for International Services and Programs (foreign applicants and current visa holders).

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Graduate Assistantships/ Fellowships

Full-time graduate students pursuing thesis research may be supported by the department through teaching assistantships or fellowships for a period that, as a rule, should not exceed three years. This support includes tuition and a stipend. Teaching assistants are required to work twenty hours per week and must enroll as full-time students (currently nine credit hours, including research credits). Research assistantships may be available through the research grants of individual faculty members. A limited number of graduate tuition grants, which carry a service requirement of ten hours of work per week, are awarded to students with superior credentials as funds are available. Requests for assistantships should be indicated on the Application for Graduate Admission or by letter to the BGES Graduate Program Director. Awards are competitive and are based on all application materials. Initial decisions usually are made based on completed applications on hand in March for fall semester and, if assistantships are available, in November for spring semester. Required minimums for grade-point average and for GRE and TOEFL scores are higher than those used for admission to the program. Non-native, English-speaking teaching assistants must be assessed and certified as proficient in spoken English to hold a teaching assistantship.

Degree Requirements

Besides course work, the MS in Environmental Science degree requires a thesis based on original scientific research of sufficient quality for publication in a peer-reviewed scientific journal.

Before registering for courses, all newly admitted students must meet with the BGES Graduate Program Director. All students are required to enroll in the BGES Graduate Orientation course (BIO 500) and to attend departmental seminars. Students also must comply with all College of Graduate Studies requirements and procedures.

A student is admitted to candidacy when the following requirements are met:

1. Deficiencies in undergraduate preparation are corrected.
2. Eight graduate hours of course work are completed with a grade-point average of 3.0 or better.
3. A plan of study and the research proposal are approved by the Advisory Committee and accepted by the Graduate Committee, and the Cleveland State Thesis Proposal Approval Form is submitted to and approved by the Dean of the College of Graduate Studies.

Students in the MS program in Environmental Sciences must maintain a grade-point average of 3.0 or better. A student receiving two grades of B– or one grade of C or below is subject to review by the BGES Graduate Committee; dismissal from the graduate program may be recommended.

The Program

The following are specific requirements for the MS in Environmental Science degree. Complete, current program requirements and any changes are described in the BGES Graduate Program Handbook, available from the BGES Graduate Program Office.

1. Selection of a Major Advisor and an Advisory Committee. The Major Advisor typically is the primary supervisor and source of support for the student's thesis research. Together, the Major Advisor and Advisory Committee supervise the student's plan of study and research proposal, monitor the student's progress, certify that requirements have been met in a timely fashion, and process all petitions, progress reports, and other communications with the Graduate Committee. In keeping with the program's interdisciplinary focus, the Advisory Committee must include

one member of the Cleveland State graduate faculty from outside of BGES.

2. Completion of a minimum of thirty-two credit hours with a minimum grade-point average of 3.0 distributed as follows:

a. Total course work and research	
Courses: (minimum)	22 credits
Thesis research: (minimum)	8 credits
Additional courses or research:	2 credits
Total: minimum*	32 credits

*College of Graduate Studies regulations specify that all EVS or BIO courses must be 500-level or above; not more than seven credit hours of 400-level courses in related areas and not offered by the BGES Department may be included if approved by the Advisory Committee and BGES Graduate Committee.

- b. Required courses:** Each student must complete BIO 500 (Graduate Orientation) and BIO 540 (Biostatistics), or an equivalent graduate-level statistics course.
- c. Required core competencies:** Technical writing (e.g., ENG 509), Law/Policy (e.g., LAW 671 Environmental Law or UST 652 Environmental Policy), and Technology (e.g., CVE 450 Environmental Technology). Core competency requirements can be satisfied with the indicated Cleveland State courses or equivalent courses taken before or after entry into the program.
- d. Seminars:** Each student must complete an Environmental Seminar (BIO 595).
- e. Environmental field experience:** Each student must complete six credit hours of course work that provides experience in field research. This requirement may be met by courses like BIO 651 or BIO 653 (Advanced Research in Field Biology) that emphasize field methods or by supervised, individual thesis research (BIO 691 or 695) conducted in a field setting.
- f. Concentration area:** Each student formulates an individual plan of study in consultation with the Major Advisor and the Advisory Committee. The student chooses one of three areas of concentration: Environmental Biology,

Environmental Chemistry, or Environmental Earth Sciences. The plan of study must include at least nine credit hours of course work in the area of concentration, as well as any additional elective courses needed to fulfill degree requirements described above.

- g. Thesis research:** The student's individual research project should be of sufficient quality to be published in a refereed scientific journal.
3. Continuous enrollment for a minimum of one credit hour from admission to candidacy until graduation.
 4. Exit requirement:
 - a. Presentation of the thesis research at a departmental seminar.
 - b. Defense of the thesis before a faculty committee. Two unsuccessful attempts to defend the thesis shall result in a recommendation for dismissal from the program.
 - c. Submission of the approved thesis, together with an article or manuscript, based on the thesis, in a format suitable for submission to a refereed scientific journal.

Master of Arts and Master of Science in Mathematics

Department of Mathematics

Rhodes Tower 1515
(216) 687-4680
www.csuohio.edu/math/graduate.htm

Sherwood Silliman, Chair
John Oprea, Graduate Program Director

The Faculty

Current faculty information can be located on the Department of Mathematics Web site.

Introduction

The Master of Arts program in Mathematics is designed for those teaching in secondary schools or who have completed their baccalaureate degree and are preparing for such teaching. Its goal is to provide secondary teachers with a broad background in modern mathematics in order to enhance their teaching effectiveness.

The Master of Science option is primarily a program in applied mathematics. It provides an alternative to the traditional MS degree in mathematics. The program is designed to serve those interested in the application of mathematics in industry, business, and government. The program stresses the development, analysis, and evaluation of mathematical models of real-world problems and those areas of pure and applied mathematics that are germane to this process.

Faculty Research

Mathematics faculty members are active in many areas of research in pure and applied mathematics, including algebra, algebraic geometry, algebraic topology, applied mathematics (especially numerical analysis, ordinary and partial differential equations, and fluid dynamics), computer science, functional analysis, general topology, harmonic analysis, mathematics education, operator theory, probability theory, and statistics. Some department members are the authors of widely used mathematics textbooks, both graduate and undergraduate.

Financial Assistance

A limited number of graduate assistantships and tuition grants are available to qualified students. Assistantships include a stipend and tuition support. Contact the Department of Mathematics for further information. (See the section on Financial Aid and Expenses: Graduate Assistantships in this Catalog.)

Career Information

The demand for people trained in mathematics will continue to grow because of the central role of mathematics in the physical sciences, in engineering, and in business. Qualified secondary school teachers of mathematics are in demand, as are applied mathematicians to work in industry and government. There are opportunities in statistics, actuarial work, operations research, and computer science fields that all require a solid background in mathematics.

Master of Arts Program

Admission Information

In addition to meeting College of Graduate Studies requirements for admission, applicants should have completed the current mathematics requirements for an Ohio secondary teaching certificate. Applicants who do not meet this requirement may be admitted with the approval of the Graduate Committee.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements

The degree requirements, in addition to College of Graduate Studies requirements for the master's degree, consist of the completion of 32 credit hours distributed as follows:

Required Core (16 credits)

MTH 553 Algebra with Applications
(4 credits)
MTH 580 Geometry from an Advanced Viewpoint (4 credits)

and two of the following:

MTH 542 Continuous Mathematical Models (4 credits)
MTH 547 Calculus from an Advanced Viewpoint (4 credits)
MTH 564 Statistics and Data Analysis (4 credits)
Electives
(16 credits)
MTH 513 Linear Algebra with Geometry (4 credits)
MTH 518 Technology in Teaching (4 credits)
MTH 532 Probabilistic Models (4 credits)
MTH 539 Discrete Mathematics (4 credits)
MTH 542, MTH 547, or MTH 564 if not used to satisfy core requirements (4 credits each)
MTH 581 Chaos and Fractals (4 credits)
MTH 593 Special Topics in Mathematics (4 credits)

Any other approved mathematics courses at or above the 500-level.

Exit Requirement

During the course of their studies, students are expected to complete a written project under the supervision of a faculty member.

Scheduling of Courses

The Master of Arts program is offered during summer sessions. Students may enter the program any summer term and complete the program in three summers. Alternatively, some approved elective courses may be taken during fall or spring terms.

Master of Science Program

Admission Information

In addition to meeting College of Graduate Studies requirements for admission, applicants are expected to have a baccalaureate degree in mathematics, engineering, or another scientific or technical area. Applicants should have completed a sequence in calculus and analytic geometry, as well as courses in linear algebra and differential equations and at least eight credits in junior- or senior-level mathematics courses. An applicant without this preparation may be admitted on a probationary basis, subject to removing

deficiencies during the first year of graduate study.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Degree Requirements

In addition to meeting Graduate College requirements for the master's degree, MS degree candidates must earn 32 credit hours distributed as follows:

Required Introductory Course

(4 credits)

MTH 514 Linear Algebra and Functions of Several Variables

Sequence Courses

(16 credits)

Four courses (including one complete sequence) from the following:

MTH 525-MTH 626 Mathematical Methods in Engineering and Science

MTH 537-MTH 638 Operations Research

MTH 567-MTH 668 Probability and Statistics

MTH 577-MTH 678 Numerical Methods

Electives

(12 credits)

Approved mathematics courses at or above the 500-level.

Up to eight credits of approved courses at or above the 400-level, offered by other departments.

Exit Requirement

During the course of their studies, students are expected to complete a written project under the supervision of a faculty member.

Scheduling of Courses

Courses in the Master of Science program are offered in the evening during the academic year only. Courses are scheduled as indicated below. Other courses also may be offered. It is highly recommended that students complete MTH 514 in their first year of study.

2006-2007

Fall	Spring
MTH 514	MTH 524
MTH 537	MTH 534
MTH 577	MTH 593
	MTH 638
	MTH 678

2007-2008

Fall	Spring
MTH 514	MTH 524
MTH 525	MTH 587
MTH 567	MTH 593
	MTH 626
	MTH 668

With department approval, students may apply a maximum of eight 400-level credits taken as a Graduate Student at Cleveland State offered by a department other than Mathematics toward a master's degree in Mathematics.

Master of Science in Physics

(addenda new 05/2006)

Department of Physics

Science Building 112
(216) 687-2425
www.csuohio.edu/physics/Grad/Grad.html

Miron Kaufman, Chair James Lock, Graduate Program Director

The Faculty

Current faculty information can be located on the Department of Physics Web site.

Introduction

Currently, there is tremendous growth in optics, condensed matter, and medical physics caused by rapid developments in the fields of superconductivity, electrooptic materials, optical, acoustical, and NMR imaging, semiconductor devices, tomography, holography, and image-processing. The Physics Department of Cleveland State University offers an MS degree in physics, with emphasis on optics and condensed matter physics, or on medical physics, designed for applied scientists and engineers who wish to develop competence in these rapidly advancing fields. In 2001, the American Physical Society classified the Master of Science in Physics program at Cleveland State as a "strong professional master's degree program."

Current Research

Macromolecular Crystallography

X-Ray studies of crystallized biologically and chemically interesting molecules, for designing molecules with specific biological activities for developing drugs.

Experimental Solid-State Physics

Current topics in the electronic properties and possible applications of novel materials include intercalated graphite fibers, conductor-insulator composites, and thin-film materials. Most measurements involve low-temperature and/or high-pressure techniques.

Experimental Optics

Laser spectroscopy is being used to study diffusional processes. Presently, aggregation processes that result in the formation of fractal aggregates and phase transitions in liquid mixtures and micro emulsions are under investigation. The optical properties of various polymer materials also are being studied using laser techniques.

Optoelectronics

Investigation of basic physics and applications of transparent electronic materials.

Theoretical Optics

Mie-scattering calculations presently are being undertaken on artificially produced and natural aerosols for the purpose of understanding a number of atmospheric and basic scattering phenomena. The structure of optical caustics produced by liquid droplet lenses also is being investigated, both experimentally and theoretically.

Statistical Physics

Phase transitions in liquid mixtures, glasses, polymers, superconductors, and magnets are being studied by applying modern techniques such as the renormalization group. Statistical physics methods are applied to cognitive science, health sciences, and polymer processing.

Admission Information

To be considered for admission to the Master's program in Physics with a Specialization in Optics/Materials, students must meet College of Graduate Studies requirements for admission (see the Admission section of this Catalog) and have an undergraduate degree in physics, mathematics, engineering, or an allied field. Students with deficient backgrounds are required to register for additional courses to remove deficiencies.

To be considered for admission to the Master of Science in Physics with a Specialization in Medical Physics, applicants must meet College of Graduate Studies admission

requirements and hold an undergraduate degree in physics, chemistry, electrical engineering, chemical engineering, mechanical engineering, or nuclear engineering. All students applying for the MS in Physics program with a Specialization in Medical Physics must take the GRE general examination, verbal reasoning, quantitative reasoning and analytical writing. Students whose undergraduate training was not in the United States and whose native language is other than English must also take the TOEFL examination and score above 600 (paper version) and the Test for Spoken English (TSE) and score above 300. All applications must be received by April 1.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Undergraduate Deficiencies: For students applying to the Medical Physics program, the following courses must be taken if there are deficiencies in the applicant's undergraduate preparation:

PHY 330 Introduction to Modern Physics
PHY 350 Electricity and Magnetism
PHY 360 Electronics Laboratory
PHY 474 Thermal Physics
BIO 266 Human Anatomy and Physiology
BIO 267 Human Anatomy and Physiology Laboratory

Degree Requirements

A minimum of 32 credit hours, approved by the Physics Graduate Committee, is required for graduation.

The following courses constitute a typical program with emphasis on optics and materials: PHY 520, PHY 550, PHY 555, PHY 560, PHY 565, PHY 570, PHY 580, and PHY 598.

The medical physics program includes the following: PHY 515, PHY 520, PHY 530, PHY 535, PHY 565, PHY 570, PHY 596, and PHY 597.

Social and Behavioral Sciences

Communication ■

Economics ■

Psychology ■

Clinical Psychology

Experimental Research

Consumer-Industrial Research

Diversity Management

Psychology Specialist ■

Social Work ■

Sociology ■

Master of Applied Communication Theory and Methodology

School of Communication

Music and Communication 233
(216) 687-4630
www.csuohio.edu/com/gradpgm.html

Richard M. Perloff, School of
Communication Director
Jill Rudd, Graduate Program Director

The Faculty

Current faculty information can be located on the School of Communication Web site.

Purpose, Objectives, and Career Information

The master's degree program provides graduate education in communication theory and methodology for students who seek to: 1) apply communication strategies to work-related problems and 2) ultimately pursue doctoral studies in communication. The program is directed primarily toward the development of communication scholars and specialists, i.e., individuals who are able to apply communication theory and methodology to the analysis and solution of a variety of communication problems. The program emphasizes the ability to synthesize and interpret research in socially useful ways while also allowing for specialization in conducting research.

Communication techniques and problem-solving strategies are incorporated into this program to provide an effective background for individuals in careers such as corporate media or training, journalism, organizational communication consulting, promotional communication, and campaigning. Business or management personnel who need experience in communication problem solving will also find the program useful. Recent graduates of the program are employed in such diverse fields as advertising/public relations research, broadcast programming, corporate research, government, personnel/administration, and retailing. Others have continued on with doctoral studies at major U.S. universities.

The key words "applied theory and methodology" emphasize that students are expected to utilize their education in the pursuit of their individual career

objectives. For most students this occurs when they conduct a master's thesis or alternative project.

Communication Research

Communication research involves the scientific study of communication in order to help individuals and institutions meet the changing needs of today's society. The members of the department faculty have published hundreds of articles and book chapters, more than twenty books, and have received many grants and Fulbright Fellowships. Areas of expertise include communication technologies, corporate communication, conflict management, health communication, and media audience analysis.

A national sample survey of communication faculty have given a strong positive evaluation of the Cleveland State University Master's degree program in Applied Communication Theory and Methodology. Asked to indicate the best master's program in communication in the United States among universities not offering the Ph.D. degree, faculty across the country rated the Cleveland State program the best. These findings were presented at the 2001 annual convention of the International Communication Association.

Graduate students are encouraged to work as research interns with faculty. Students also are encouraged to present their work at professional conventions and to coauthor papers for both scholarly and trade publications. Recent research projects involving graduate students include the diffusion and use of new communication technologies, mass media and interpersonal influences on career aspirations of teenagers, bullying behavior in the workplace, accounts of unexpected events in organizations, media effect on political beliefs, advertising influences on consumers cognitions, how TV violence affects ethnic and racial stereotypes, effects of community characteristics on newspaper reporting styles, use of Web sites for community integration, and communication deficiencies in interpersonal and organizational contexts.

Graduate students also work at the Communication Research Center on survey projects for clients that include regional and national marketing/research agencies.

Financial Assistance

Research and teaching assistantships are available. Assistantships are awarded on the basis of merit as reflected in undergraduate records and letters of recommendation, as well as financial need. Graduate assistants must maintain at least a 3.0 grade-point average. Receipt of more than one grade below a "B" also warrants revocation of an assistantship. Graduate assistantships are awarded starting in April until all positions are filled. The program also offers a variety of scholarships.

Admission Information

Applicants for admission to the master's program in Applied Communication Theory and Methodology must:

1. Hold a bachelor's degree from an accredited college or university.
2. Have a cumulative undergraduate grade-point average of at least 2.75.
3. Submit the results of either the Miller Analogies Test or the Graduate Record Examination. Students with an undergraduate GPA of 3.75 or higher are exempted from this requirement.

An undergraduate major in communication is not required for admission consideration. However, applicants without such a degree may be required to make up deficiencies either before being admitted or during the first semester of enrollment. No graduate credit is granted for making up deficiencies.

Applicants are screened by the Department Graduate Committee, which makes its decision based on:

1. The undergraduate record.
2. The career aspirations of the applicant.
3. A statement from the applicant regarding the expected benefits to be derived from the program.

4. Performance on the Graduate Record Examination or the Miller Analogies Test.

5. Two or more letters of recommendation.

Students who enroll in the program should be interested in relating course work to career objectives, and to solving communication problems. Students may enter the program in fall or spring semester.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Curriculum

The program requires the completion of 32 or 38 credits, depending on exit option (see descriptions below), including at least 24 required communication course credits as follows:

Core Requirements (8 credits)

Students should consult with their advisor to determine when courses should be taken. The following are required core courses for all students seeking the master's degree:

COM 501 Pro Seminar in Communication (4 credits)

COM 512 Communication Research Methods (4 credits)

Communication Theory (8 credits)

Two of the following required:

COM 510 Organizational Communication Theory (4 credits)

COM 520 Interpersonal Communication Theory (4 credits)

COM 530 Mass Communication Theory (4 credits)

COM 540 Persuasive Communication and Campaigns (4 credits)

Research Methods (4 credits)

One of the following required:

COM 531 Multivariate Statistical Methods (4 credits)

COM 532 Audience/Media Research Methods (4 credits)

COM 533 Content Analysis Research Methods (4 credits)

COM 534 Ethnographic/Qualitative Research Methods (4 credits)

COM 535 Participant Observation/Interviewing Methods (4 credits)

Cognate Courses (4 credits)

One of the following required:

COM 541 Political Communication (4 credits)

COM 542 Communication and Technology (4 credits)

COM 543 Theory Building (4 credits)

COM 544 Mediation and Collaborative Problem Solving (4 credits)

COM 548 Managing Organizational Teams (4 credits)

COM 549 Health Communication (4 credits)

Electives (4 or 12 credits, depending on exit option)

All other 500-level communication courses are electives. Courses in other departments may be taken in lieu of these courses, with the graduate program director's approval. Specific elective needs and interests of students will determine how many electives are completed outside of the school.

Exit Options: COM 589, COM 597, COM 598, or COM 599.

Students have four exit options: thesis, project, collaborative research, and comprehensive examination. For the thesis option, students take four credit hours of electives and four credits of thesis. For the project option, students take four credit hours of electives and four credits of project. For the collaborative research exit option, students take four credit hours of electives and the four-credit hour collaborative research course. For the comprehensive examination option, students take twelve hours of electives and a two-credit examination.

Degree Requirements

Successful completion of the Master of Applied Communication Theory and Methodology degree program requires the following:

1. Successful completion of a minimum of 32 or 38 credit hours, depending on the exit option, which may include a maximum of eight hours of transfer credit.
2. Completion of a minimum of 20 credit hours in communication courses at Cleveland State University as a graduate student, not including collaborative research, comprehensive examination, project, or thesis credits (COM 589, COM 597, COM 598, or COM 599).
3. Completion of a program of study approved by the Graduate Committee in Communication and the student's master's committee.
4. A minimum 3.0 grade-point average in all courses taken for the degree.
5. Students have four options for the completion of the degree following course work: a thesis, a project, collaborative research, or a comprehensive examination.

a. Thesis students must submit a thesis and present an oral defense of their research. A maximum of four credit hours for thesis research (COM 599) may contribute to the 32-credit total.

b. Project students must submit a project report and orally defend the report. A maximum of four credit hours for the project (COM 598) may contribute to the 32-credit total.

c. Students must successfully complete the Collaborative Research Project (COM 589). A maximum of four credit hours may contribute to the 32-credit total.

d. Non-thesis/non-project/non-collaborative research students must complete eight additional credit hours of course work (for a total of 36 hours), and pass a comprehensive examination (COM 597, two credit hours).

6. Students must present a bound copy of the thesis or project to each member of the committee and to the School of Communication Graduate Office.

7. Requirements for the degree must be met within six calendar years of the student's admission to the program.

Master of Arts in Economics

Department of Economics

Rhodes Tower 1715
(216) 687-4520
www.csuohio.edu/economics/gradprogram.html

Myong-Hun Chang, Chair
Allan Taub, Graduate Program Director

The Faculty

Current faculty information can be located on the Department of Economics Web site.

Introduction

The primary objective of the graduate program in economics is to develop economists who can meet the demand of the private sector, the not-for-profit sector, and government and are well trained in the tools of economic analysis and measurement. The program stresses a strong foundation in standard economic theory, econometric methods, and their application to problems faced by businesses, the not-for-profit sector, and government agencies. Although the Master of Arts in Economics is designed as a terminal degree program, students who complete the program are well prepared for further graduate study in economics. The program is aimed at students with an undergraduate degree in economics or business, as well as students with undergraduate training in other academic fields.

Faculty Research and Publications

Faculty members conduct research and publish on a wide range of economic issues, including pollution-control policies, location of firms, regional economic development, industry studies, health economics, lifetime earnings, and public finance.

Financial Assistance

Graduate assistantships are available in limited number to qualified students. Assistants receive a stipend and tuition support. Contact the Department of Economics for graduate assistant application information. Other employment opportunities are available on campus.

For information on the graduate assistantship policy, see the section on Expenses and Financial Aid: Graduate Assistantships in the front of this Catalog.

Admission Information

To be admitted as a Regular graduate student, the applicant must have a bachelor's degree with at least a 2.75 grade-point average and have successfully completed courses in intermediate microeconomics, intermediate macroeconomics, calculus, and statistics. Students who do not meet these requirements are encouraged to take the requisite courses and/or consider the options described on Non-Degree Admission in this Catalog.

International applicants must provide official TOEFL and GRE (general) test scores received directly from ETS.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Students are advised to begin the program in the fall semester.

Degree Requirements

The MA in Economics program requires the completion of 33 credit hours, including seven required courses plus two approved elective courses as follows:

Required

- ECN 610 Mathematical Economics for Economists (2 credits)
- ECN 622 Statistical Methods for Economists (3 credits)
- ECN 625 Econometrics (4 credits)
- ECN 633 Advanced Microeconomics (4 credits)
- ECN 635 Competition and Strategy (4 credits)
- ECN 643 Advanced Macroeconomics (4 credits)
- ECN 654 Financial Economics (4 credits)

Electives

Select two of the following approved courses for a total of eight credits:

- ECN 541 Business Fluctuations and Forecasting (4 credits)
- ECN 550 Economics of Law (4 credits)
- ECN 574 Environmental and Natural Resource Economics (4 credits)
- ECN 582 International Economics (4 credits)
- ECN 675 Labor Economics (4 credits)
- ECN 694 Special Topics in Economics (1-4 credits)
- ECN 695 Seminar in Economics (1-4 credits)

Master of Arts in Psychology

Department of Psychology

Chester Building 158
(216) 687-2544
www.csuohio.edu/psy/grad.html

David Grilly, Chair
Boaz Kahana, Clinical Program Director
Brian Blake, Consumer Industrial
Research Program Director
Steve Slane, Diversity Management
Program Director
Alfred A. Smith, Experimental Research
Program Director
Kathleen McNamara, School Psychology
Program Director

The Faculty

Current faculty information can be located on the Department of Psychology Web site.

The Programs

The Master of Arts (MA) in Psychology program is comprised of specializations in Clinical Psychology, Experimental Research, Consumer-Industrial Research, Diversity Management and School Psychology. The program in Clinical Psychology is designed primarily for students interested in the field of psychological service, broadly conceived to embrace community, clinical, and educational settings. The Experimental Research program emphasizes basic and applied research skills, to be developed through an individually tailored program of study that includes both core (required) and elective courses and culminates in the successful completion of a thesis. Graduates obtain positions in various research settings as research coordinators or data analysts and managers, or pursue advanced educational programs. The program in Consumer-Industrial Research prepares students to apply psychological research techniques and concepts in business and institutional settings. Graduates are qualified for positions in public opinion polling, market research, program evaluation, personnel, human resources, and other applied research and data analysis contexts. The program in Diversity Management provides students with a solid foundation in psychological theory, research, and applied skills necessary for effective understanding and management of human diversity in

organizations. The MA in Psychology serves as the first phase of the School Psychology program, which is described in the Psychology Specialist, School Psychology Program section of this *catalog*.

Admission Information

In addition to College of Graduate Studies requirements for admission, the Department of Psychology requires of all applicants:

1. Scores from the Graduate Record Examination (GRE). Requirements vary by program; see specific program requirements.
2. A firm foundation in the basic principles of psychology.
3. A personal statement.
4. Additional information for the School Psychology Program appears in the Psychology Specialist, School Psychology program section of this *catalog*.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

For More Information

For further information, contact the Psychology Department at (216) 687-2544 to arrange an appointment with a program advisor. The Psychology Department is located in the Chester Building, Room 158.

Clinical Psychology Program

Introduction

The Clinical specialization at Cleveland State may be referred to as a terminal master's degree program because the department does not currently offer a doctoral degree program. Upon receipt of the Master's degree in Clinical Psychology, graduates may apply to doctoral programs at other institutions. Graduates may also elect to work as a psychology assistant under the supervision of a doctoral-level, licensed psychologist. Psychology assistants work in hospital, forensic, or clinical settings and engage in assessment, treatment and research activities.

The Clinical specialization offers two tracks of study to accommodate the interests of students: (a) Doctoral preparation track and (b) Practitioner track. Each track requires the student to complete a 58-60 credit hour program of coursework and clinical field experiences. Students in the doctoral preparation track also must complete a research or data based thesis. The program requires full-time study for two academic years. No courses are offered during the summer, though students in the doctoral preparation track frequently work on their theses during the summer between the first and second years of the program.

Both tracks emphasize core content and basic skills in the first year, and practical experience and professional skills in the second year. The curriculum emphasizes human development and its deviations, as well as the methods and techniques of assessing and influencing this development in clinical, community, and educational contexts. A student in the Doctoral Preparation track must complete a thesis as part of his or her graduate program.

Faculty Research and Publications

The faculty members of the Clinical Psychology specialization have diverse interests, which are reflected in the course content of the classes they teach and in articles written for national and international publications. These interests include child and adult psychopathology; human motivation and attitudes; psychopharmacology; women's issues; legal and ethical issues in psychology; multicultural issues; behavior therapy; abnormal psychology; gerontology; personality assessment; social competence promotion; and health and wellness.

Financial Assistance

Assistantships or tuition grants generally are awarded to first-year students; all application materials must be received by February 15 for full consideration for financial assistance. Typically, the award consists of a full-tuition grant or, as budgets permit, an assistantship that includes a stipend. During the second year of the full-time Clinical Psychology specialization, some students work in paid fieldwork placements.

Career Information

Graduates of the Clinical Psychology specialization typically are employed as psychology assistants in such work settings as hospitals, mental health centers or clinics, private practice, human service agencies, industrial settings, and geriatric facilities. Primary functions include assessment, consultation, and administration. About 30 percent of graduates in this specialization continue on to pursue doctoral degrees.

Admission Information

The Clinical specialization requires of all applicants:

1. Scores for both the General Aptitude Test and the Subject Test in Psychology of the Graduate Record Examination;
2. A firm foundation in the basic principles of psychology;
3. A completed departmental information form and personal statement;
4. Official transcripts for all colleges and universities attended;
5. Two letters of recommendation; and
6. An interview, by invitation, with faculty members of the Clinical Psychology program committee.

For optimal consideration of their application to the Clinical Psychology specialization, prospective students should complete the following course work before enrollment: Introductory Psychology, Personality or Theories of Personality, Abnormal Psychology, Memory and Cognition, Basic Statistics, and Experimental Psychology (Laboratory or Research Design).

Preparation beyond the minimum suggested above will likely strengthen applications. If an applicant received a BA in psychology five or more years ago, he or she is encouraged to update credentials by enrolling in advanced undergraduate or beginning graduate courses.

The application deadline is February 15.

Degree Requirements

(Clinical Psychology Specialization)

Doctoral Prep Track Courses

Year One: Fall Semester

- PSY 511 Univariate Statistics and Experimental Methodology (4 credits)
 PSY 535 Clinical Interviewing Practicum (2 credits)
 PSY 550 Child and Adolescent Development and Disorders (4 credits) or PSY 555 Adult Psychopathology (4 credits)

PSY 672 Multicultural Psychology and Diversity Practicum (2 credits)

Year One: Spring Semester

- PSY 538 Intellectual Assessment and Practicum (4 credits)
 PSY 542 Theories of Personality (4 credits) or PSY 651 Clinical Psychopharmacology (4 credits; offered alternate years)
 PSY 587 Personality Testing and Laboratory (4 credits)
 PSY 611 Advanced Data Analysis with Computer Applications (4 credits) or other methodology/statistics elective

Year Two: Fall Semester

- PSY 537 Child and Adolescent Assessment and Treatment (4 credits) or PSY 604 Concepts and Methods of Individual Psychotherapy (4 credits)
 PSY 660 Ethical, Legal, and Professional issues (2 credits)
 PSY 690 Fieldwork Placement (4 credits)
 PSY 699 Research and Thesis (4 credits)

Year Two: Spring Semester

- PSY 542 Theories of Personality (4 credits) or PSY 651 Clinical Psychopharmacology (4 credits; offered alternate years)
 PSY 650 Family and System Interventions (2 credits)
 PSY 670 Crisis Management (2 credits)
 PSY 691 Fieldwork Placement (4 credits)
 PSY 699 Research and Thesis (4 credits)

Practitioner Track Courses

Year One: Fall Semester

- PSY 535 Clinical Interviewing Practicum (2 credits)
 PSY 538 Intellectual Assessment and Practicum (4 credits)
 PSY 550 Child and Adolescent Development and Disorders (4 credits) or PSY 555 Adult Psychopathology (4 credits)
 PSY 672 Multicultural Psychology and Diversity Practicum (2 credits)

Year One: Spring Semester

- PSY 542 Theories of Personality (4 credits) or PSY 651 Clinical Psychopharmacology (4 credits; offered alternate years)
 PSY 587 Personality Testing and Laboratory (4 credits)

Year Two: Fall Semester

- PSY 511 Univariate Statistics and Experimental Methodology (4 credits)
 PSY 660 Ethical, Legal, and Professional Issues (2 credits)
 PSY 690 Fieldwork Placement (4 credits)
 PSY 537 Child and Adolescent Assessment and Treatment (4 credits) or PSY 604 Concepts and Methods of Individual Psychotherapy (4 credits)

Year Two: Spring Semester

- PSY 691 Fieldwork Placement (4 credits)
 PSY 542 Theories of Personality (4 credits) or PSY 651 Clinical Psychopharmacology (4 credits; offered alternate years)
 PSY 650 Family and System Interventions (2 credits)
 PSY 670 Crisis Management (2 credits)

Fieldwork Placement

All students in the Clinical Psychology specialization who perform satisfactorily during the first year are assigned half-time (15 hours per week) field placements in their second year (PSY 690 and PSY 691). Four hours of academic credit are earned each semester for satisfactory completion of fieldwork; grades of S (Satisfactory) or F (Failure) are given upon completion of each semester over the full year's experience. Agency fieldwork supervisors make periodic, comprehensive evaluations of the students' work. Students may, on occasion, be required to continue their fieldwork placements into the summer, if necessary, to demonstrate satisfactory performance.

Exit Requirements

A thesis is required of Clinical Psychology students in the Doctoral Preparation track. For Clinical Practitioner students, graduation is based on the successful completion of the required courses and fieldwork experience. These students, however, may elect to substitute a thesis for specified course work as part of the program of instruction.

Experimental Research Program

Introduction

The goal of the Experimental Research specialization in Psychology is for students to develop skills in research design and analysis, broad knowledge of substantive

areas of psychological research, and expertise in one research area. The program consists of both required and elective courses and an individual research experience that culminates in completing a master's thesis.

All students are expected to become involved in research when they begin the program and to continue this involvement during their course of study. Ideally, each student participates in a faculty member's research program; after developing appropriate knowledge and skills about this domain, the student demonstrates expertise by completing a thesis (with the advice and supervision of that faculty member).

Faculty Research

Areas of faculty expertise include behavioral pharmacology, cognition (including perception, attention, memory, and decision making), health psychology, history of psychology, human performance, research methodology, and social psychology. Areas of faculty research include accuracy of survey self-reports, issues in the history of psychology motor performance, student evaluations of instruction, and visual perception.

Research Facilities

Research facilities include testing rooms equipped with microcomputers and software for experimental data collection. The University holds licenses for major statistical software packages; which are available in University computer laboratories, as well as in the Psychology Department's computer laboratory. Most scholarly materials, if not available in the University Library, are readily accessible through OhioLink, a statewide consortium of libraries that subscribes electronically to many journals, or through inter-library loan.

Financial Assistance

Assistantships that include tuition grants and/or stipends are typically awarded to first-year students; some financial assistance may be available to second-year students. To be considered for financial assistance, applications must be received by March 1.

Career Information

Graduates of the Experimental Research program often pursue further graduate work in psychology or seek employment in research-related occupations. The skills and knowledge acquired in the Experimental Research program may provide a beneficial foundation for further graduate study in other professional fields (e.g., clinical psychology, law, business).

Admission Information

An application to the Experimental Research program in Psychology must include:

1. Official Graduate Record Examination (GRE) scores for the General Aptitude Test. An applicant is encouraged to submit the results from the GRE Psychology Subject test if the score would enhance his or her application;
2. A personal statement;
3. A completed departmental information form;
4. Official transcripts for all colleges and universities attended; and
5. Two letters of recommendation, preferably from individuals familiar with the applicant's academic abilities.

An applicant should have some academic preparation in psychology. A prospective applicant without such preparation is encouraged to consult with program faculty about his or her preparation for the program.

Applications are reviewed on a rolling basis. For full consideration for financial assistance, applications should be received by March 1.

Degree Requirements

(Experimental Research Specialization)

Forty (40) credit hours are required for graduation from the program. The course requirements are listed below. A student is expected to involve his or her mentor/advisor and/or the program director in the course selection process so that course work is well suited to the student's objectives. A normal course load is 12 to 16 credits per term. The Experimental Research Program Committee must approve departures from the specified curriculum, as well as acceptance of transfer credit.

Core A (16 credits)

- PSY 511 Univariate Statistics and Experimental Methodology (4 credits) (offered once each year)
- PSY 611 Advanced Data Analysis with Computer Applications (4 credits) (typically offered once each year)
- PSY 699 Research and Thesis (4 credits) (taken twice for a total of eight credits) (offered every semester)

Core B (16 credits)

(each course offered every two to three years)

Select four of the following:

- PSY 525 Social Psychology (4 credits)
- PSY 561 Classical, Instrumental, and Operant Conditioning (4 credits)

- PSY 562 Learning, Memory, and Cognition (4 credits)
- PSY 568 Advanced Perception (4 credits)
- PSY 582 Personality Theory and Research (4 credits)
- PSY 588 History of Psychology (4 credits)
- PSY 589 Physiological Psychology (4 credits)
- PSY 651 Clinical Psychopharmacology (4 credits)

Electives (8 credits)

Any graduate courses (including non-psychology courses) approved by a faculty advisor.

Exit Requirements

To be awarded the MA degree in Psychology, a student must complete 40 credit hours of course work and a thesis. Courses should be selected in consultation with a faculty advisor, and the program of study must be approved by the Experimental Research Program committee. For the thesis project, it is the student's responsibility to identify a suitable advisor. Students are encouraged to consult with the program director for assistance. In consultation with the advisor, the student identifies two other faculty members to serve on the thesis committee. After the committee approves a thesis prospectus, the project may be carried out. To complete the thesis project requires both that the written thesis be accepted by the committee and that the student orally present his or her findings.

Students should consult the College of Graduate Studies policies and requirements concerning theses in the appropriate section of this Catalog.

The Consumer-Industrial Research Program

Introduction

The Consumer/Industrial Research program (CIRP) prepares students to conduct applied research in business and organizational settings. Students acquire the conceptual tools, research methods, and data analysis techniques to understand consumer product purchasing, advertising responses, brand image, and related processes.

A second emphasis of the Consumer/Industrial Research program is the application of research methods and data analysis skills within an organization. Training is given in job satisfaction surveys, organizational climate surveys, evaluation of new organizational programs,

conducting job analysis projects, and other related methods.

The base for both areas of applied research is the development of the ability to design applied research, gather and analyze data, and determine the meaning and significance of the results. Therefore, there is an emphasis on statistics and research-methods courses. The content courses in consumer and industrial-organizational psychology build on these courses for specific applications. Electives may be used to augment both research skills and content areas.

This specialization is designed to be completed in one and one-half to two years and culminates with a thesis. While it is expected that all students will have the opportunity to participate in the solution of actual problems under the guidance of faculty, selected students also have the opportunity for field placements in business settings.

The first year of the Consumer/Industrial Research specialization typically consists of the program core, quantitative methods, research design, field research methods, and substantive courses in industrial-organizational psychology and consumer behavior. During the second year, the student typically enrolls in elective courses while working on the thesis.

Faculty Research

Faculty members have contributed over 200 publications, including books, book chapters, journal articles (*e.g.*, *Journal of Marketing Research*, *Journal of Applied Psychology*, *Internet Research*, *Multivariate Behavioral Research*, *Academy of Management Review*), technical reports, and convention papers, as well as articles in trade periodicals, such as *Quirk's Marketing Research Review and Marketing News*. The faculty serve as reviewers for over a dozen professional journals. Illustrative studies focus on occupational stress, measurement of consumer preferences, reactions to advertising, personality aspects of occupational choices, development of performance appraisal systems, and computer modeling of individuals' purchase decisions.

Career Information

The program prepares students to work in organizations that need "people" information, whether it concerns consumers or organizational members. Students completing this program are capable of designing and executing research to answer questions in a manner that will contribute to the functioning of the organization. In the area of consumer behavior, graduates are suited to market

research and public opinion research positions and to conduct program evaluation and assessment in public agencies. Additionally, in the industrial-organizational realm, they are prepared for employee surveys, training-effectiveness evaluation, job analysis, developing selection systems, and related research.

Admission Information

Applicants for admission to the Consumer/Industrial Research specialization must submit the following:

1. An Application for Graduate Admission;
2. Scores on the General Aptitude portion of the GRE;
3. A personal statement;
4. Official transcripts for all colleges and universities attended; and
5. Two letters of recommendation.

The application deadline is February 10, although applications received after this date will receive consideration. Among the criteria used by the committee for selection are the standard indicators of academic promise—prior grades, test scores, and letters of recommendation—plus indications of particular promise based on skills, personal characteristics, and experiences relevant to work in the Consumer/Industrial Research specialization. Additionally, the committee expects candidates to have completed at least six credits in psychology and to have a command of basic statistical analysis. Preferred candidates will have a strong statistical background, prior experience, and a record of high achievement.

Degree Requirements

(Consumer/Industrial Research Specialization)

The program requires satisfactory completion of a 43-credit-hour sequence, including Thesis or Applied Research.

Core A Core Content Requirements (20 credits)

- PSY 518 Personnel Psychology (4 credits)
- PSY 519 Consumer Psychology (4 credits)
- PSY 522 Organizational Psychology (4 credits)
- PSY 593 Special Topics in Psychology: Advanced Organizational Psychology (4 credits), or PSY 593 Special Topics in Psychology: Job Analysis and Performance Appraisal (4 credits)
- PSY 620 Advanced Consumer Research (4 credits)

Core B Methodological Requirements (12 credits)

- PSY 511 Univariate Statistics and Experimental Methodology (4 credits), or COM 512 Communication Research Methods (4 credits)
- PSY 512 Field Research Methodology (4 credits)
- PSY 611 Advanced Data Analysis with Computer Applications (4 credits), or COM 531 Multivariate Statistical Methods (4 credits)

Core C Research Requirements (4 credits)

- PSY 699 Research and Thesis (4 credits)

Electives (8 credits)

Select from the following:

- PSY 518 Personnel Psychology (4 credits)
- PSY 522 Organizational Psychology (4 credits)
- PSY 525 Social Psychology (4 credits)
- PSY 590 Consumer/Organizational Psychology Internship (4 credits)
- PSY 596 Special Problems in Psychology (4 credits)
- COM 533 Content Analysis Research Materials (4 credits)
- COM 540 Persuasive Communication and Campaigns (4 credits)
- MLR 640 Performance Appraisal, Compensation, and Benefits (3 credits)
- MKT 501 Marketing Theory and Practice (3 credits)

Other courses in Marketing, Operations Management and Business Statistics, Management and Labor Relations, Communication, and Psychology are possible for elective credit, subject to approval by the CIRP Faculty Committee.

Thesis

Students completing a thesis should take four credit hours of PSY 699 Research and Thesis.

Exit Requirements

Upon completion of the core courses, a student submits a thesis proposal to a committee of faculty selected by the student and faculty advisor. With committee approval, the student carries out his or her research under the direction of the advisor.

Diversity Management Program

Introduction

The Diversity Management program is designed for consultants, human resource personnel, mental health professionals, business executives and managers, educators and administrators, and other professionals who confront the challenges and opportunities presented by the diversity of American society. The curriculum provides students with a theoretical grounding in psychology, as well as specific skills necessary to assess individual and systemic issues that arise in organizations, to facilitate the interpersonal and group dynamics that accompany efforts to resolve conflict, to foster mutual respect and acceptance, and to promote constructive social change. The two-year, forty-semester-hour program combines research findings with theory and practice through course work firmly rooted in the empirical tradition of psychology.

The Diversity Management program has an innovative curriculum that combines traditional-format course work, directed study, and nontraditional-format courses designed for students holding full-time jobs. The latter courses are offered throughout the first year in segments consisting of intensive three-day "course components."

The first year provides the foundation work of the curriculum. Basic theory and research in social psychology and diversity psychology are examined, as are group dynamics, multicultural competencies, and organizational and community development and change. In the second year, theories and methods of intervention are applied to actual issues through: 1) a six-month supervised Fieldwork Placement and 2) an in-depth examination of a selected topic in diversity psychology that culminates in a professional presentation and a thesis or comprehensive examination.

Faculty Research

Faculty members involved with the Diversity Management program possess extensive experience and training in issues concerning human behavior, interactions, and systems. As nationally- and internationally-known educators and consultants, they have written and presented widely in the areas of diversity management and consultation, racial identity development, counseling diverse populations, legal and ethical issues affecting intervention, performance appraisal, team building, sexual harassment, conflict resolution, systems

change strategies, and executive assessment and development.

Admission Information

Applicants to the Diversity Management program must:

1. Hold a bachelor's degree;
2. Complete both the College of Graduate Studies and department admission application forms;
3. Submit academic transcripts for all colleges and universities attended;
4. Submit two letters of recommendation; and
5. Complete a Personal Statement Form, which includes:
 - a. A brief biographical sketch, noting events or experiences that provide supportive evidence that the applicant is an appropriate candidate for the degree in Diversity Management.
 - b. A description of the applicant's goals and interests in Diversity Management and how the MA program will facilitate achievement of those goals.

Applicants must demonstrate a firm foundation in the basic principles of psychology, business, or a related field. Applicants who lack this background but whose candidacy for admission is strong in other respects may be offered entrance to the program contingent on remediation of deficiencies. In addition, applicants with an undergraduate grade-point average below 2.75 must provide scores at the 50th percentile or above on the GRE (general and subject sections of the examination). This requirement may be waived for those who have already earned a master's degree.

Applicants are admitted for study beginning fall term. There is no formal application deadline. Applications are reviewed as they are completed and admission decisions are made on a "rolling" basis. Early application is encouraged. To ensure consideration, contact the program director by May 31.

Submit all application materials to the Graduate Admissions Office.

Degree Requirements

The nontraditional-format for course work is indicated in the curriculum outlined below.

First Year (16 credits)

PSY 525 Social Psychology (4 credits)
PSY 573 Group Dynamics (4 credits)

PSY 605 Human Services Consultation and Intervention (4 credits)
PSY 672 Multicultural Psychology and Diversity Practicum (4 credits)

Second Year (24 credits)

PSY 518 Personnel Psychology (4 credits)
PSY 522 Organizational Psychology (4 credits)
PSY 690 (4 credits) and PSY 691 Fieldwork Placement: Diversity Consultation (4 credits) (taken fall and spring terms for a total of eight credits)
PSY 699 Research and Thesis (4 credits) or PSY 685 Directed Readings for Comprehensive Examination and Thesis (4 credits)

Fieldwork Placement

In the second year, students work individually or form small consulting groups to work with organizations that seek diversity management interventions. Over the six-month period of this supervised, hands-on experience, students apply assessment strategies to gather data on the organizational culture, analyze the data, provide feedback, recommend changes, and deliver the indicated interventions to the client.

Exit Requirements

In the spring term of the second year, students enroll in either PSY 699 Research and Thesis or PSY 685 Directed Readings for Comprehensive Examination and Thesis. Each student completes an in-depth exploration, review, and integration of diversity theory and application on a diversity topic relevant to his or her interests, needs, or settings. The student presents findings and analyses in two formats: a thesis suitable for publication or for presentation at a professional conference and, near the end of the term, all students expecting to graduate in May make oral presentations of their work. Students taking Comprehensive Examinations attend review sessions and study groups. On an assigned date, they take a three-part written examination that is evaluated by members of the faculty for satisfactory completion of program exit requirements.

Psychology Specialist

School Psychology Program

Department of Psychology

Chester Building 158
(216) 687-2544
www.csuohio.edu/psy/grad.html

David Grilly, Chair

The Faculty

Current faculty information can be located on the Department of Psychology Web site.

Introduction

The School Psychology program at Cleveland State University promotes the welfare of children and their families by preparing school psychologists who possess knowledge, skills, and values supporting their role as problem-solvers in schools and other educational settings. As an urban university, Cleveland State is committed to meeting the needs of an increasingly diverse population—both the students enrolled in University educational programs and the clients whose needs will be served by program graduates.

The program faculty views School Psychology as a discipline within the field of Psychology. This broadly based orientation facilitates teaching and learning about development, cognition, physiology, and social interaction (including dimensions of human diversity), as well as their applications in working with children, adolescents, and adults in educational settings. At the same time, learning experiences are designed to develop skills in assessing and intervening in children's academic and other school-performance problems. Faculty subscribe to an eco-behavioral model of service delivery, which is reflected in the program curriculum and in scholarly research activities. This model emphasizes the direct assessment of children's behavior, including environmental factors, for purposes of developing, implementing, and evaluating the impact of appropriate academic and behavioral interventions. The philosophy and structure of the Cleveland State School Psychology program are consistent with program

standards promulgated by the National Association of School Psychologists and it is a NASP-approved program.

The Psychology Specialist (PsyS) degree is awarded to students upon completion of three years of full-time preparation. Students are required to complete the Master of Arts degree program in Psychology (School Psychology specialization) as a prerequisite for admission to the PsyS degree program, which comprises an additional year of study beyond the MA.

Faculty Research

The primary School Psychology program faculty conduct research in several areas:

Connie Hollinger

Development of gifted women and girls; effective school-based service-delivery models.

Colleen McMahon

Early intervention with at-risk children; developmental disabilities; school-based intervention practices.

Kathleen McNamara

Effective school-based interventions and service-delivery models; social competence promotion; professional issues in school psychology.

Financial Assistance

More than ninety percent of students enrolled in the School Psychology program receive financial assistance in the form of a tuition waiver and stipend during their first year in the (MA phase) program. (Students each provide ten clock hours per week of service to the department as graduate assistants.) Only those who have earned an undergraduate grade-point average of 3.0 and above are eligible for this assistance. While there is no program of aid available to students in their second year of study, occasional assistantship positions within the department, or in connection with faculty research grants, may be available. In addition, assistantships may be available through other units on campus.

The third-year, full-time internship has traditionally provided a stipend in an amount equivalent to the state minimum

teacher's salary. Although funding for this purpose is not guaranteed, it is expected to continue in the foreseeable future.

The Carlos Cortez Fund, founded in memory of a Cleveland Municipal School District school psychologist who was a leader in the Greater Cleveland professional community, provides financial support for students of Hispanic descent enrolled in the Cleveland State University School Psychology program.

Program Accreditation

The School Psychology program is approved by the National Association of School Psychologists (NASP) and accredited with the Cleveland State College of Education and Human Services programs by the National Council for Accreditation of Teacher Education (NCATE).

Career Information

Successful completion of the PsyS program in School Psychology confers immediate eligibility for School Psychologist credentials from the Ohio Department of Education (educator licensure), authorizing employment by schools throughout Ohio. Graduates are also eligible to receive the Nationally Certified School Psychologist designation. The Ohio State Board of Psychology School Psychologist license can be obtained upon completion of several additional post-degree requirements, including several years of professional practice and successful performance on a Board-administered examination. Recent graduates of the School Psychology program have been employed in public school districts, early childhood programs, day treatment centers for youth with serious emotional disturbances, and nonpublic schools.

Admission Information

Applicants first seek admission to the Master of Arts in Psychology degree program, representing the first, two-year phase of the School Psychology Program. Students are admitted for the fall semester through an application process conducted in late winter. Admission is based on several factors:

1. Satisfactory preparation in psychology, evidenced in an undergraduate psychology major, successful performance on the Graduate Record Examination (GRE) Psychology Subject area, or course work in key subjects in psychology, including Introduction to Psychology, Personality Theories, Learning Theories, Child Development; and Behavioral Science Statistics;
2. Satisfactory performance in undergraduate studies including an undergraduate cumulative grade-point average of at least 2.75 (3.0 and above preferred);
3. Satisfactory GRE Verbal, Quantitative, and Analytical scores (average at the 50th percentile or better);
4. Letters of recommendation provided by at least two individuals familiar with the candidate's academic performance and potential for career success;
5. A commitment to provide school psychological services in Ohio for at least one year following completion of the program;
6. A written, personal statement describing relevant experiences and professional goals; and
7. A satisfactory interview conducted by invitation of the School Psychology Program Committee.

Individuals applying to the School Psychology program must complete the following activities by February 10th of each year:

1. Submit to the Graduate Admissions Office an Application for Graduate Admission to the Master of Arts in Psychology program, along with the application fee. (The MA degree must be obtained before candidates can enroll in the PsyS degree program; a student must note on the application his or her interest in the Master of Arts degree, School Psychology program.)
2. Arrange for the submission of scores on the Graduate Record Examination (GRE), an official copy of transcripts showing undergraduate course work and degree, and at least two letters of reference to the Cleveland State Graduate Admissions Office.
3. Complete the Personal Statement and Information form, and submit directly to the Department of Psychology. This form can be obtained from the Department of Psychology Office: (216) 687-2544.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Upon completion of the requirements for the Master of Arts degree, students' performance is reviewed for admission to the Psychology Specialist (PsyS) degree phase of the School Psychology program. Requirements for admission to the PsyS degree phase are as follows:

1. Successful completion of the MA degree phase, including satisfactory performance during the second-year field practicum, as judged by University faculty and practicum supervisors;
2. Recommendation by the faculty of the MA degree phase of the School Psychology Program; and
3. Substantial interest in, and likelihood of success in the profession of School Psychology, as judged by the faculty on the basis of the student's performance in the Cleveland State graduate program.

All students are required to complete the entire course of study comprising the Cleveland State School Psychology Program (both MA and PsyS degree phases), although it is sometimes possible to transfer academic credit for equivalent courses (if credit has not been applied toward another degree), or to earn credit by examination, subject to the approval of the School Psychology Program Committee and course instructors. Students who already hold master's degrees may elect NOT to receive the MA from Cleveland State; however, they must complete all of the course work (MA and PsyS) comprising the School Psychology program.

Degree Requirements

Master of Arts Degree Phase:

First Year

- PSY 525 Social Psychology (4 credits)
- PSY 536 Behavior Assessment (4 credits)
- PSY 537 Child and Adolescent Assessment and Treatment (4 credits)
- PSY 538 Intellectual Assessment and Practicum (4 credits)
- PSY 550 Child and Adolescent Development and Disorders (4 credits)
- PSY 564 Psychoeducational Intervention (4 credits)
- PSY 670 Crisis Management (2 credits)
- PSY 672 Multicultural Psychology and Diversity Practicum (4 credits)

Second Year

- PSY 511 Univariate Statistics and Experimental Methodology (4 credits)
- PSY 513 Measurement and Program Evaluation (2 credits)
- PSY 572 Group Interventions (2 credits)
- PSY 645 Psychology of Exceptional Children (4 credits)
- PSY 651 Psychopharmacology (4 credits)
- PSY 660 Ethical, Legal, and Professional Issues (2 credits)
- PSY 690 Field Placement I (4 credits)
- PSY 691 Field Placement II (4 credits)

Psychology Specialist Degree Phase:

Third Year

- PSY 694 Directed Observation in Schools (2 credits)
- PSY 725 and PSY 726 Role and Function of the School Psychologist I and II (2 credits each)
- PSY 767 Special Topics in School Psychology: Reading Problems (4 credits)
- PSY 767 Special Topics in School Psychology: School Consultation (4 credits)
- PSY 790 and PSY 791 Supervised Experience in School Psychology (6 credits each)
- PSY 795 and PSY 796 Seminar in School Psychology I and II (2 credits each)
- ADM 613 School Law (4 credits) or ADM 674 Special Education Law (4 credits)

Exit Requirements

Before receiving the PsyS degree, each student must present a portfolio of work demonstrating attainment of the competencies required for the practice of School Psychology. The portfolio must include a case study exemplifying the process of behavioral consultation for an academic or behavior problem exhibited by a school-aged child. Eligibility for licensure as a School Psychologist by the Ohio State Board of Education and the Ohio State Board of Psychology require a passing score on the Praxis II Exam, which must be completed before the end of the internship year.

Master of Social Work

Joint Program with The University of Akron

School of Social Work

Chester Building 302
(216) 687-4560
www.csuohio.edu/socialwork/swk_grad.html

Maggie Jackson, Director & Graduate
Program Coordinator

The Faculty

Current faculty information can be located on the School of Social Work Web site.

The Program

The mission of the Joint MSW program is to prepare students for specialized, advanced-level, self-critical, accountable, and autonomous practice with oppressed, at-risk, and vulnerable populations. The program provides a rigorous intellectual base, an opportunity for effective skill development, and an educational perspective that views human diversity as desirable and enriching to society. Students are equipped with the knowledge, skills, and values appropriate to the social work profession, the conceptual base of professional social work, the broad-based research strategies of the field, and the various social work roles and intervention strategies used in social work practice. The student may enroll in the program on a full-time, part-time, or advanced-standing basis, if qualified.

Distance Learning

The program is delivered through distance-learning technology, which transmits live-action video signals between the two campuses. Students and instructors at the two locations see each other through television monitors and speak to each other through an associated audio system. Each campus has a dedicated classroom equipped with three fixed cameras; an overhead document camera to display print materials, opaque objects, and transparencies; one camera facing the instructor; and one camera facing the students to capture their questions, comments, and reactions. Classrooms are equipped with three television monitors, one of which is used to view the students at the remote location. The technology is

designed for maximum participation by students and ease of operation by the instructor.

Faculty Research and Publications

The faculty members of the joint Master of Social Work program conduct applied and basic research on a variety of major contemporary social issues, including drug abuse, aging populations, health and mental health, juvenile offenders, family and children issues, social work practice, social policy analysis, and community service. In the past few years, faculty members have authored a number of books and journal articles. The research has been supported by several large federal and foundation grants and a number of smaller state and local awards. Opportunities exist for student involvement in this work.

Careers in Social Work

Graduates of the joint Master of Social Work program hold a variety of positions in the public, private, and nonprofit sectors. The alumni roster includes directors of local agencies and other nonprofit organizations, as well as program planners and managers working in a broad spectrum of human service agencies.

Financial Assistance

A limited number of graduate assistantships and graduate tuition grants are available to qualified students. Interested students should contact the School of Social Work Program Director.

Admission Information

In addition to the College of Graduate Studies admission requirements at Cleveland State University and The University of Akron, the joint MSW program requires of all applicants:

1. An undergraduate major in social work or a related field;
2. A minimum grade-point average of 3.0 in social work and behavioral science courses taken prior to application for admission;

3. A minimum of eight courses in the social and behavioral sciences;
4. Three letters of reference;
5. An essay of three to five typed pages explaining:
 - a. Why the student wants to be a social worker;
 - b. Why a graduate degree is felt to be necessary to fulfill the applicant's personal or professional objectives;
 - c. The applicant's views regarding diversity in society;
 - d. A situation in which the student was the recipient/provider of help, emotionally, socially, or economically; and
 - e. A description of the applicant's previous social work/human service work experience.

Note: No credit is given for work or life experience.

6. Notification, in writing, of:
 - a. Preference for the day, evening, or advanced standing program;
 - b. Preference for full-time or part-time program;
 - c. Intended second-year Area of Concentration—Micro (Direct Practice or Macro Practice); and
 - d. Preference for advanced standing. To qualify for advanced standing, the applicant must have an undergraduate degree in Social Work, a 3.5 grade-point average in the social work major, and 3.2 cumulative GPA.

The application deadline is February 28. Submit materials to the Cleveland State University Graduate Admissions Office.

Students are expected to adhere to the program format under which they were admitted (day/evening, micro/macro, full-time/part-time, advanced standing). Any changes in this admission status will be based on the program's ability to accommodate the change. Changes must be requested before the beginning of the academic year.

Note: Applicants should be aware that having a prior felony conviction or prior sanctions for unprofessional conduct may impact future potential for obtaining field placements, social work employment, and licensure.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Testing-Out Policy

To assist students in avoiding duplication and redundancy of course content during the foundation year, the MSW program allows students the opportunity to test out of the following courses:

SWK 622 Fundamentals of Social Work Research I

SWK 631 Human Behavior and Social Environment: Small Systems

SWK 646 Social Welfare Policy I

Students who wish to test out of one or more of the above courses must notify the MSW Program Director at least three weeks prior to the start of the semester in which the course is typically taught. The proficiency exam must be taken no later than the end of the first week of classes in that semester. There is no fee or penalty associated with taking exams. However, each exam may be taken only once. These exams are available in the school offices at both sites. Students are still required to complete a total of 60 graduate credit hours.

Transfer of Credit

Up to one-third of the total credits required for the MSW degree may be transferred from another accredited social work graduate program at an accredited college or university. All transfer credits must be at the "A" or "B" level. The credits must fall within the six-year time limit to complete degree requirements. Relevance of the credits will be determined by the MSW faculty. Credit hours must not have been applied toward a previous graduate degree. Transfer students from other social work programs must submit fieldwork evaluation(s) and official transcripts at the time of application for admission. A maximum of nine graduate credit hours in the socio-behavioral sciences may be transferred as electives.

Phi Alpha National Social Work Honor Society

An MSW student at Cleveland State who has completed at least four courses with a GPA of 3.5 qualifies to join as a Life Member of the Phi Alpha National Social Work Honor Society, Delta Zeta chapter. Induction ceremonies

are held twice a year. For more information, contact Professor Murali Nair, Faculty Advisor, at (216) 687-4570 or e-mail at m.nair@csuohio.edu, or visit the Web site at www.csuohio.edu/social-work/phialpha/index.html.

Degree Requirements

Each student must complete a minimum of 60 graduate credits of approved required and elective courses in social work. There is no foreign language requirement. Students must complete an approved program of study, which includes the following required courses:

Full-time Program

First Year Professional Foundation

Fall Semester

SWK 601 Foundation Field Practicum I (3 credits) (fall semester only)

SWK 605 Social Work Practice with Small Systems (3 credits)

SWK 622 Fundamentals of Social Work Research I (3 credits)

SWK 631 Human Behavior and Social Environment: Small Systems (3 credits)

SWK 646 Social Welfare Policy I (3 credits)

Spring Semester

SWK 602 Foundation Field Practicum II (3 credits) (spring semester only)

SWK 606 Social Work Practice with Large Systems (3 credits)

SWK 623 Fundamentals of Social Work Research II (3 credits)

SWK 632 Human Behavior and Social Environment: Large Systems (3 credits)

SWK 647 Social Welfare Policy II (3 credits)

Second Year Concentrations

Fall Semester Micro (Direct) Practice

SWK 603 Advanced Field Practicum III (3 credits) (fall semester only)

SWK 607 Advanced Practice with Small Systems I (3 credits)

SWK 611 Dynamics of Racism and Discrimination (3 credits)

SWK 663 Psychopathology and Social Work (3 credits)

One elective

Fall Semester Macro Practice

SWK 603 Advanced Field Practicum III (3 credits) (fall semester only)

SWK 611 Dynamics of Racism and Discrimination (3 credits)

SWK 672 Community Organization and Planning (3 credits)

SWK 674 Community, Economic Systems, and Political Analysis (3 credits)

One elective

Spring Semester Micro (Direct) Practice

SWK 604 Advanced Field Practicum IV (3 credits) (spring semester only)

SWK 608 Advanced Practice with Small Systems II (3 credits)

SWK 664 Direct Practice Research (3 credits)

Two electives

Spring Semester Macro Practice

SWK 604 Advanced Field Practicum IV (3 credits) (spring semester only)

SWK 671 Social Work Administration (3 credits)

SWK 673 Strategies of Community Organization (3 credits)

SWK 675 Program Evaluation (3 credits)

One elective

Four-Year Part-Time Program

Professional Foundation

First Year Fall Semester

SWK 631 Human Behavior and Social Environment: Small Systems (3 credits)

SWK 646 Social Welfare Policy I (3 credits)

First Year Spring Semester

SWK 632 Human Behavior and Social Environment: Large Systems (3 credits)

SWK 647 Social Welfare Policy II (3 credits)

Second Year Fall Semester

SWK 601 Foundation Field Practicum I (3 credits)

SWK 605 Social Work Practice with Small Systems (3 credits)

SWK 622 Fundamentals of Social Work Research I (3 credits)

Second Year Spring Semester

SWK 602 Foundation Field Practicum II (3 credits)

SWK 606 Social Work Practice with Large Systems (3 credits)

SWK 623 Fundamentals of Social Work Research II (3 credits)

Concentrations

Third Year Fall Semester

Micro I (Direct) Practice

- SWK 611 Dynamics of Racism and Discrimination (3 credits)
- SWK 663 Psychopathology and Social Work (3 credits)

Third Year Spring Semester

Micro (Direct) Practice

Two Electives

Third Year Fall Semester

Macro Practice

- SWK 611 Dynamics of Racism and Discrimination (3 credits)
- SWK 674 Community, Economic Systems, and Political Analysis (3 credits)

Third Year Spring Semester

Macro Practice

- SWK 671 Social Work Administration (3 credits)
- One Elective

Fourth Year Fall Semester

Micro (Direct) Practice

- SWK 603 Advanced Field Practicum III (3 credits)
- SWK 607 Advanced Practice with Small Systems I (3 credits)
- SWK 664 Direct Practice Research (3 credits)

Fourth Year Spring Semester

Micro (Direct) Practice

- SWK 604 Advanced Field Practicum IV (3 credits)
- SWK 608 Advanced Practice with Small Systems II (3 credits)
- One Elective

Fourth Year Fall Semester

Macro Practice

- SWK 603 Advanced Field Practicum III (3 credits)
- SWK 672 Community Organization and Planning (3 credits)
- One Elective

Fourth Year Spring Semester

Macro Practice

- SWK 604 Advanced Field Practicum IV (3 credits)
- SWK 673 Strategies of Community Organization (3 credits)
- SWK 675 Program Evaluation (3 credits)

Note: The scheduling of courses depends on the availability of rooms equipped with distance-education technology. The days and times courses are offered vary from year to year. Students enrolled in either the full-time or

part-time program must be prepared to be flexible when the schedule of classes changes.

Micro Concentration

Refers to advanced social work practice with small client systems (individuals, families, and groups) and collateral persons, professionals, and organizations relevant to practice with these small systems. Micro field practicum assignments involve in-depth assessment of client systems and resources; application of intervention theories and skills; formulation of short-term and long-range goals; and evaluation of intervention outcomes.

Macro Concentration

Refers to advanced social work practice with large client systems (organizations, neighborhoods, and communities) and focuses on social change through advocacy and impacting the legislative process. Macro field practicum assignments may include developing methods of needs assessment; program development, identification of strategies and outcome measures; participation in grant preparation, design and/or implementation of programs and service-delivery systems; involvement in program evaluation; work with client groups for the purpose of community organizing and/or social/legislative policy change; and evaluation.

Master of Arts in Sociology

Department of Sociology

Rhodes Tower 1721
(216) 687-4500
www.csuohio.edu/sociology/academic.html#graduate

Sarah Matthews, Chair
Teresa LaGrange, Graduate
Program Director

The Faculty

Current faculty information can be located on the Department of Sociology Web site.

The Program

The Master of Arts in Sociology program provides advanced instruction in the essential knowledge of the discipline and in the major social research skills, both qualitative and quantitative. This training can be applied in a variety of workplaces, including academic, business, government, and agency settings. Alternatively, the master's program can serve as preparation for doctoral studies.

Faculty Research and Publications

The faculty members of the Department of Sociology conduct applied and basic research on a variety of major contemporary social issues, including drug abuse, the aging population, urban education, doctor-patient interaction, social movement effectiveness, youthful offenders, comparative legal institutions, police decision-making, job searches, therapeutic jurisprudence, homicide, and the social organization of work. In the past few years, faculty members have authored a half dozen books and several dozen journal articles. This research has been supported by several large federal and foundation research grants and a number of smaller state and local awards. Opportunities exist for student involvement in this work, particularly since most of it is conducted in the Cleveland area.

Admission Information

All applicants must meet College of Graduate Studies requirements for admission. Students whose cumulative undergraduate grade-point average is

below 3.0 may be required to submit acceptable scores on the Graduate Record Examination. An applicant may hold a bachelor's degree in a field other than sociology, but there should be evidence of sociological preparation. In some cases, students may be granted probationary admission while course deficiencies are satisfied.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Financial Assistance

Graduate assistantships and tuition grants are available to qualified students. Interested students should contact the Sociology Graduate Program Director.

Degree Requirements

In addition to meeting all University requirements, degree candidates must successfully complete a minimum of thirty-two credit hours, or eight courses. These must include three core courses, two graduate-level seminars, two electives, and a master's research paper.

1. Core courses (12 credits):

- SOC 640 Sociological Theory (4 credits)
- SOC 650 Sociological Research Methods (4 credits)
- SOC 651 Sociological Statistics (4 credits)

2. Two graduate-level seminars (8 credits):

- SOC 661 Aging and the Life Course (4 credits)
- SOC 662 Deviance and Social Control (4 credits)
- SOC 663 Criminological Theory (4 credits)
- SOC 670 Gender and Society (4 credits)
- SOC 671 Social Demography (4 credits)
- SOC 680 Race and Ethnicity in American Society (4 credits)
- SOC 683 Sociological Analysis of Work and Economic Change (4 credits)
- SOC 684 Urban Social Change (4 credits)

3. Two electives (8 credits):

Two courses from any Sociology 500- or 600-level offerings, or approved graduate-level courses from cognate social science and interdisciplinary social science departments.

4. Master's paper research (4 credits):

- SOC 698 Master's Research Paper (4 credits)

Degree Candidacy

Students in the graduate program are admitted to candidacy for the MA degree when they have successfully completed the core courses. Successful completion is accomplished by achieving a grade-point average of at least 3.0 for the core courses, with no grade lower than a B-.

Urban Affairs

Doctor of Philosophy in Urban Studies and Public Affairs ■

Master's Degree Programs:

Urban Studies ■

Law and Public Policy

Environmental Studies ■

JD/MAES

Public Administration ■

JD/MPA

Urban Planning, Design, and Development ■

JD/MUPDD

Doctor of Philosophy in

Urban Studies and Public Affairs

Maxine Goodman Levin College of Urban Affairs

Urban Affairs 231
(216) 687-2136
www.urban.csuohio.edu/academics/graduate/phd.shtml

William M. Bowen, Ph.D.,
Program Director

Faculty

Current faculty information can be located on the Department of Urban Studies Web site.

Introduction

The Ph.D. program in Urban Studies and Public Affairs integrates urban-related knowledge from a number of academic disciplines. Through disciplinary integration, doctoral students analyze, design, test, and evaluate strategies for urban policy-making and management within the public and private sectors. The program is offered jointly by Cleveland State University and the University of Akron. Students may matriculate at either campus, although students are encouraged to schedule course work at both institutions to take advantage of the diversity of faculty backgrounds and approaches.

Ph.D. Mission and Goals

The mission is to prepare scholars for research, teaching, and reflective practice in positions related to urban studies and public affairs in universities or public-policy organizations. The goals of the program are:

- To graduate scholars who possess a strong methodological foundation within the field of urban studies and public affairs together with an in-depth knowledge that enables them to recognize, identify, and articulate the frontiers of scholarship in a specialization.
- To graduate scholars able to construct, execute, and present scholastically sound, independent research of either a theoretical or applied nature that expands the frontiers of knowledge within the field of urban studies and public affairs.

For updated Ph.D. program information, visit urban.csuohio.edu/academics/graduate/phd.shtml.

Financial Assistance

The Ph.D. program awards graduate assistantships on a competitive basis to students with superior academic records. Graduate assistantships are designed both to serve the needs of the Levin College and to assist in the professional development of the student. Assistantships are regarded as apprenticeships, during which students interact with academics and practitioners through classroom and applied instruction, research, and administrative experiences to become more effective members of their fields. Graduate assistants are required to spend twenty hours per week in their apprenticeships.

Admission Information

Students are admitted to the Ph.D. program in Urban Studies in the fall semester only. Students entering the program with a master's degree are expected to have a grade-point average of 3.5 or better. Both undergraduate and graduate grade-point averages are considered in determining eligibility for admission. Cleveland State also permits students with bachelor's degrees to enter the program. Bachelor entry-level students must have achieved at least a 3.5 grade-point average in their undergraduate work.

Applicants are expected to have earned a minimum combined score of 1,050 on the quantitative and verbal sections of the Graduate Record Examination (GRE), plus at least a 4.0 on the analytical writing section. In addition to the application requirements of the College of Graduate Studies, an applicant must submit a writing sample, preferably a recently graded research paper, and a statement of purpose for seeking a Ph.D. in Urban Studies and Public Affairs. The application deadline is January 15. Submit all materials to the Graduate Admissions Office.

International applicants whose native language is other than English, and who received their undergraduate and/or graduate degree(s) outside of the United States, must submit the results of the Test of English as a Foreign Language (TOEFL) or the Michigan English Language Assessment Battery (MELAB). The minimum scores required for admission are 525 for the paper TOEFL examination or 197 for the computer-based TOEFL, and 77 for the MELAB.

To facilitate the admission process, it is strongly recommended that applicants use

the online application system at <http://www.csuohio.edu/admissions/gradForm.html>. The processing time for paper application forms is longer.

Degree Requirements [\(addenda revised 07/2006\)](#)

Courses

Depending on previous graduate course work, Ph.D. students must complete some or all of the following master's level prerequisite courses before enrolling in core or specialization courses. Those entering with a bachelor's degree must complete all prerequisites. Students must earn a grade-point average of 3.0 or better in the following prerequisite courses:

PAD 600 Introduction to Public Administration or PAD 617/PSC 605 Public Administration and the Political Process
UST 601 Applied Quantitative Reasoning I
UST 602 Applied Quantitative Reasoning II
UST 603 Public Finance and Economics
UST 605 Urban Spatial Structures
UST 616 Systems and Processes of Policy Development or PSC 636 Policy Development and Evaluation

Following completion or waiver of prerequisites, each student is required to:

1. Complete a common core of five courses with a grade of B or better in each course. The core courses are:

UST 800 Urban Theory I
UST 801 Urban Theory II or UST 802 Logic of Inquiry*
UST 803 Quantitative Research Methods I
UST 804 Quantitative Research Methods II or UST 805 Qualitative Research Methods in Urban Studies

UST 806 Research Methods in Urban Studies

*Students whose major area of specialization is Public Administration are required to take UST 802 in lieu of UST 801.

2. Complete a concentration of twenty hours plus two electives. Each concentration includes a required seminar, which is usually the last course taken prior to the comprehensive examination. Available concentrations or areas of specialization are: [\(see addenda new 06/2007\)](#)

- a. Environmental Policy and Administration
- b. Housing and Neighborhood Development
- c. Public Administration
- d. Urban Economic Development
- e. Urban Human Services Administration

Comprehensive Examination

Upon completion of all course work, students must take a comprehensive examination in the major area of specialization. Upon successful completion of the examination, a student is eligible to begin dissertation research.

Dissertation

The dissertation demonstrates the student's ability to plan and carry through to successful completion a comprehensive research project. The dissertation should contribute to society's knowledge about the area of specialization chosen. Students receive their degree from the university at which they defend their dissertation.

Additional information may be obtained from:

Graduate Programs Manager
Maxine Goodman Levin, College of
Urban Affairs
Cleveland State University
2121 Euclid Ave.
Cleveland, Ohio 44115
Telephone: (216) 875-9985

Master of Science in Urban Studies

Maxine Goodman Levin College of Urban Affairs

Urban Affairs 231
(216) 687-2136
www.urban.csuohio.edu/academics/graduate/msus.shtml

Dennis Keating, Graduate
Program Director

The Faculty

Current faculty information can be located on the Department of Urban Studies Web sites.

Introduction

The program offers advanced training in urban studies to recent undergraduate-degree recipients, practitioners already working in the field, and returning students who wish to pursue careers in public, not-for-profit, or private service.

No single discipline adequately covers the broad spectrum of knowledge that the modern urban problem solver needs. Thus, the program draws on many disciplines to broaden and extend the student's knowledge and expertise through a combination of specially developed urban core courses, research seminars, and electives. It is an interdisciplinary program drawing on resources and faculty from a variety of disciplines, colleges, and departments. Classroom knowledge can be augmented by internships and other experiential training that add scope to the program.

The objective of the program is to educate students with a grounding in theoretical perspectives and applied research methods useful for effective problem definition and problem solving. These skills enhance organizational capacity in attempting to define, analyze, and solve urban problems. Special emphasis is placed on economic development, public finance, organizational leadership, law and public policy, community and neighborhood development, and policy analysis.

For updated information about the MS in Urban Studies program, visit urban.csuohio.edu/academics/graduate/msus.shtml.

Faculty Research and Publications

Urban Studies faculty members conduct research in the areas of housing, economic development, environmental policy and planning, historic preservation, neighborhood and community development, social policy, conflict resolution, public finance, and urban management.

Research Units

Students have opportunities to work with the faculty and staff in the research, public service, and training centers in the Levin College. See the Educational Resources section of this Catalog for information on the Levin College facilities.

College Computing and Technology

In order to promote computer literacy and provide computer-based academic resources, the Levin College maintains two student computer labs and a portable, twenty-four user laptop cart for use in classrooms. The computer labs, located in UR 39 and UR 40, offer software applications for word processing, spreadsheet analysis, database, computer-aided presentation, Geographic Information Systems (GIS), ArcInfo, Internet access, and statistical analysis. The labs provide access to laser printers for high-quality black-and-white output, a color laser printer for GIS maps, and a color scanner for capture of graphics. Each lab is equipped with a permanently mounted LCD projector for teaching computer-based classes. Any student enrolled in a Levin College program or class may apply for a computer-lab account and use the labs during hours in which the College's building is open. In addition, Levin College lab account holders are provided with disk space on the networked server for conveniently storing class work; an e-mail account for communicating with people on campus and around the world; and disk space for creating personal web pages. The Interactive Media Lab (IML) is available for production of DVDs, CD-ROMs, video/audio streams, and advanced graphics. Digital video/audio capture

equipment is available. The IML is equipped with Apple Macintosh computers and a Quicktime streaming server. Additional computing information may be found at the College Web site at urban.csuohio.edu.

Financial Assistance

The Levin College provides graduate assistantships on a competitive basis to full-time students. Although the deadline for receipt of graduate assistantship applications is March 1, fullest consideration is given to those who have submitted all application materials for the MS program by February 1.

The College also offers paid internships and tuition grants to eligible degree-seeking students. Application forms are available from the Levin College Office of Student Services. See also the section on Expenses and Financial Aid: Graduate Assistantships in the front of this Catalog.

Career Information

The Levin College, through the Department of Urban Studies, the Office of Student Services, and the faculty, provides a variety of services related to career planning to help students and graduates find employment related to their program of study. Current job postings are maintained in the Office of Student Services and on the College Web site. Cleveland State's Career Services Center also provides graduate students and alumni with career advice and career development assistance, including resume review. (See the section on Campus Services and Programs: Career Services in the front of this Catalog).

Careers in Urban Affairs

Graduates of the MS program in Urban Studies hold a variety of positions in the public, private, and nonprofit sectors. The alumni roster includes elected officials, directors of local development corporations and other nonprofit organizations, environmental policy analysts, real estate personnel, and program planners and managers working in a broad spectrum of urban organizations.

Admission Information

Applicants to the Master of Science in Urban Studies Program must meet the minimum requirements established by the College of Graduate Studies and the MS program faculty:

1. A minimum undergraduate grade-point average of 3.0.
2. Graduate Record Examination (GRE) scores, with an average Verbal and Quantitative score at the 40th percentile, and an Analytical Writing score of at least 4.0. Students with a graduate degree from an accredited college or university are exempted from this requirement. Other standardized admission examinations may be substituted at the discretion of the Program Director.
3. Two letters of recommendation, using the Recommendation Form for Graduate Admission (available online at <http://www.csuohio.edu/gradcollege/admit/pdf/recommend.PDF>).
4. Non-native English speakers must demonstrate English-language proficiency by achieving a minimum score of 525 on the paper-based TOEFL or 197 on the computer-based TOEFL; a minimum score of 77 on the Michigan Test; or an earned bachelor's degree or higher from an accredited U.S. institution.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Types of Admission

The academic status of a graduate degree-seeking applicant is determined after a review of admission credentials. Graduate Program Committees, in concurrence with the Office of Graduate Admissions, may recommend admission of applicants as regular, provisional or conditional graduate students.

Regular Admission

Applicants have met all of the above admission requirements.

Provisional Admission

Applicants who have not submitted all necessary application materials, but who meet the University's minimum grade-point and/or admission test score requirements may be admitted provisionally. Students admitted provisionally are not permitted to register for classes until all outstanding materials are

received by the Graduate Admissions Office. Upon receipt of all admission credentials, the graduate program will consider the student for Regular Graduate Student status.

Conditional Admission

Applicants who do not meet all College of Graduate Studies and program requirements for Regular Admission but still show strong promise for success may be admitted conditionally. Conditions under which the student may achieve regular degree-seeking status will be specified in the admission letter for each student. Students admitted conditionally will have a maximum of two semesters to meet the conditions stated in their admission letters. If students do not meet all of the specified conditions within that time frame, they will be automatically dismissed from the University.

Conditionally admitted graduate students who have met all of the conditions specified in their admission letters will obtain Regular Graduate Student status.

International applicants who do not meet the College of Graduate Studies English Language proficiency requirements, but meet the other program requirements, may be admitted conditionally. These students must take courses as specified by the CSU ESL program. If conditionally admitted international students do not meet all of these requirements within two semesters, they will be automatically dismissed from the University.

Non-Degree Admission

Students may apply for admission to the University on a non-degree-basis. Students who subsequently apply to the MS program must have received a B or better in each course to be considered for regular admission. Up to twelve credits earned as a non-degree student can be applied toward the degree. These must be core courses specified by the Graduate Advisor or Program Director.

Non-degree graduate students who submit required application materials and are in good academic standing (GPA 3.0 or above) will be considered for admission as Regular Graduate Students.

Degree Requirements

A minimum of forty credit hours is needed to complete degree requirements. Students must meet all University requirements and must attain a 3.0 or better grade-point average.

Students are required to complete a common core curriculum and an area of specialization with the advice and consent of their faculty advisor.

Core Courses

The core of the MS in Urban Studies curriculum (16 credit hours) is required of all students and consists of the following:

- UST 601 Applied Quantitative Reasoning I (4 credits)
- UST 603 Public Finance and Economics (4 credits)
- UST 605 Urban Spatial Structures (4 credits)
- UST 606 Technology and the Evolution of Human Settlements (4 credits)

Areas of Specialization

Students complete an area of specialization (24 credit hours) to be chosen in consultation with an advisor. Specializations consist of required courses, elective(s), and a capstone course, exit project, or thesis. The areas of specialization are given below. Please see the Graduate Advisor for specific curriculum plans.

1. Economic Development
2. Public Finance
3. Urban Policy Analysis
4. Urban Real Estate Development
5. Community and Neighborhood Development

Law and Public Policy Program

The Levin College and the Cleveland-Marshall College of Law jointly sponsor the Law and Public Policy program. The program and its curriculum are recommended for law students and graduate students in urban affairs who are interested in public-service careers and who wish to expand their understanding of legislative and administrative procedures, governmental decision-making, and public-policy development.

Required courses include:

- LAW 557 Legislation (3 credits)* or PSC 605 Public Administration and the Political Process (4 credits)
- LAW 623 Administrative Law (3 credits)* or PAD 631 Law and Public Administration (3 credits)

*See the *College of Law Catalog for course descriptions.*

Three experiential opportunities are offered. The Law and Public Policy Clinic introduces students to the legal and analytic tools needed in addressing public policy issues. The Washington and Columbus seminars allow students to observe public policy as it develops through the legislature and executive agencies.

UST 573 Columbus Seminar
(4 credits)

UST 574 Washington Seminar
(4 credits)

UST 670 Introduction to Law and
Public Policy (4 credits)

UST 683 Law and Public Policy Clinic
(4 credits) (*Prerequisite: UST 670*)

Students may select courses in the areas of economic development, environment, law and public policy, organizational leadership, urban policy analysis, and urban services administration.

Those students whose needs are not met with one of the six areas of specialization listed above may design individual programs of study in consultation with their advisors and with the approval of the Program Director. Examples of individually designed programs of study include Housing and Comparative Urban Studies.

Internship

An internship is not required; however, students without related work experience are encouraged to seek an internship placement. Paid and unpaid internships are arranged through the Department of Urban Studies. Interested students may receive elective credit for internship work.

Exit Requirements

All candidates for the Master of Science in Urban Studies degree must complete a thesis, capstone, or an alternative exit project. Generally, students may not register for thesis/capstone/exit-project credit until they have completed the core courses and the required courses in their area of specialization.

Thesis

Before registering for thesis credit, a student must select a thesis advisor from the Urban Studies faculty. In conjunction with the advisor, the student then selects a thesis committee. The committee consists of at least three members, all of whom must be members of the Graduate Faculty. The committee's function is to advise and assist the

student in writing and research and to formally approve the thesis once it has been successfully completed.

Students selecting the thesis option should familiarize themselves with the regulations and procedures of the College of Graduate Studies. (See the section on Thesis/Dissertation in the front of this Catalog.)

Capstone

The capstone seminar provides a final experience for MS in Urban Studies students. Students are expected to prepare and defend a capstone paper reflecting their understanding of a specialization field. The Capstone is a required course for the following specializations: Economic Development, Public Finance, and Urban Real Estate Development.

Exit Project

Before registering for exit-project credit, a student must select an advisor, who will approve the student's proposed project and read the completed report. Students must complete the Exit Project Approval Form and obtain the required signature prior to registering for the project.

Students selecting the exit-project option must successfully complete an applied research report, an original project design, a policy analysis and evaluation paper, or a similar project as approved by the advisor. The exit project must place the work in an academic context, including a comprehensive literature review and appropriate consideration of the theoretical roots of the particular professional application.

Dual Degree Program

In 1998, a cooperative agreement was reached between the Levin College of Urban Affairs at Cleveland State University and the Department of Regional Development of Chung-Ang University in Seoul, Korea, to offer a dual Master of Science degree in Urban Studies/Urban and Regional Planning. Chung-Ang University will waive tuition.

Course of Study

Students who wish to spend the second year of the MS program in residence in Seoul, Korea, must apply to the MS Program Director for admission well in advance of the semester(s) of intended residence.

• Levin College students take Chung-Ang classes (three credit hours), which are accepted by Cleveland State toward the MS degree. They include the following courses:

- Applied Statistics
- Survey Research Methods
- Public Economics
- Regional Economics

Elective courses include:

- Urban and Regional Planning
- Urban and Regional Policy
- Urban Planning Methods
- Community Development Methodology
- Introduction to GIS
- Urban History

Classes are taught in Korean; however, English textbooks are available and Chung-Ang faculty advise and tutor students in English.

Students receive the MS in Urban Studies degree from Cleveland State University and the Urban and Regional Planning degree from Chung-Ang University.

Master of Arts in Environmental Studies

Maxine Goodman Levin College of Urban Affairs

Urban Affairs 231
(216) 687-2136
www.urban.csuohio.edu/academics/graduate/ma/

Sanda Kaufman, Graduate
Program Director

The Faculty

Current faculty information can be located on the Department of Urban Studies Web site.

Introduction

The Master of Arts in Environmental Studies, housed in the Department of Urban Studies, prepares students for careers in environmental policy and management through a broad, interdisciplinary course of study. The program is one of three interdisciplinary degrees in the University's Environmental Academic Studies Program, coordinated through the Environmental Institute (<http://www.csuohio.edu/cestp/contact.htm>).

The task at the core of the graduate Environmental Studies program is the development of human institutions, organizations, and behaviors that restore and protect the environment, requiring careful study of both natural and human systems and their interdependence.

Faculty Research and Publications

Members of the Master of Arts in Environmental Studies faculty have wide-ranging research interests, including environmental policy, environmental technology, environmental land-use planning, risk analysis, citizen participation, environmental health, energy studies, global climate change, water-resources policy and planning, brownfields redevelopment, and lake paleontology. They have published in leading journals in these fields. An MA faculty member is the American editor for the *International Journal of Global Environmental Issues*.

Research Units

Students have opportunities to work with the faculty and staff in the research, public service, and training centers in the Levin College. The Levin College is home to the Great Lakes Environmental Finance Center (GLEFC), a U.S. EPA-funded center and one of only nine such centers in the United States. The GLEFC offers technical assistance, training, and research resources for state and local governments, the private sector, and nonprofit organizations. GLEFC helps solve financial problems related to environmental facilities and resources. See the Educational Resources section of this Catalog for information on the Levin College facilities.

Computer Facilities

In order to promote computer literacy and to provide computer-based academic resources, the Levin College maintains two student computer labs and a portable twenty-four user laptop cart for use in classrooms. The computer labs, located in UR 39 and UR 40, offer software applications for word processing, spreadsheet analysis, database, computer-aided presentation, Geographic Information Systems (GIS), ArcInfo, Internet access, and statistical analysis. The labs provide access to laser printers for high-quality black-and-white output, a color laser printer for GIS maps, and a color scanner for capture of graphics. Each lab is equipped with a permanently mounted LCD projector for teaching computer-based classes. Any student enrolled in a Levin College program or class may apply for a computer lab-account and use the labs during hours in which the College's building is open. In addition, Levin College-lab account holders are provided with disk space on the networked server for conveniently storing class work; an e-mail account for communicating with people on campus and around the world; and disk space for creating personal web pages. The Interactive Media Lab (IML) is available for production of DVDs, CD-ROMs, video/audio streams, and advanced graphics. Digital video/audio capture equipment is available. The IML is equipped with Apple Macintosh com-

puters and a Quick Time streaming server. Additional computing information may be found on the College Web site at www.urban.csuohio.edu.

Financial Aid

The Levin College provides graduate assistantships on a competitive basis to full-time students. Although the deadline for receipt of graduate-assistantship applications is March 1, fullest consideration is given to applicants who have submitted all application materials for the MA in Environmental Studies program by February 1.

The College also offers paid internships and tuition grants to eligible degree-seeking students. Application forms are available from the Levin College Office of Student Services. (See also the section on Expenses and Financial Aid: Graduate Assistantships in the front of this Catalog.)

Career Opportunities

Students in the environmental studies program develop skills that are in high demand. These skills are particularly well suited to bridging the gap between science and policy. Students will become leaders in their communities' efforts to protect and/or restore environmental quality. Environmental studies graduates work in organizations such as environmental protection agencies; nonprofit environmental advocacy organizations; environmental education organizations; municipal governments; regional planning and resource agencies; and state and national parks and recreation areas.

The Levin College—through the Department of Urban Studies, the Office of Student Services, and the faculty—provides a variety of career-planning services to help students and graduates find employment related to their programs of study. Current job postings are maintained in the Office of Student Services and on the College Web site. Cleveland State's Career Services Center also provides graduate students and alumni with career advice and career-development assistance, including resume review. (See the section on Campus Services and Program: Career Services in the front of this Catalog.)

Admission Information

Applicants to the Master of Arts in Environmental Studies Program must meet the minimum requirements established by the College of Graduate Studies and the MAES program faculty:

1. A minimum undergraduate grade-point average of 3.0.
2. Graduate Record Examination (GRE) scores, with an average Verbal and Quantitative score at the 40th percentile, and an Analytical Writing score of at least 4.0. Students with a graduate degree from an accredited college or university are exempted from this requirement. Other standardized tests may be substituted at the discretion of the Program Director.
3. Two letters of recommendation, using the Recommendation Form for Graduate Admission (available online at <http://www.csuohio.edu/gradcollege/admit/pdf/recommend.PDF>).
4. Non-native English speakers must demonstrate English-language proficiency, by achieving a minimum score of 525 on the TOEFL (197 on the computer-based TOEFL); a minimum score of 77 on the Michigan Test; or an earned bachelor's degree or higher from an accredited U.S. institution.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Types of Admission

The academic status of a graduate degree-seeking applicant is determined after a review of admission credentials. Graduate Program Committees, in concurrence with the Office of Graduate Admissions, may recommend admission of applicants as regular, provisional or conditional graduate students.

Regular Admission

Applicants have met all of the above admission requirements.

Provisional Admission

Applicants who have not submitted all necessary application materials, but who meet the University's minimum grade-point and admission test score requirements may be admitted provisionally. Students admitted provisionally are not permitted to register for classes until all outstanding materials are received by the Graduate Admissions

Office. Upon receipt of all admission credentials, the graduate program will consider the student for Regular Graduate Student status.

Conditional Admission

Applicants who do not meet all College of Graduate Studies and program requirements for Regular Admission but still show strong promise for success may be admitted conditionally. Conditions under which the student may achieve regular degree-seeking status will be specified in the admission letter for each student. Students admitted conditionally will have a maximum of two semesters to meet the conditions stated in their admission letters. If students do not meet all of the specified conditions within that time frame, they will be automatically dismissed from the University.

International applicants who do not meet the College of Graduate Studies English Language proficiency requirements, but meet the other program requirements, may be admitted conditionally. These students must take courses as specified by the CSU ESL program. If conditionally admitted international students do not meet all of these requirements within two semesters, they will be automatically dismissed from the University.

Conditionally admitted graduate students who have met all of the conditions specified in their admission letters will obtain Regular Graduate Student status.

Non-Degree Admission

Students may apply for admission to the University on a non-degree basis. Students who subsequently apply to the MAES program must have received a B or better in each course to be considered for admission. Up to twelve credits earned as a non-degree student can be applied toward the degree. These must include UST 601, ENV 652, and other courses as specified by the Graduate Advisor or Program Director.

Non-degree graduate students who submit all required application materials and are in good academic standing (GPA 3.0 or above) will be considered for admission as Regular Graduate Students.

Degree Requirements

The MA in Environmental Studies program includes a minimum of forty-three credits, including core-competency courses, an eighteen-credit core curriculum within the major, twelve to

sixteen elective credits (four courses), and an exit project.

Core Competency Courses

Technology

- CVE 450 Environmental Technology (3 credits)
- PHY 570 Environmental Physics (4 credits)

Technical Writing

- ENG 509 Technical Writing (2 credits)

Major Core Curriculum

- ENV/CVE/BIO 595 Environmental Seminar (1 credit)
- UST 601 Applied Quantitative Reasoning I (4 credits)
- UST/ENV 652 Environmental Policy and Administration (4 credits)
- LAW 671 Environmental Law (3 credits)
- EVS/GEO 506 Ecosystem Science (3 credits)
- CHM 503 Environmental Toxicology (3 credits) (one year natural sciences or permission of instructor) or CHM 504 Environmental Chemistry (3 credits) (undergraduate organic chemistry or equivalent)

Electives (12-16 credit hours; four-class minimum)

Generalist: Choose four courses from concentrations or electives (12-16 credits)

Specializations: Minimum three courses from a concentration.

Policy and Administration

- UST 651 Environmental Finance (4 credits) (required for specialization)
- PAD 600 Introduction to Public Administration (4 credits)
- PAD 604 Organizational Behavior (4 credits)
- UST 616 Systems and Processes of Policy Development (4 credits)
- UST 603 Public Finance and Economics (4 credits)
- LAW 808 Environmental Law Clinic (4 credits) (with instructor permission)

Environmental Planning

- UST 553 Environmental Planning I: Urban Sustainability (4 credits)*
- UST 653 Environmental Planning II: Regional Landscapes (4 credits)*
- UST 642 Introduction to GIS (4 credits)
- UST 550 Environment and Human Affairs (4 credits)

LAW 608 Land Use (4 credits)
(with instructor permission)

Or UST 609 Planning Law (4 credits)

**One of these courses is required for the specialization.*

GIS

UST 642 Introduction to GIS
(4 credits)

UST 643 Advanced GIS
(4 credits)

UST 644 GIS Capstone
(4 credits)

Environmental Nonprofit Management

PAD 550 Institutional Development of the Nonprofit Organization
(4 credits)

UST 510 Proposal Writing and Program Development (4 credits)

PAD 604 Organizational Behavior
(4 credits)

PAD 651 Fundraising and External Relations for Nonprofit Organizations (4 credits)

PAD 652 Financial Administration and Control of Nonprofit Organizations
(4 credits)

Additional Electives (to be selected with advisement from program director)

UST 606 Technology and Evolution of Human Settlements (4 credits)

EVS 520 Rivers and Watershed of Northeast Ohio (2 credits)

EVS 521 Rivers and Watershed Laboratory (2 credits)

EVS 523 Map Interpretation and the Visualization of Space (3 credits)

EVS 550 Applied Ecology (300-level Bio or permission) (3 credits)

EVS 560 Geomorphology (EVS 523 or permission) (4 credits)

Exit Project

Every student must register for four credits of exit-project course work (UST 698) and successfully complete an applied research report, an original project design, a policy-analysis-and-evaluation paper, or a related project. Before registering for exit-project credit, the student and his or her advisor select a proposed exit project. The student must complete a Permission Form and obtain the required signatures prior to registering for the project.

JD/MA in Environmental Studies Program

The combined curriculum leading to the degrees of Juris Doctor and Master of Arts in Environmental Studies is designed to permit the student to

complete both degrees over four years instead of the five years that would typically be required to complete the two degrees separately.

Entry into the Dual Degree Program can occur in one of two ways. Applicants who are not currently enrolled in either the JD or the MA in Environmental Studies degree program must apply for admission to both the College of Graduate Studies and the College of Law concurrently and follow the normal procedures of the respective colleges. Application for admission must be specifically for the Dual Degree Program. Students who enroll in this manner spend their first year taking courses exclusively in the JD program and their second year taking courses exclusively in the MA in Environmental Studies program. In the third and fourth years, students take courses in both degree programs. Applicants who are currently enrolled in either the JD or the MA in Environmental Studies degree program must apply for admission to the other degree program prior to the completion of sixty credit hours in the JD program or twenty-four credit hours in the MA in Environmental Studies program. Students who enroll in this manner are advised as to how to schedule the remainder of their courses in the Dual Degree Program. Under no circumstances will a student be allowed to take more than eight years to complete the combined programs.

The Dual Degree Program requires a total of four academic years. The Juris Doctor requirements are fulfilled by the completion of eighty credit hours of work in the College of Law, including all required courses, and the transfer of eight credit hours from courses taken in the Master of Arts in Environmental Studies program. The Master of Arts in Environmental Studies requirements are fulfilled by the completion of thirty-five credit hours of courses in the College of Urban Affairs, including all required courses, and the transfer of the equivalent of eight credit hours from courses taken in the College of Law. In order to ensure that the degree requirements of both programs are fully maintained, while at the same time permitting the saving of a full academic year, students who pursue the Dual Degree Program are not permitted to take courses outside either the College of Law or the Master of Arts in Environmental Studies program for credit toward either degree.

All requirements for both programs must be completed before either degree is awarded. If a student elects to receive one degree before completing the

requirements of the other degree, forfeiture of some transfer credit will result and the student will no longer be in the Dual Degree Program.

Submit College of Graduate Studies application materials to the Graduate Admissions Office. Contact the College of Law regarding law application procedures.

Master of Public Administration

Maxine Goodman Levin College of Urban Affairs

Urban Affairs 231
(216) 687-2136
www.urban.csuohio.edu/academics/graduate/mpa.shtml

Vera Vogelsang-Coombs,
Graduate Program Director

The Faculty

Current faculty information can be located on the Department of Urban Studies Web sites.

Accreditation

The Master of Public Administration program is accredited by the National Association of Schools of Public Affairs and Administration (NASPAA). Additionally, the Maxine Goodman Levin College of Urban Affairs, which houses the MPA program, has been designated a Center of Excellence in Public Administration by Cleveland State University. The MPA program also was ranked second in the nation by *U.S. News and World Report* in the area of city management/urban policy.

Mission

The Master of Public Administration program's mission is to advance intellectual and administrative leadership in public administration by preparing students to assume the challenges of public service. Course work gives a diverse student body a foundation in general public administration and specialized skills grounded in one of the program's areas of expertise. It also helps students to discover, construct, interpret, and disseminate knowledge and understanding about the practice of public affairs. The MPA program also serves the Northeast Ohio region, including the professional community, by extending intellectual resources and applying knowledge.

The MPA program has built this mission on a commitment to nationally recognized excellence in public administration education and research, to the development of leadership in government, to public service for solutions to urban problems, and to an enhanced

understanding of public policy and management in a global and diverse society. Through its activities, the Master of Public Administration program supports the educational, research, and public-service missions of the Maxine Goodman Levin College of Urban Affairs and Cleveland State University.

The Master of Public Administration program is multidisciplinary, drawing on the faculties of the Nance College of Business Administration, the Levin College of Urban Affairs, and the Department of Political Science. The principal objective of the program is to prepare its graduates for administrative positions in government, non-profit, and public-service organizations. The program provides a broad educational base, as well as specific administrative techniques as preparation for positions carrying administrative responsibility. The program is designed both for in-service students and recent college graduates seeking careers in government and public-service organizations. Most courses are offered in the evening and a few on weekends, allowing students to take classes after work hours.

For updated MPA program information, visit the Web site at urban.csuohio.edu/academics/graduate/mpa.shtml.

Research Units

Students have the opportunity to work with the faculty and staff in the research, public-service, and training centers of the Levin College. See the Educational Resources section of this Catalog for information on the Levin College facilities.

College Computing and Technology

To promote computer literacy and to provide computer-based academic resources, the Levin College maintains two student computer labs and a portable, twenty-four user laptop cart for use in classrooms. The computer labs, located in UR 39 and UR 40, offer software applications for word processing, spreadsheet analysis, database, computer-aided presentation, Geographic Information Systems (GIS), ArcInfo, Internet access, and statistical analysis. The labs provide access to laser printers for high-quality black-and-white output,

a color laser printer for GIS maps, and a color scanner for capture of graphics. Each lab is equipped with a permanently mounted LCD projector for teaching computer-based classes. Any student enrolled in a Levin College program or class may apply for a computer-lab account and use the labs during hours in which the College's building is open. In addition, Levin College-lab account holders are provided with disk space on the networked server for conveniently storing class work; an e-mail account for communicating with people on campus and around the world; and disk space for creating personal web pages. The Interactive Media Lab (IML) is available for production of DVDs, CD-ROMs, video/audio streams, and advanced graphics. Digital video/audio capture equipment is available. The IML is equipped with Apple Macintosh computers and a Quicktime streaming server. Additional computing information may be found at the College Web site at www.urban.csuohio.edu.

Career Information

The Levin College—through the Office of Student Services and the faculty—provides a variety of services related to career planning to help students and graduates find employment related to their program of study. Current job postings are maintained in the Office of Student Services and on the College Web site. Cleveland State's Career Services Center also provides graduate students and alumni with career advice and career-development assistance, including resume review. See the section on Campus Services and Programs: Career Services in the front of this Catalog.

Financial Assistance

The Levin College provides graduate assistantships on a competitive basis to full-time students. Although the deadline for receipt of graduate-assistantship applications is March 1, fullest consideration is given to those who have submitted all application materials for the MPA program by February 1.

The College also offers paid internships and tuition grants to eligible degree-seeking students. Application forms are

available from the Levin College Office of Student Services. See also the section on Expenses and Financial Aid: Graduate Assistantships in the front of this Catalog.

Admission Information

Applicants to the Master of Public Administration Program must meet the minimum requirements established by the College of Graduate Studies and the MPA program faculty:

1. A minimum undergraduate grade-point average of 3.0.
2. Graduate Record Examination (GRE) scores, with an average Verbal and Quantitative score at the 40th percentile or above, and an Analytical Writing score of at least 4.0.

Students with a graduate degree from an accredited college or university are exempted from this requirement.

The LSAT may be substituted for the GRE only by JD/MPA applicants. Other standardized admission examinations may be substituted at the discretion of the Program Director.

3. Two letters of recommendation, using the Recommendation Form for Graduate Admission (available online at <http://www.csuohio.edu/gradcollege/admit/pdf/recommend.PDF>).
4. Non-native English speakers must demonstrate English-language proficiency by achieving a minimum score of 525 on the paper-based TOEFL or 197 on the computer-based TOEFL; a minimum score of 77 on the Michigan Test; or an earned bachelor's degree or higher from an accredited U.S. institution.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Types of Admission

The academic status of a graduate degree-seeking applicant is determined after a review of admission credentials. Graduate Program Committees, in concurrence with the Office of Graduate Admissions, may recommend admission of applicants as regular, provisional, or conditional graduate students.

Regular Admission

Applicants have met all of the above admission requirements.

Provisional Admission

Applicants who have not submitted all necessary application materials, but who meet the University's minimum grade-point average and admission test score requirements may be admitted provisionally. Students admitted provisionally are not permitted to register for classes until all outstanding materials are received by the Graduate Admissions Office. Upon receipt of all admission credentials, the graduate program will consider the student for Regular Graduate Student status.

Conditional Admission

Applicants who do not meet all College of Graduate Studies and program requirements for Regular Admission but still show strong promise for success may be admitted conditionally. Conditions under which the student may achieve regular degree-seeking status will be specified in the admission letter for each student. Students admitted conditionally will have a maximum of two semesters to meet the conditions stated in their admission letters. If students do not meet all of the specified conditions within that time frame, they will be automatically dismissed from the University.

Conditionally admitted graduate students who have met all of the conditions specified in their admission letters will obtain Regular Graduate Student status.

International applicants who do not meet the College of Graduate Studies English Language proficiency requirements, but meet the other program requirements, may be admitted conditionally. These students must take courses as specified by the CSU ESL program. If conditionally admitted international students do not meet all of these requirements within two semesters, they will be automatically dismissed from the University.

Non-Degree Admission

Students may apply for admission to the University on a non-degree basis. They must fill out a Non-Degree Student Policy Form in order to register for Public Administration courses. Students who subsequently apply to the MPA program must have received a B or better in each course to be considered for admission. Up to twelve credits earned as a non-degree student can be applied toward the degree. These must include PAD 501, if indicated by the quantitative assessment, PAD 601, PAD 600, and other courses as specified by the Graduate Advisor or Program Director. Non-degree graduate students who have submitted all required application materials and are in good academic standing (GPA

3.0 or above) will be considered for MPA admission as Regular Graduate Students.

An assessment of quantitative skills is required for all MPA students, regardless of admission type. This assessment determines whether students must enroll in PAD 501: Fundamentals of Applied Reasoning.

Program Requirements

The curriculum for the MPA program consists of forty-six to forty-nine credit hours of study, depending on the method of degree completion. The program is divided into core courses, a specialization, electives, and a Public Administration Capstone.

Core Courses **(addenda revised 06/2007)**

The core of the MPA curriculum (20 credit hours) is required of all students and consists of the following:

- PAD 600 Introduction to Public Administration
- PAD 601 Applied Quantitative Reasoning I
- PAD 603 Public Finance and Economics
- PAD 604 Organizational Behavior
- PAD 617/PSC 605 Public Administration and the Political Process

Students in the Economic Development track must also take PAD 602 Applied Quantitative Reasoning II.

Areas of Specialization

All students complete a minimum of three courses or twelve credit hours in an area of specialization except for those who choose the General Public Management option (three courses or nine credit hours minimum). The three areas of specialization and related options are listed below. See the Graduate Programs Advisor for specific curriculum plans.

1. Public Management General Public Management Nonprofit Management Public Safety Management
2. Economic Development
3. Health Care Administration Health Care Management Long-Term Care Administration

Elective Credit

All students are required to take elective courses chosen with the approval of the Academic Coordinator of their track specialization. Depending on the student's chosen track and method of degree completion, the combined hours of core, track, and electives must be at least forty-six credit hours. The electives are designed to enhance current skills, to fill gaps in substantive areas, or to develop an additional concentration. For example, students may take additional courses in Human Resources Management, Public Finance and Budgeting, Urban Planning, or Environmental Policy. Students in the Health Care Administration specialization may emphasize Public Health Management or Long-term Care Administration. Completion of the option in Long-term Care Administration can be used to fulfill the educational requirements for licensure of the State of Ohio Board of Examiners of Nursing Home Administrators.

Internship/Research

PAD 690 Internship
PAD 698 Research in Public Administration

Capstone Requirement

PAD 691/692 is a generalist public administration capstone course that provides a final common experience for MPA students. In this course, students integrate learning from the MPA core curriculum with professional practices encountered in public and nonprofit organizations. Students are expected to prepare and defend a capstone paper. This capstone course is a requirement for all MPA students who have entered the MPA program as degree-seeking students Spring 2003 or later. Students who were admitted earlier may enroll in the capstone course (PAD 691/692) in lieu of the requirement to complete PAD 690 (internship) or PAD 698 (exit project) under the old curriculum.

Off-Campus Locations

The Levin College of Urban Affairs offers MPA coursework in two additional locations: Youngstown State University and MetroHealth Medical Center.

The CSU/YSU MPA degree program allows students in Youngstown to complete all coursework from YSU via distance learning classes from CSU, independent study opportunities from CSU and YSU professors, and traditional YSU courses. Students receive an MPA degree conferred by Cleveland State.

MetroHealth employees and CSU students may complete many core courses and Health Care Administration specialization courses at MetroHealth Medical Center.

More information on these off-campus opportunities is available on the MPA program Web site.

The JD/MPA Program

The combined curriculum leading to the degrees of Juris Doctor and Master of Public Administration is designed to permit the student to complete both degrees in four years instead of the five years that would normally be required to complete the two degrees separately.

Entry into the Joint Degree Program can occur in one of two ways. Applicants who are not currently enrolled in either the JD or the MPA degree program must apply for admission to both the College of Graduate Studies and the College of Law concurrently and follow the normal procedures of the respective colleges. Application for admission must be specifically for the Joint Degree Program. Students who enroll in this manner spend their first year taking courses exclusively in the JD program and their second year taking courses exclusively in the MPA program. In the third and fourth years, students take courses in both degree programs. Applicants who are currently enrolled in either the JD or the MPA degree program must apply for admission to the other degree program prior to the completion of sixty credit hours in the JD program or twenty-eight credit hours in the MPA program. Students who enroll in this manner are advised as to how to schedule the remainder of their courses in the Joint Degree Program. Under no circumstances will a student be allowed to take more than eight years to complete the combined program.

The Joint Degree Program requires a total of four academic years. The Juris Doctor requirements are fulfilled by completion of eighty credit hours of work in the College of Law, including all required courses, and the transfer of eight credit hours from courses taken in the Master of Public Administration program. The Master of Public Administration requirements are fulfilled by completion of thirty-six credit hours of courses in the College of Urban Affairs, including all required courses, and the transfer of the equivalent of eight credit hours from courses taken in the College of Law. In order to ensure that the degree requirements of both programs

are fully maintained, while at the same time permitting the saving of a full academic year, students who pursue the Joint Degree Program are not permitted to take courses outside either the College of Law or the Master of Public Administration program for credit toward either degree.

All requirements for both programs must be completed before either degree is awarded. If a student elects to receive one degree before completing the requirements of the other degree, forfeiture of some transfer credit will result, and the student will no longer be in the Joint Degree Program.

Submit College of Graduate Studies application materials to the Graduate Admissions Office. Contact the College of Law regarding law application procedures.

Ohio Certified Public Manager Program

The Ohio Certified Public Manager (OCPM) program is an accredited training program designed to enhance the skills of practicing public managers who work in state, county, regional, or local agencies of Ohio's governments. The first accredited CPM program was developed in Georgia in 1976. In 2002, 19 states, including Ohio, had accredited CPM programs, along with the federal government and the District of Columbia.

The OCPM program is housed in the Ohio Department of Administrative Services (DAS). The Levin College of Urban Affairs delivers the OCPM Program in the northeast region of the state.

The Levin College's MPA faculty recognizes that the OCPM program is worthy of graduate public-administration credits. The College will award OCPM graduates entering the MPA Program with eight credit hours of elective course work. OCPM graduates applying to the MPA Program must provide documentation from DAS, showing they have successfully completed the OCPM program.

Master of Urban Planning, Design, and Development

Maxine Goodman Levin College of Urban Affairs

Urban Affairs 231
(216) 687-2136
www.urban.csuohio.edu/academics/graduate/mupdd

Wendy Kellogg, Graduate
Program Director

The Faculty

Current faculty information can be located on the Department of Urban Studies Web sites.

Introduction

The Master of Urban Planning, Design, and Development (MUPDD) program integrates planning, design, and development into one course of study. The program is accredited by the Planning Accreditation Board. Urban planning, urban design, and urban real estate development are featured components of the planning core curriculum. The course of study focuses on the theory, skills, and practical experience needed for the transformation and revitalization of industrialized cities and the regions in which they are located.

The mission and goals of the Master of Urban Planning, Design, and Development program are to:

- Educate students to become thoughtful urban planning generalists with distinctive technical competence in an area of practice, who can positively affect the built urban environment and the well being of individuals in restructuring urban regions, leading to sustainable, livable communities.
- Offer a broad educational experience to meet the needs of students and the planning profession.
- Provide students with an opportunity to develop knowledge in a substantive planning field.
- Make the MUPDD program more accessible, through its curriculum delivery methods, to students in Northeast Ohio and beyond.

- Provide a high quality faculty with adequate expertise, resources and numbers to meet teaching and advising needs of the program.
- Support a faculty engaged in empirical, applied, and reflective scholarship that addresses key issues and challenges in the planning profession.
- Maintain, enhance, and support a faculty engaged in quality teaching and public service.
- Achieve a diverse faculty reflective of the citizenry of Northeast Ohio, including its urban core areas, and the student body in the program.
- Recruit, retain, and place a high caliber and diverse student body prepared for professional practice in planning.
- Provide quality student support services to facilitate student achievement and efficient administration of the program.
- Seek student participation in fair, inclusive, and autonomous program administration and assessment.
- Improve community knowledge of the value of planning as a profession and of the MUPDD program and its resources.
- Facilitate and support a strong relationship and interaction with the professional planning community in the region.
- This graduate-level training in urban planning offers students the opportunity to pursue careers in city or regional planning, housing and neighborhood development, real estate finance and development, economic development, environmental sustainability, and geographic information systems (GIS). Courses are designed to train new planners in the latest techniques and theories and to upgrade the skills of practicing planners. The program is structured to accommodate both full-time students and working part-time students. Most required classes are offered in the evenings, with some courses offered during summer sessions and on weekends.

Updated MUPDD information can be found at urban.csuohio.edu/academics/graduate/mupdd/.

Faculty Research and Publications

Members of the Urban Planning, Design, and Development faculty have wide-ranging research interests, including community development, conflict resolution, economic development, historic preservation, housing, land use, neighborhood development, environmental systems, and real estate. They have published in the leading journals in these fields.

MUPDD faculty are active members of professional organizations such as the American Planning Association, the American Institute of Certified Planners, the American Institute of Architects, the Urban Land Institute, and the Ohio Planning Conference.

Research Units

Students have the opportunity to work with the faculty and staff in the research, public service, and training centers in the Levin College. See the Educational Resources section of this Catalog for information on the Levin College facilities.

College Computing and Technology

In order to promote computer literacy and provide computer-based academic resources, the Levin College maintains two student computer labs and a portable, twenty-four user laptop cart for use in classrooms. The computer labs, located in UR 39 and UR 40, offer software applications for word processing, spreadsheet analysis, database, computer-aided presentation, Geographic Information Systems (GIS), ArcInfo, Internet access, and statistical analysis. The labs provide access to laser printers for high-quality black-and-white output, a color laser printer for GIS maps, and a color scanner for capture of graphics. Each lab is equipped with a permanently mounted LCD projector for teaching computer-based classes. Any student enrolled in a Levin College program

or class may apply for a computer-lab account and use the labs during hours in which the College's building is open. In addition, Levin College-lab account holders are provided with disk space on the networked server for conveniently storing class work; an e-mail account for communicating with people on campus and around the world; and disk space for creating personal web pages. The Interactive Media Lab (IML) is available for production of DVDs, CD-ROMs, video/audio streams, and advanced graphics. Digital video/audio capture equipment is available. The IML is equipped with Apple Macintosh computers and a Quick Time streaming server. Additional computing information may be found at the College Web site at www.urban.csuohio.edu.

Career Information

The MUPDD program provides advanced training for recent college graduates and incumbent professionals. This training offers students the opportunity to pursue and advance careers in city and regional planning, real estate, economic development, housing, environmental planning and policy, and related fields. Employment opportunities for planners exist in the nonprofit, public, and private sectors.

The Levin College—through the Office of Student Services and the faculty—provides a variety of services related to career planning to help students and graduates find employment related to their programs of study. Current job postings are maintained in the Office of Student Services and on the College Web site. Cleveland State's Career Services Center also provides graduate students and alumni with career advice and career development assistance, including resume review. See the section on Campus Services and Programs: Career Services in the front of this Catalog.

Financial Assistance

The MUPDD program provides graduate assistantships to qualified full-time students. The deadline for receipt of assistantship applications is March 1. If applying for a graduate assistantship, all degree-seeking application materials must be received by February 1. A limited number of paid internships and graduate tuition waivers also are available. Application forms are available from the Levin College advising or placement office. See also the section on Expenses and Financial Aid: Graduate Assistantships in the front of this Catalog.

Admission Information

Applicants to the Master of Urban Planning, Design, and Development Program must meet the minimum requirements established by the College of Graduate Studies and the MUPDD program faculty:

1. A minimum undergraduate grade-point average of 3.0.
2. Graduate Record Examination (GRE) scores, with an average Verbal and Quantitative score at the 40th percentile, and an Analytical Writing score of at least 4.0. Students with a graduate degree from an accredited college or university are exempted from this requirement. Other standardized admission examinations may be substituted at the discretion of the Program Director.
3. Two letters of recommendation, using the Recommendation Form for Graduate Admission (available online at <http://www.csuohio.edu/gradcollege/admit/pdf/recommend.PDF>).
4. Non-native English speakers must demonstrate English-language proficiency, by achieving a minimum score of 525 on the TOEFL (197 on the computer-based TOEFL); a minimum score of 77 on the Michigan Test; or an earned bachelor's degree or higher from an accredited U.S. institution.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Types of Admission

The academic status of a graduate degree-seeking applicant is determined after a review of admission credentials. Graduate Program Committees, in concurrence with the Office of Graduate Admissions, may recommend admission of applicants as regular, provisional, or conditional graduate students.

Regular Admission

Applicants have met all of the above admission requirements.

Provisional Admission

Applicants who have not submitted all necessary application materials, but who meet the University's minimum grade-point and admission test score requirements may be admitted provisionally. Students admitted provisionally are not permitted to register for classes

until all outstanding materials are received by the Graduate Admissions Office. Upon receipt of all admission credentials, the graduate program will consider the student for Regular Graduate Student status.

Conditional Admission

Applicants who do not meet all College of Graduate Studies and program requirements for Regular Admission but still show strong promise for success may be admitted conditionally. Conditions under which the student may achieve regular degree-seeking status will be specified in the admission letter for each student. Students admitted conditionally will have a maximum of two semesters to meet the conditions stated in their admission letters. If students do not meet all of the specified conditions within that time frame, they will be automatically dismissed from the University.

Conditionally admitted graduate students who have met all of the conditions specified in their admission letters will obtain Regular Graduate Student status.

International applicants who do not meet the College of Graduate Studies English Language proficiency requirements, but meet the other program requirements, may be admitted conditionally. These students must take courses as specified by the CSU ESL program. If conditionally admitted international students do not meet all of these requirements within two semesters, then they will be automatically dismissed from the University.

Non-Degree Admission

Students may apply for admission to the University on a non-degree basis. Students who subsequently apply to the MUPDD program must have received a B or better in each course to be considered for admission. Up to twelve credits earned as a non-degree student can be applied toward the degree. These must include PDD 601, PDD 607, and other courses as specified by the Graduate Advisor or Program Director.

Non-degree graduate students who have submitted all required application materials and are in good academic standing (GPA. 3.0 or above) will be considered for admission as Regular Graduate Students.

Program Requirements

The curriculum of the MUPDD includes twelve, four-credit classes for a total of forty-eight semester hours. The planning core consists of eight classes (thirty-two credits), leaving four classes

(sixteen credits) for electives. Five specialization fields are offered, each of which requires three or more classes to complete. Students may choose to complete an exit project or thesis as one of these electives. Internships also are available for elective credit. A full-time student can complete the program in two academic years.

Required Courses

Students complete thirty-two credit hours in core courses.

General Core Courses

- PDD 601 Applied Quantitative Reasoning I (4 credits)
- PDD 603 Public Finance and Economics (4 credits)
- PDD 605 Urban Spatial Structures (4 credits)
- PDD 607 Introduction to Urban Planning (4 credits)
- PDD 608 Urban Design Seminar (4 credits)
- PDD 609 Planning Law (4 credits)
- PDD 610 Urban Development Process/Market Analysis (4 credits)
- PDD 611 Studio (4 credits)

Electives

Students complete a minimum of twelve credit hours in elective courses or in an optional specialization. Available concentrations are:

1. Housing and Neighborhood Development

Select three of the following:

- PDD 563 Housing Analysis (4 credits)
- PDD 623 Urban Development Finance and Applied Project (4 credits)
- PDD 660 Neighborhood Planning (4 credits)
- PDD 661 Legal Developments in Housing (4 credits)
- PDD 662 Urban Housing Policy (4 credits)

2. Economic Development

Required:

- PDD 620 Economic Development: Plans and Strategies (4 credits) or PDD 623 Urban Development Finance and Applied Project (4 credits)

Select two of the following:

- PDD 572 Conflict Management (4 credits)
- PDD 615 Economic Development and Budgetary Policy (4 credits)

- PDD 621 Local Labor Markets Analysis (4 credits)
- PDD 622 Economic Development Policy (4 credits)
- PDD 625 Strategic Thinking (4 credits)
- PDD 626 Workforce Development (4 credits)
- PDD 627 Urban Tourism, the Urban Core, and Economic Development (4 credits)

3. Environmental Sustainability

A minimum of three courses is required:

- PDD 553 Environmental Planning I (4 credits)*
- PDD 653 Environmental Planning II (4 credits)*
- *one of these courses is required
- PDD 550 Environment and Human Affairs (4 credits)
- PDD 551 Environment Finance and Capital Budgeting (4 credits)
- PDD 552 Environmental Policy and Administration (4 credits)
- PDD 642 Intro to Geographical Information Systems

4. Geographic Information Systems

Required:

- PDD 642 Introduction to Geographic Information Systems (4 credits)
- PDD 643 Advanced GIS (4 credits)
- PDD 644 GIS Capstone Seminar (4 credits)

5. Real Estate Development and Finance

Required:

- PDD 623 Urban Development Finance and Applied Project (4 credits)
- FIN 610 Real Estate Finance (4 credits)
- FIN 612 Real Estate Investment (4 credits)

Additional Electives:

Students may take appropriate electives in consultation with their academic advisor. Relevant courses include:

- PDD 503 Cartography and Graphics (4 credits)
- PDD 512 Managing Urban Diversity (4 credits)
- PDD 572 Conflict Management (4 credits)
- PDD 576 Historic Preservation (4 credits)
- PDD 577 Regional Issues (4 credits)
- PDD 578 Sacred Landmarks (4 credits)
- PDD 602 Applied Quantitative Reasoning II (4 credits)

- PDD 606 Evolution of Human Settlements (4 credits)
- PDD 616 Systems and Processes of Policy Development (4 credits)

Exit Project or Thesis

(4 credits)

Neither an exit project nor a thesis is required. However, MUPDD students may choose to complete either as an elective option. For an exit project, the student selects a faculty advisor from the MUPDD faculty. Students must complete the Exit Project Approval Form and obtain all signatures before registering for Exit Project credit (PDD 698). For the thesis option, students select a thesis advisor from the MUPDD faculty. In conjunction with the advisor, the student selects a thesis committee, which consists of at least three individuals, all of whom must be members of the Graduate Faculty. The committee's function is to advise and assist the student in writing and research, and to formally approve the thesis once it has been successfully defended. (See the section on Thesis/Dissertation in this Catalog.)

Internships

An internship is not required. However, students without planning or related work experience are encouraged to seek an internship placement. Paid and unpaid internships are arranged through the Recruitment and Placement Office. Interested students may receive elective credit for internship work.

The JD/MUPDD Program

The combined curriculum leading to the degrees of Juris Doctor and Master of Urban Planning, Design, and Development is designed to permit the student to complete both degrees over four years instead of the five years that would normally be required to complete the two degrees separately.

Entry into the Dual Degree Program can occur in one of two ways. Applicants who are not currently enrolled in either the JD or the MUPDD degree program must apply for admission to both the College of Graduate Studies and the College of Law concurrently and follow the normal procedures of the respective colleges. Application for admission must be specifically for the Dual Degree Program. Students who enroll in this manner spend their first year taking courses exclusively in the JD program and their second year taking courses exclusively in the MUPDD program. In the third and fourth years, students take courses in both degree programs.

Applicants who are currently enrolled in either the JD or the MUPDD program must apply for admission to the other degree program, prior to the completion of sixty credit hours in the JD program or twenty-eight credit hours in the MUPDD program. Students who enroll in this manner are advised as to how to schedule the remainder of their courses in the Dual Degree Program. Under no circumstances will a student be allowed to take more than eight years to complete the combined program.

The Dual Degree Program requires a total of four academic years. The Juris Doctor requirements are fulfilled by completion of seventy-nine credit hours of work in the College of Law, including all required courses, and the transfer of eight credit hours from courses taken in the MUPDD program. The Master of Urban Planning, Design, and Development requirements are fulfilled by completion of forty credit hours of courses in the College of Urban Affairs, including all required courses, and the transfer of the equivalent of eight credit hours from courses taken in the College of Law. In order to ensure that the degree requirements of both programs are fully maintained, while at the same time permitting the saving of a full academic year, students who pursue the joint degree are not permitted to take courses outside either the College of Law or the Master of Urban Planning, Design, and Development program for credit toward either degree.

All requirements for both programs must be completed before either degree is awarded. If a student elects to receive one degree before completing the requirements of the other degree, forfeiture of some transfer credit will result, and the student will no longer be enrolled in the Dual Degree Program.

Submit College of Graduate Studies application materials to the Graduate Admissions Office. Contact the College of Law regarding law admission procedures.

Graduate Certificate Programs

- Adult Learning and Development ■
- Advanced Study in Bioethics ■
- Culture, Communication, and Health Care ■
- Data-Driven Marketing Planning ■
- Gerontological Studies ([addenda](#)) ■
- Global Business ([addenda new 05/2007](#)) ■
- Healthcare Informatics ([addenda new 05/2007](#)) ■
- Local/Urban Management ■
- Middle Childhood Mathematics Education ■
- Middle Childhood Science Education ■
- Museum Studies ([addenda new 06/2007](#)) ■
- Museum Studies (Natural History) ([addenda new 07/2007](#)) ■
- Nonprofit Management ■
- Nursing Education ([addenda new 05/2006](#)) ■
- Occupational and Physical Therapy in the Schools ([addenda](#)) ■
- Research Administration ■
- Software Engineering ■
- Teaching English to Speakers of Other Languages ■
- Urban Economic Development ■
- Urban Geographic Information Systems ■
- Urban Real Estate Development and Finance ■

Graduate Certificate in Adult Learning and Development

Catherine A. Hansman, Certificate
Program Coordinator

The program draws on the expertise and knowledge of adult educators and professionals in agencies and businesses throughout the community, as well as other faculty and staff members from Cleveland State University.

Introduction

The Adult Learning and Development (ALD) certificate program is designed to provide present and future adult educators with theories, competencies, and knowledge that will help them plan, teach, and administer programs for a diverse population of adult learners in a variety of settings, including, but not limited to, technical/vocational colleges; proprietary schools; four-year colleges; literacy, ABE, and GED programs; and training programs within health care, business, and industrial settings.

The ALD certificate program provides an avenue for meeting the continuing professional education requirements often required of professional adult educators. Additionally, the certificate program presents a challenging course of study for adult educators who seek further education but not necessarily a graduate degree.

Today's adult educator must possess vision, theory, and practical skills to promote active learning and reflection among a diverse population of adult learners. The ALD certificate program provides present and future adult educators with an awareness of the issues facing them in a variety of learning environments. Theories, practical applications, instructional design, philosophy, and program planning and administration are emphasized through the courses in the program.

Faculty Research

Faculty research interests reflect the interdisciplinary nature of the field. Recent work includes a number of books and book chapters, articles in professional journals, and presentations at professional meetings. Faculty members belong to associated professional

organizations, such as the American Association for Adult and Continuing Education, the Ohio Association for Adult and Continuing Education, the Commission of Professors of Adult Education, the American Educational Research Association, the American Association for Higher Education, and the American Society for Training and Development.

Career Information

Learning is a lifelong process. Today's rapidly changing world requires adults to learn new ways of doing their jobs and prepare for career changes. This has resulted in a demand for qualified adult educators to assist adult learners as they cope with the effects of ever-changing technologies, organizational development, and new career requirements. Adult educators work in a variety of settings, such as Adult Basic Education (ABE) or General Educational Development (GED) programs; two- and four-year colleges, universities, and technical institutions; ESL and literacy programs; continuing education, training, and development programs in human resource development departments in business and industry; cooperative extension services; health care organizations; social service agencies; continuing professional development; and community development. This list reflects the growth of the adult education field. The need for well-prepared professional adult educators to help adults learn is crucial to businesses, agencies, and institutions.

Admission Information

Prospective students should apply for graduate admission as a "certificate" student to register for classes. They must meet the graduate certificate admission requirements detailed in the Admissions section of this catalog. With program permission, non-degree graduate students may also enroll in the courses noted below, but non-degree graduate students cannot earn a University graduate certificate. Degree-seeking graduate students who hold regular admission status may be admitted to this certificate program. Credits earned for the

certificate may be applied toward a graduate degree as approved by the student's graduate program director and in keeping with the policies of the College of Graduate Studies.

Application materials should be submitted to the Graduate Admissions Office. To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Certificate Requirements (18 credit hours)

The certificate program requires a total of eighteen credit hours: a fifteen-credit core of required courses and three credits of elective course work chosen by the student with approval from program faculty.

Core Courses

- ALD 605 Psychology of the Adult Learner (3 credits)
- ALD 607 Adult Education in a Changing Society (4 credits)
- ALD 645 Organizational Behavior and Change (4 credits)
- ALD 663 Planning and Implementing Programs for Adult Learners (4 credits)

Elective

Course work chosen by the student with faculty approval (3 to 4 credits).

For further information, contact:
Education Student Services Center
Cleveland State University
2121 Euclid Avenue
Rhodes Tower 1401
Cleveland, OH 44115
Phone: (216) 687-4625
Fax: (216) 687-9284

Graduate Certificate in Advanced Study in Bioethics

Allyson Robichaud, Certificate
Program Coordinator

Introduction

The Philosophy Department offers a course of study leading to a Graduate Certificate in Advanced Study in Bioethics. The certificate program is designed primarily for individuals involved in health care practice, research, or administration, for whom questions of ethics arise on a daily basis. The curriculum provides grounding in the essentials of bioethical reasoning and practice for nurses, physicians, social workers, researchers, hospital administrators, and other health care professionals.

Faculty Research

Professor Joseph DeMarco is author of *Moral Theory* and numerous articles on ethics. He developed the web-based courses that are part of the certificate program. Professor DeMarco is the co-author of *Moral Reasoning* and co-editor of *New Directions in Ethics*. Professor Samuel Richmond is author of articles on ethics, theories of justice, philosophy of law, and social work practice. Professor Allyson Robichaud completed a bioethics fellowship at Mt. Sinai School of Medicine in New York City. She has written about the role of emotion in the health care setting and issues concerning care of the aged. Most recently, her interest has been focused on the role of narrative in bioethics. Professor Martin Harvey also completed a bioethics fellowship at the Mt. Sinai School of Medicine. He has published articles on the philosophy of law and social philosophy. Professor Mary Ellen Waithe has written articles on ethics in medicine, nursing, dentistry, pharmacy, psychiatry, and nursing home administration.

Admission Information

Degree-seeking graduate students who hold Regular admission status may be admitted to the certificate program. Alternatively, the applicant must meet the graduate certificate admission requirements detailed in the Admissions section of this Catalog. Credits earned

for the Graduate Certificate in Advanced Study in Bioethics may apply toward a graduate degree as approved by the student's graduate program director and in keeping with the policies of the College of Graduate Studies. With program permission, non-degree graduate students may enroll in the courses noted below, but non-degree graduate students cannot earn a University graduate certificate.

Submit application materials to the Graduate Admissions Office.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Certificate Requirements

Individuals who successfully complete twelve credits in bioethics at the graduate level, including four credits of Reasoning in Bioethics, with a grade of B or better, are eligible to receive the Graduate Certificate in Advanced Study in Bioethics. The certificate testifies that its holder has completed an intensive course of graduate study in moral theory, decision-making procedures in bioethics, the current literature of bioethics, and the practical application of moral principles and rules to cases in clinical practice, decision-making, and law. Bioethics courses are numbered PHL 520 to PHL 528 and PHL 540 to PHL 543. PHL 520 to PHL 527 cover the same material as PHL 540 to PHL 543 in a different format. Students who have had a four-credit course in a particular area should not take a corresponding two-credit course, and vice versa. PHL 540, PHL 541, PHL 542, and PHL 543 are offered in a Web-based format.

Courses

- PHL 520 Reasoning in Bioethics:
Basic Issues (2 credits)
- PHL 521 Reasoning in Bioethics:
Contextual Approaches (2 credits)
- PHL 522 Clinical Bioethics: Cases I
(2 credits)
- PHL 523 Clinical Bioethics: Cases II
(2 credits)
- PHL 524 Bioethics Policy: Prevention
and Access (2 credits)

- PHL 525 Bioethics Policy: Technology
(2 credits)
- PHL 526 Bioethics and Law: Regulation
(2 credits)
- PHL 527 Bioethics and Law: Rights
(2 credits)
- PHL 528 Bioethics: Special Topics
(2 credits)
- PHL 540 Moral Reasoning and
Bioethics (4 credits)
- PHL 541 Clinical Issues in Bioethics
(4 credits)
- PHL 542 Policy Issues in Bioethics
(4 credits)
- PHL 543 Bioethics and the Law
(4 credits)

For further information, contact:
The Department of Philosophy
Cleveland State University
2121 Euclid Avenue
Rhodes Tower 1932
Cleveland, OH 44115
Phone: (216) 687-3900
Fax: (216) 523-7422

Graduate Certificate in **Culture, Communication, and Health Care**

Mary Milidonis, Certificate
Program Director

Introduction

Health care providers are deeply concerned about the quality of interaction between care providers and clients of diverse cultural backgrounds. This graduate certificate program is designed to provide practitioners with the tools they need to be effective in this environment. Based on ethnographic methods used by social scientists, the certificate provides training in both theory and practice to enhance the quality of intercultural communications and health care delivery.

Admission Information

Degree-seeking graduate students who hold Regular admission status may be admitted to the certificate program. Credits earned for the certificate may be applied toward a graduate degree as approved by the student's graduate program director and in keeping with the policies of the College of Graduate Studies. Alternatively, the applicant must meet the graduate certificate admission requirements detailed in the Admissions section of this Catalog. With program permission, non-degree graduate students may enroll in the courses noted below, but non-degree graduate students cannot earn a University graduate certificate.

Applicants must hold an undergraduate or graduate degree in health care or a related profession.

Submit application materials to the Graduate Admissions Office.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Certificate Requirements

Students must take one course from each of the four clusters listed below:

Cognitive Framework (choose one)

- COM 549 Health Communication (4 credits)
- HSC 505 Culture and Health Care (3 credits)
- SOC 580 Racial and Ethnic Inequality (4 credits)
- SOC 680 Race and Ethnicity in American Society (4 credits)

Methods (choose one)

- COM 534 Ethnographic/Qualitative Research Methods (4 credits)
- COM 535 Participant Observation/Interviewing Methods (4 credits)
- PSY 512 Field Research Methodology (4 credits)
- SOC 555 Ethnographic Research Methods (4 credits)

Application

- PSY 535 Clinical Interviewing Practicum (2 credits) and
- PSY 536 Behavioral Assessment (4 credits) or PSY 672 Multicultural Psychology and Diversity Practicum (4 credits)

Elective (choose one or more)

- ANT 560 Special Topics: Anthropology (4 credits)
- COM 549 Health Communication (4 credits)
- HSC 570 Special Topics in Health Sciences: Health Care in Guatemala (3 credits)
- HSC 570 Special Topics in Health Sciences: Health Care in Belize (4 credits)
- SOC 543 Medical Sociology (4 credits)
- SWK 695 Health Care: Planning and Policy Issues (3 credits)

For further information, contact:
The Department of Health Sciences
Cleveland State University
2121 Euclid Avenue
Health Sciences 101
Cleveland, OH 44115
Phone: (216) 687-3567
Fax: (216) 687-9316

Graduate Certificate in **Data-Driven Marketing Planning**

Using Decision-Support Systems in Marketing Decision-Making

Thomas W. Whipple, Certificate
Program Coordinator

Introduction

The Graduate Certificate in Data-Driven Marketing Planning is designed to assist students in developing careers as marketing analysts or planners. They learn to use decision-support systems in marketing decision-making. The research and decision models introduced provide students with the planning tools they need to do their jobs. Students and Cleveland-area business people, including marketing research suppliers, consultants, planners, and analysts, who seek a more focused, hands-on, and practical experience in marketing decision-making, benefit from the program.

Students who complete the certificate program are able to:

- Collect appropriate data for planning purposes.
- Use secondary data sources and marketing databases in planning.
- Conduct sensitivity and scenario analyses to assess plan effectiveness.
- Develop marketing plans and decision-support systems based on qualitative and quantitative analysis.

Faculty Research

Faculty research interests reflect the analytical nature of the field. Recent work includes a number of articles in professional journals, presentations at professional meetings, and sustained contributions to professional associations.

Career Information

Few areas in marketing offer more career opportunities than marketing analysis and planning. Careers range from marketing research, advertising, and promotion, to new product development, pricing administration, strategic planning, sales management, and professional careers in almost all marketing fields.

With the growth in the use of business software, the need for well-prepared professionals with analytical planning skills is becoming more evident.

Admission Information

MBA students who hold Regular admission status, and individuals who qualify for Regular admission to the MBA program may be admitted to the program. Students who are admitted to the certificate program should have completed MKT 601 or an equivalent graduate-level marketing course. Credits earned as part of the certificate program may apply toward a graduate degree, if approved by the student's graduate program director, and if they are in keeping with the policies of the Nance College of Business Administration and the College of Graduate Studies.

Submit application materials to the Graduate Admissions Office.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Certificate Requirements

All students must complete the following four required courses for a total of sixteen credits:

- MKT 602 Marketing Research (4 credits)
- MKT 604 Strategic and Tactical Marketing (4 credits)
- MKT 606 Advertising and Promotion Management (4 credits)
- MKT 607 Product Management (4 credits)

For Further Information, Contact:

Department of Marketing
Nance College of Business
Administration
1860 East 18th Street, 460
Cleveland, Ohio 44114-3610
Phone: (216) 687-4771
FAX: (216) 687-9354
E-mail: marketing@csuohio.edu

Graduate Certificate in Gerontological Studies

Cheryl P. McCahon, Certificate
Program Coordinator

The program draws on the strengths of an array of outstanding gerontological professionals on campus and in the community, including those at Benjamin Rose, the Myers Research Institute, the Cleveland Clinic, and the Fairhill Center on Aging.

Introduction

The Graduate Certificate in Gerontological Studies is designed to assist students in developing careers in fields that provide services for the growing population of older people. Courses are offered in three specializations, including clinical/interventive roles, gerontological policy/program development, and academic/applied research. These specializations are designed to afford opportunities for students to enhance their skills and knowledge in critical areas that relate to the needs of elders. The clinical/interventive specialization is designed primarily for students in health fields such as nursing, occupational therapy, physical therapy, and other professional fields such as clinical psychology, speech and hearing, and social work. The gerontological policy/ program specialization is intended to assist students with administrative and program development interests. The academic/ applied research specialization is designed for students planning to seek advanced degrees or to do applied research in community agencies serving older adults.

Faculty Research

Faculty research interests reflect the interdisciplinary nature of the field. Recent work includes a number of books, articles in professional journals, and presentations at professional meetings, along with sustained contributions to professional associations, such as the Gerontological Society of America, the Association for Gerontology in Higher Education, and the American Society on Aging.

Career Information

Few areas offer more career opportunities than the field of aging. Opportunities range from careers in health and human service organizations to business, financial, legal, administrative, religious, and professional careers in almost all fields. With the growth of the aging population and the anticipated effects of the "baby boom generation" on the structure and functioning of society, careers in gerontology are among the most promising in American society. Also, with the aging of populations on a worldwide basis, the need for well-prepared professionals is becoming even more evident.

Admission Information

Degree-seeking graduate students who hold Regular admission status may be admitted to the certificate program. Alternatively, applicants must meet the graduate certificate admission requirements detailed in the Admissions section of this Catalog. With program permission, non-degree graduate students may enroll in the courses noted below, but non-degree graduate students cannot earn a University graduate certificate. Credits earned for the certificate may apply toward a graduate degree, as approved by the student's graduate program director and in keeping with policies of the College of Graduate Studies.

Submit application materials to the Graduate Admissions Office.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/grad Form.html. The processing time for paper application forms is longer.

Certificate Requirements [\(Addenda revised 09/2006\)](#)

The requirements listed below are under review as of the printing of this Catalog. Please contact the School of Nursing at (216) 687-3598 for information on changes in program requirements.

All students must complete a minimum of three specified courses plus an internship, research project, or practice course for a total of thirteen to fifteen credits. Required courses include:

1. Academic/Applied Research Specialization:

PSY 549 Aging and Mental Health Issues (4 credits)
SOC 516 Sociology of Aging (4 credits) or
SOC 661 Aging and the Life Course (4 credits)
A graduate research methods course in sociology or psychology (4 credits)
Research Project (3 credits)

2. Clinical/Interventive Specialization:

HCA 650 Long-term Care (3 credits) PSY 549 Aging and Mental Health Issues (4 credits) SWK 680 Aging and Social Work Practice (3 credits)
An internship or clinical practice course in one of the cooperating health fields, psychology, or social work (3-5 credits)

3. Gerontological Policy/Program Development Specialization:

HCA 650 Long-term Care (3 credits)
SOC 516 Sociology of Aging (4 credits) or
SOC 661 Aging and the Life Course (4 credits)
SWK 680 Aging and Social Work Practice (3 credits)
An internship or field-placement course (3-5 credits). May include HCA 685.

Graduate Certificate in Local/Urban Management

Vera Vogelsang-Coombs, Certificate Program Coordinator

The certificate program is offered by the faculty of the Maxine Goodman Levin College of Urban Affairs. Its curriculum reflects the priorities of practicing local urban managers. The program draws upon the experience and knowledge of professionals associated with the public service centers of the Levin College of Urban Affairs and local government leaders affiliated with the Northeast Ohio City Management Association.

Introduction

The certificate program helps practitioners address the challenges and opportunities facing cities, including budget cutbacks and equity planning. The program also assists experienced managers in business and nonprofit sectors to transition into local government positions.

Admission Information

Degree-seeking graduate students who hold Regular status will be considered for admission to the certificate program. Applicants must have a career commitment to local/urban management.

Students enrolled in a graduate degree program at Cleveland State University must file, prior to graduation, a letter indicating their intent to complete the requirements for the certificate program. The letter, addressed to the Graduate Program Advisor of the Levin College, must specify the anticipated date of completion for each course taken to fulfill certificate requirements.

Applicants who are not enrolled in a graduate degree program at Cleveland State must apply for graduate certificate admission. An applicant must:

1. Submit an application for the graduate certificate program, along with a \$30 application fee,
2. Submit an official transcript that shows evidence of an earned bachelor's degree from an accredited university with a cumulative undergraduate grade-point average of at least 2.75,

3. Submit two letters of reference from individuals familiar with the applicant's management experience,
4. Submit a resume indicating educational background, professional experience, and career goals, and
5. Meet one of the following criteria:
 - a. Obtain a score at the 50th percentile or higher on the general section of the GRE within the last six years.
 - b. Complete twelve or more semester hours of Cleveland State University graduate work with a grade of B or better in each course.
 - c. Hold a master's or a JD degree from an accredited institution.
 - d. Successfully complete the Local Officials Leadership Academy through the Maxine Goodman Levin College of Urban Affairs.

Upon admission, all students must meet with a Graduate Program Advisor to prepare a program of study.

Credits earned for the certificate may apply toward a graduate degree, if approved by the student's graduate program director and in keeping with policies of the College of Graduate Studies.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Certificate Requirements

The certificate program consists of five courses. Three courses are required; two are electives.

Certificate students must maintain a minimum graduate grade-point average of 3.0 to remain in the program.

Required Courses

- PAD 630 Public Human Resource Management (3 credits)
- PAD 633 Budgetary Policy (4 credits)
- PAD 634 Ethics in the Public Sector (4 credits)

Elective Courses

Two courses may be chosen from the following list. One alternative course may be selected with approval from the graduate certificate program director.

- ACT 584 Government and Institutional Accounting (3 credits)
- PAD 510 Proposal Writing and Program Development (4 credits)
- PAD 600 Introduction to Public Administration (4 credits)
- PAD 603 Public Finance and Economics (4 credits)
- PAD 604 Organizational Behavior (4 credits)
- PAD 619 Seminar in City Management (3 credits)
- PAD 620 Economic Development: Plans and Strategies (4 credits)
- PAD 631 Law and Public Administration (3 credits)
- PAD 632 Organizations and Management in the Public Sector (4 credits)
- PAD 690 Internship (3 credits)
- PDD 607 Introduction to Urban Planning (4 credits)
- PSC 636 Policy Development and Evaluation (4 credits)
- UST 572 Conflict Management (4 credits)

For further information, contact:
Urban Student Services
Cleveland State University
2121 Euclid Avenue
Urban Building 232N
Cleveland, OH 44115
Phone: (216) 687-3884
Fax: (216) 687-5398

Graduate Certificate in Middle Childhood Mathematics Education

Joanne E. Goodell, Certificate
Program Director

Introduction

The purpose of this program is to provide an opportunity for teachers who hold a teaching certificate or license in Elementary (K-8 or 1-8) and who have completed five or more years of teaching mathematics in one or more middle school grades to earn a university graduate certificate in middle childhood mathematics.

This program includes the core courses necessary for licensure in middle childhood mathematics. Additional courses, however, may be required to complete this licensure in full. Individuals seeking to complete the licensure program should contact the Education Student Services Advising Center at (216) 687-4625 for further information.

Admission Information

Prospective students should apply for graduate admission as a "certificate" student to register for classes. The student must meet the graduate certificate admission requirements detailed in the Admissions section of this Catalog. With program permission, non-degree graduate students may enroll in the courses noted below, but non-degree graduate students cannot earn a University graduate certificate. Degree-seeking graduate students who hold Regular admission status may also be admitted to the certificate program. Credits earned for the certificate may be applied toward a graduate degree, as approved by the student's graduate program director and in keeping with the policies of the College of Graduate Studies.

Application materials should be submitted to the Graduate Admissions Office. To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Certificate Requirements

Students must complete the six courses listed below for a total of twenty-four credit hours:

- MTH 526 Numbers, Patterns, and Operations for Middle School Teachers (4 credits)
- MTH 527 Algebra and Functions for Middle School Teachers (4 credits)
- MTH 528 Geometry for Middle School Teachers (4 credits)
- MTH 529 Data Analysis and Probability for Middle School Teachers (4 credits)
- MTH 530 Conversational Calculus for Middle School Teachers (4 credits)
- EDC 515 Instructional Development in Mathematics Education (4 credits)

See Course Description section of this Catalog for details on course listings.

For Further Information, Contact:

Education Student Services Center
Cleveland State University
2121 Euclid Avenue
Rhodes Tower 1401
Cleveland, OH 44115
Phone: (216) 687-4625
Fax: (216) 687-9284

Graduate Certificate in Middle Childhood Science Education

Debbie Jackson, Certificate
Program Director

Introduction

The purpose of this program is to provide an opportunity for teachers who hold a teaching certificate or license in Elementary (K-8 or 1-8) and who have completed five or more years of teaching science in one or more middle school grades to earn a university graduate certificate in middle childhood science.

This program includes the core courses necessary for licensure in middle childhood science. Additional courses, however, may be required to complete this licensure in full. Individuals seeking to complete the licensure program should contact the Cleveland State University Education Student Service Advising Office at (216) 687-4625 for further information.

Admission Information

Prospective students should apply for graduate admission as a “certificate” student to register for classes. Applicants must meet the graduate certificate admission requirements detailed in the Admissions section of this Catalog. With program permission, non-degree graduate students may enroll in the courses noted below, but non-degree graduate students cannot earn a University graduate certificate. Degree-seeking graduate students who hold Regular admission status also may be admitted to the certificate program. Credits earned for the certificate may be applied toward a graduate degree, as approved by the student’s graduate program director and in keeping with the policies of the College of Graduate Studies.

Application materials should be submitted to the Graduate Admissions Office. To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Certificate Requirements

Students must complete the five courses listed below for a total of twenty-four credit hours.

- BIO 580 Biology Content for Middle School Teachers (5 credits)
- CHM 580 Introductory Chemistry for Middle School Teachers (5 credits)
- EDC 517 Instructional Development in Science Education (4 credits)
- EVS 580 Earth System Science for Middle School Teachers (5 credits)
- PHY 500 Conceptual Physics for Middle School Teachers (5 credits)

See the Course Description section of this Catalog for details on course listings.

For Further Information, Contact:

Education Student Services Center
Cleveland State University
2121 Euclid Avenue
Rhodes Tower 1401
Cleveland, OH 44115
Phone: (216) 687-4625
Fax: (216) 687-9284

Graduate Certificate in Nonprofit Management

Jennifer Alexander, Graduate
Certificate Coordinator

Introduction

The graduate certificate program in Nonprofit Management is designed to help nonprofit leaders effectively deal with the challenges facing their organizations, including government funding cutbacks, social problems, and the expanding need to acquire and manage financial resources. Administered by the Maxine Goodman Levin College of Urban Affairs, the program emphasizes hands-on learning designed to equip nonprofit administrators with the skills they need to succeed. It is aimed at executive directors and other managers, as well as professionals with business or government management experience who are seeking a bridge to the nonprofit sector.

Admission Information

Degree-seeking graduate students who hold Regular status will be considered for admission to the certificate program. In addition, applicants must have:

1. A career commitment to nonprofit management as evidenced by the student's resume and statement of career goals.
2. At least two years of management experience.
3. Spreadsheet competency and computer knowledge.

Students enrolled in a graduate degree program at Cleveland State must file, prior to graduation, a letter stating their intent to complete the requirements for the Graduate Certificate in Nonprofit Management. The letter, addressed to the Graduate Program Advisor of the Levin College, must specify the anticipated date of completion for each course taken to fulfill certificate requirements.

Applicants who are not enrolled in a graduate degree program at Cleveland State must apply for graduate certificate admission. Certificate admission requirements are detailed in the Admissions section of this Catalog. In addition to meeting these admission requirements, certificate applicants must

submit a statement outlining their education and career goals, have significant experience in the nonprofit sector, and submit a resume. Two letters of recommendation from individuals familiar with the applicant's management experience also are required.

With program permission, non-degree graduate students may enroll in the courses noted below, but non-degree students cannot earn a University graduate certificate. Credits earned for the certificate may apply toward a graduate degree, as approved by the student's graduate program director and in keeping with policies of the College of Graduate Studies.

Submit application materials to the Graduate Admissions Office.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

For further information, call the Office of Student Services of the Levin College at (216) 523-7522.

Certificate Requirements

The certificate program consists of five courses: four required courses and one elective.

Required Courses

- PAD 550 Institutional Development of the Nonprofit Organization (4 credits)
- PAD 651 Fund Raising and External Relations for Nonprofit Organizations (4 credits)
- PAD 652 Financial Administration and Control of Nonprofit Organizations (4 credits)
- PAD 656 Capstone Seminar in Nonprofit Leadership and Management (4 credits)

Electives

One elective may be chosen from the following list. Other appropriate courses may be selected with approval from the student's advisor.

- PAD 510 Proposal Writing and Program Development (4 credits)
- PAD 604 Organizational Behavior (4 credits)

- PAD 630 Public Human Resources Management (3 credits)
- PAD 634 Ethics in the Public Sector (4 credits)
- LAW 722 Nonprofit Corporation Law Seminar (2 credits)
- MKT 605 Services Marketing (4 credits)
- UST 572 Conflict Management (4 credits)

Graduate Certificate in Occupational and Physical Therapy in the Schools

Susan Bazyk, Certificate
Program Director

Introduction

The certificate program is offered through the departments of Health Sciences and Psychology, and the College of Education and Human Services. The twelve-to-thirteen-credit certificate enhances the skills of occupational and physical therapists currently working, or wishing to work, in K-12 school settings or special schools.

Admission Information

Degree-seeking graduate students who hold Regular status, and individuals who meet the minimum requirements for graduate certificate admission, will be considered for admission. Credits earned for the certificate may be applied toward a graduate degree, as approved by the student's graduate program director and in keeping with the policies of the College of Graduate Studies. Degree and certificate admission requirements are detailed in the Admissions section of this Catalog. With program permission, non-degree graduate students may enroll in the courses noted below, but non-degree graduate students cannot earn a University graduate certificate.

Applicants must have an undergraduate degree in occupational or physical therapy or be enrolled in the Occupational or Physical Therapy Program at Cleveland State University. Individuals with related undergraduate degrees such as speech pathology, audiology, nursing, education, psychology, or social work may be admitted at the discretion of the program.

Submit application materials to the Graduate Admissions Office.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/grad Form.html. The processing time for paper application forms is longer.

Certificate Requirements ([addenda 07/2006](#))

Students must take the following courses:

HSC 514 Occupational and Physical Therapy in the Schools (3 credits)
PSY 767 Special Topics in School Psychology: Process Issues in Consultation (2 credits)

One of the following:

ESE 501 Nature and Needs of Young Children with Disabilities and Those at Risk (4 credits)
ESE 502 Introduction to Individuals with Mild/Moderate Disabilities (4 credits)
ESE 503 Introduction to Individuals with Moderate and Severe Disabilities (4 credits)

One elective from the list below or other elective as approved:

ESE 511 Classroom Management and Intervention for Severe Behavior Problems (4 credits)
ESE 512 Collaboration and Partnerships among Parents and Professionals in Special Education (4 credits)
HED 560 Foundations of a Coordinated School Health Program (4 credits)
HSC 512 Evolving Technologies in Health Sciences (3 credits)
HSC 523 Educational Evaluation in Health Sciences (3 credits)
PSY 550 Child and Adolescent Development and Disorders (4 credits)

For further information, contact: The Department of Health Sciences Cleveland State University Health Sciences 101 2121 Euclid Avenue Cleveland, OH 44115 Phone: (216) 687-3567 Fax: (216) 687-9316

Graduate Certificate in Research Administration

Vera Vogelsang-Coombs,
Certificate Program Director

The Graduate Certificate Program draws on the experience and knowledge of the faculty and professional staff of the Maxine Goodman Levin College of Urban Affairs. They are supplemented by research administration professionals affiliated with the Society of Research Administrators International (SRA) and distinguished experts from leading research institutions.

Introduction

The Graduate Certificate Program in Research Administration helps practitioners meet the challenges and opportunities facing research administrators, such as changing mandates, ethical dilemmas, international issues, and budgeting priorities. This multi-disciplinary program also assists experienced administrators from higher education, health care, government, business, and the nonprofit sector.

The Program blends the theory and practice of public administration and research administration. It equips participants with the skills necessary to succeed as professional and ethical leaders while facilitating their pursuit of a master's degree in public administration. Also, it enables networking and an appreciation for lifelong learning.

Courses are developed by the faculty in partnership with research administration professionals to provide program participants with a customized graduate curriculum. Faculty and experts from leading research institutions deliver the curriculum in an executive format. Each course involves residency at Cleveland State University, although participants will be required to complete assignments before, during, and after intensive study sessions. Participants demonstrate their mastery of the course work through the completion of papers, exams, and applications.

Admission Information

Applicants who are not enrolled in a graduate degree program at Cleveland State University must apply for graduate certificate admission. Applicants for admission must:

1. Submit an application for admission to the graduate certificate program, along with the \$30 fee.
2. Provide documentation of requisite professional experience.
3. Submit an official transcript that shows evidence of an earned bachelor's degree from an accredited university with a cumulative undergraduate GPA of at least 2.75.
4. Submit two letters of reference from individuals familiar with the applicant's research administration experience.
5. Submit a resume indicating educational background, and a statement that explains the applicant's commitment to the profession, leadership, and excellence.
6. Meet ONE of the following criteria:
 - a. Obtain a GRE score at the 50th percentile or higher within the last six years.
 - b. Complete twelve or more semester hours of Cleveland State University graduate course work AND earn a grade of B or better in each course.
 - c. Earn a baccalaureate degree and an undergraduate GPA of at least 3.0.
 - d. Earn a master's or a JD degree from an accredited institution.
7. Upon admission to the certificate program, all students must contact the Graduate Program Advisor of the Levin College to prepare a program of study.

Degree-seeking graduate students who hold Regular status in the Levin College of Urban Affairs will be considered for admission to the certificate program. Applicants must have a career commitment to research administration, as evidenced by their resume, and a statement of career goals.

Credits earned for the certificate may apply toward a graduate degree, as approved by the student's graduate program director and in keeping with policies of the College of Graduate Studies.

Students enrolled in a graduate degree program at Cleveland State University must file, prior to graduation, a letter stating their intent to complete the requirements for the Certificate in Research Administration. The letter, addressed to the Graduate Programs Advisor of the Levin College, must specify the anticipated date of completion for each course taken to fulfill certificate requirements.

Certificate Requirements

The Graduate Certificate Program consists of the following five required courses:

- PAD 600 Introduction to Public Administration (4 credits)
- PAD 604 Organizational Behavior (4 credits)
- PAD 634 Ethics in the Public Sector (4 credits)
- PAD 633 Budgetary Policy (4 credits)
- PAD 628 Fundamentals of Research Administration (4 credits)

For further information, contact:
Urban Student Services
Cleveland State University
Urban Building 232 N
2121 Euclid Avenue
Cleveland, OH 44115
Phone: (216) 687-3884
Fax: (216) 687-5398

Graduate Certificate in **Software Engineering**

Yongjian Fu, Graduate Certificate
Program Director

Introduction

The graduate certificate program in software engineering is offered by the Department of Electrical and Computer Engineering and the Department of Computer and Information Science.

Software engineering is the application of a systematic, disciplined, and quantifiable approach to the development, operation, and maintenance of software systems. These software systems include large-scale enterprise systems, medium-scale systems, Web-based applications, desktop applications, and embedded systems.

Admission Information

Applicants should have a background in computer engineering or computer science. Prerequisite courses are required as indicated below. Applicants with baccalaureate degrees in related fields also will be considered for admission, but they may be required to take additional prerequisite courses. Credits earned for prerequisite courses cannot be used to meet the graduate certificate requirements.

Applicants with baccalaureate degrees in computer science must complete the following prerequisite courses:

EEC 380 Digital Systems

EEC 484 Computer Networks

Applicants with bachelor's degrees in computer engineering must complete the following computer science prerequisites:

CIS 430 Database Concepts

CIS 459 Object Oriented Programming

Applicants with baccalaureate degrees in computer science and computer engineering from an ABET/EAC-accredited program from a U.S. university must have a minimum grade-point average of 3.0. The GRE is required of applicants with a GPA between 2.75 and 3.0 with minimum scores at the 80th percentile in the Quantitative section and 50th percentile in the Analytical section of

the examination. International students also are required to submit TOEFL examination results with a minimum acceptable score of 525 (197 on the computer-based examination).

Credits earned for the certificate may be applied toward a graduate degree as approved by the student's graduate program director and in keeping with the policies of the College of Graduate Studies

Submit application materials to the Graduate Admissions Office.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Certificate Requirements

The program consists of five courses, totaling twenty credit hours:

CIS 634 Object-Oriented Software Engineering (4 credits)

CIS 635 Software Engineering Metrics, Economics, and Management (4 credits)

EEC 517 Embedded Systems (4 credits)

EEC 522 Software Systems Modeling and Analysis (4 credits)

EEC 687 Mobile Computing (4 credits)

For further information, contact:

Electrical and Computer Engineering Department

Fenn College of Engineering

Stilwell Hall 332

Cleveland State University

2121 Euclid Avenue

Cleveland, Ohio 44115-2425

Phone: (216) 687-2589

Fax: (216) 687-5403

Or visit the Web site at

www.csuohio.edu/electrical_engineering/

Graduate Certificate in **TESOL**

Teaching English to Speakers of Other Languages

Maria E. Angelova, Certificate
Program Director

Introduction

The College of Education and Human Services Graduate Certificate Program in TESOL is primarily designed for individuals who wish to acquire the knowledge and skills needed to teach English as a second language in non-public school settings. International students and those interested in teaching English abroad also benefit from the program. The curriculum provides for an in-depth study of current theory, research, and practice, as they relate to teaching English as a second or foreign language. The course work can be used to partially fulfill teacher licensure requirements for TESOL endorsement in the State of Ohio. Completion of this certificate program by itself does not provide for this credential. Students seeking to add TESOL endorsement to an existing Ohio teaching certificate or license should contact the Education Student Services Center at (216) 687-4625 for further information about other available programs for this purpose.

Admission Information

Prospective students should apply for graduate admission as a "certificate" student in order to register for classes. Applicants must meet the graduate certificate admission requirements detailed in the Admissions section of this Catalog. With program permission, non-degree graduate students may also enroll in the courses noted below, but non-degree graduate students cannot earn a University graduate certificate. Degree-seeking graduate students who hold regular admission status may be admitted to this certificate program. Credits earned for the certificate may be applied toward a graduate degree, if approved by the student's graduate program director and in keeping with the policies of the College of Graduate Studies.

Application materials should be submitted to the Graduate Admissions Office. To facilitate the admission

process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Certificate Requirements (15 credit hours)

- EDL 506 Second Language Learning and Pedagogy (3 credits)
- EDL 507 TESOL Methods and Materials (3 credits)
- EDL 508 Applied Linguistics for Teachers (3 credits)
- EDL 509 Assessment and Evaluation in the ESL/Bilingual Classroom (3 credits)
- EDL 510 Pedagogical Grammar (3 credits)

See the Course Descriptions section of this Catalog for details on EDL courses.

For further information, contact:

Education Student Services Center
Cleveland State University
2121 Euclid Avenue
Rhodes Tower 1401
Cleveland, OH 44115
Phone: (216) 687-4625
Fax: (216) 687-9284

Graduate Certificate in Urban Economic Development

Larry Ledebur, Certificate
Program Coordinator

Introduction

The program is designed for individuals seeking pre-professional or professional education in economic development, economic development finance, and workforce and technology development. Elected public officials, appointees, and professional staff who seek to understand economic development and oversee and implement economic development programs also will find the program beneficial, as will community development corporation staff administering economic development and workforce development programs. The program also is appropriate for current Cleveland State graduate students seeking certification in economic development, economic development finance, or workforce development education and training.

Admission Information

Degree-seeking graduate students who hold Regular status will be considered for admission to the certificate program.

Students enrolled in a graduate degree program at Cleveland State must file, prior to graduation, a letter stating their intent to complete the requirements of the certificate in Urban Economic Development. The letter, addressed to the Maxine Goodman Levin College of Urban Affairs Graduate Program Advisor, must specify the anticipated date of completion for each course taken to fulfill certificate requirements.

Applicants who are not enrolled in a graduate degree program at Cleveland State must apply for graduate certificate admission. Certificate admission requirements are detailed in the Admission section of this Catalog. In addition to meeting these requirements, applicants must submit a statement outlining their career goals, experience in economic development, educational goals, and a current resume.

With program approval, non-degree graduate students can enroll in the courses noted below, but non-degree graduate students cannot earn a University graduate certificate. Credits

earned for the certificate may apply toward a graduate degree, as approved by the student's graduate program director and in keeping with policies of the College of Graduate Studies.

Submit application materials to the Graduate Admissions Office.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

For additional information, contact the Graduate Program Advisor in the Levin College at (216) 523-7522.

Prerequisites

PAD/PDD/UST/ 603 Public Finance and Economics, or its equivalent, is a prerequisite for the certificate program. Additional prerequisites may apply for elective courses in the program.

Certificate Requirements

The certificate program consists of four courses, including three required courses and one elective for a total of 16 credits. All courses are four credits.

Required Courses

- PAD/PDD/UST 605 Urban Spatial Structures (4 credits)
- PAD/PDD/UST 622 Economic Development Policy (4 credits)
- PAD/PDD/UST 626 Economic Development and Workforce Development. (4 credits)

Electives

- PDD/UST 572 Conflict Management (4 credits)
- PDD/UST 610 Urban Development Process/Market Analysis (4 credits)
- PAD/PDD/UST 615 Economic Development and Budgetary Policy (4 credits)
- PAD/PDD/UST 621 Local Labor Market Analysis (4 credits)
- PAD/PDD/UST 623 Urban Development Finance and Applied Project (4 credits)
- PAD/PDD/UST 625 Strategic Thinking (4 credits)
- PAD/PDD/UST 626 Workforce Development (4 credits)

- PAD/PDD/UST 627 Urban Tourism, the Urban Core, and Economic Development (4 credits)
- PAD/PDD/UST 642 Introduction to Geographic Information Systems (4 credits)
- PAD/PDD/UST 693 Special Topics in Urban Planning, Design, and Development (4 credits)
- SOC 683 Sociological Analysis of Work and Economic Change (4 credits)

For further information, contact:
Urban Student Services
Cleveland State University
Urban Building 232 N
2121 Euclid Avenue
Cleveland, OH 44115
Phone: (216) 687-3884
Fax: (216) 687-5398

Graduate Certificate in Urban Geographic Information Systems (GIS)

Brian Mikelbank, Certificate
Program Coordinator

www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

Introduction

The Maxine Goodman Levin College of Urban Affairs offers a certificate program in Urban Geographic Information Systems (GIS). The program is central to the College's mission to provide academic and professional education, expertise, and research capabilities to enhance the quality of life in urban communities.

Career Information

The certificate program offers a sequence of courses to professionals who wish to learn GIS technology to complement their careers in government, planning, environment, public works, and other urban agencies. The program provides a solid understanding of basic concepts, technical, and institutional factors in GIS design and implementation, and applications of the technology in professional settings.

Admission Information

Degree-seeking graduate students who hold regular admission status may be admitted to the certificate program. Alternatively, the applicant must meet the graduate certificate admission requirements detailed in the Admission section of this Catalog. With program permission, non-degree graduate students may take the courses noted below, but non-degree graduate students cannot earn a University graduate certificate. Credits earned for the certificate may apply toward a graduate degree, as approved by the student's graduate program director and in keeping with policies of the College of Graduate Studies.

Submit application materials to the Graduate Admissions Office.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at

Certificate Requirements

The certificate program consists of three courses for a total of twelve credits. The introductory course (UST 642) approaches GIS as a tool to provide students with basic technical, analytical, and management skills that can be used in other courses or in the work setting. The course focuses on the principles and concepts of GIS and tools of spatial information analysis that result in recommending fast and efficient solutions to everyday problems. The second course (UST 643) focuses on advanced professional and academic applications of GIS technology. The third course (UST 644) centers upon individual GIS-based projects and provides seminar-based discussions of current issues in GIS.

The required GIS courses are:

- UST 642 Introduction to Geographic Information Systems (GIS)
(4 credits)
- UST 643 Advanced GIS (4 credits)
- UST 644 GIS Capstone Seminar
(4 credits)

For further information, contact:
Urban Student Services
Cleveland State University
Urban Building 232N
2121 Euclid Avenue
Cleveland, OH 44115
Phone: (216) 687-3884
Fax: (216) 687-5398

Graduate Certificate in Urban Real Estate Development and Finance

Robert A. Simons, Certificate
Program Coordinator

James R. Webb, Certificate
Program Coordinator

Introduction

The graduate certificate program in Urban Real Estate Development and Finance is offered jointly by the Maxine Goodman Levin College of Urban Affairs and the Nance College of Business Administration. In addition to Cleveland State faculty, guest lecturers from the real estate community enhance the program by providing up-to-date examples of successful projects. The program provides focused, hands-on experience in project-level real estate and real estate finance, investment, and valuation.

Courses are offered in the evening to accommodate working students. The sixteen-credit certificate may be earned in one year.

Faculty Research

Professor Robert Simons specializes in environmental real estate issues, including proximity influence and brownfields. Professor James Webb, who serves as the Executive Director of the American Real Estate Society, specializes in income property investment and financing.

Career Information

A graduate certificate in Urban Real Estate Development and Finance is a valuable tool for current Cleveland State graduate students who want to enhance their academic program in the area of real estate. Professionals in the fields of real estate, real estate law, planning, economic development, banking, and architecture can enroll in the program to update and strengthen their knowledge and practice in urban real estate development and finance.

Admission Information

Degree-seeking graduate students who hold Regular status will be considered for admission to the certificate program. In addition, applicants must show evidence of:

1. The ability to do quality, professional-level work, and
2. Spreadsheet competency or the ability to learn quickly.

Prior to graduation, degree-seeking students must file a letter with the Levin College Graduate Programs Advisor, stating their intent to complete requirements for the certificate. The letter must specify the expected date of completion of each course being applied toward the certificate.

Applicants who are not enrolled in a graduate degree program at Cleveland State must apply for graduate certificate admission. Certificate admission requirements are detailed in the Admission section of this Catalog. In addition to meeting these admission requirements, certificate applicants must submit a current resume, and a one-page statement that outlines:

1. Educational objectives,
2. Career goals, and
3. Significant experience in real estate development.

With program permission, a non-degree graduate student may take the courses noted below, but non-degree graduate students cannot earn a University graduate certificate.

Credits earned for the certificate may apply toward a graduate degree, as approved by the student's graduate program director and in keeping with policies of the College of Graduate Studies.

To facilitate the admission process, it is strongly recommended that applicants use the online application system at www.csuohio.edu/admissions/gradForm.html. The processing time for paper application forms is longer.

For additional information, contact the Levin College Graduate Program Advisor at (216) 523-7522.

Certificate Requirements

The required sixteen-credit hour sequence, listed below, includes courses from both the College of Urban Affairs and the College of Business Administration:

- PDD 610 Urban Development Process/Market Analysis (4 credits)
- PDD 623 Urban Development Finance and Applied Project (4 credits)
- FIN 610/710 Real Estate Finance (4 credits)
- FIN 612/712 Real Estate Investment (4 credits)

Finance courses do not require sequencing, but the PDD courses must be taken in numerical order.

Graduate Course Descriptions

Graduate Catalog 2006 – 2008

Course Numbers and Codes

Graduate courses are numbered 500-899, and are coded as follows:

- 1 Course number
- 2 Course title
- 3 Parenthesized numerals indicate respectively the classroom hours, the laboratory hours, and the number of credits assigned to the course, e.g., (4-0-4) would indicate four classroom hours per week, no laboratory, and four credit hours.

Courses numbered 500-599 are master's-level courses, but are open to selected Cleveland State University graduating seniors. See the Undergraduate Students Taking Graduate Courses section in this Catalog. Courses 600-699 are master's-level courses and are not open to undergraduate students. Courses numbered 700-899 are doctoral-level courses. Graduate certificate, licensure, or master's-level students may not register for 800-level courses.

Accounting

ACT 501 Financial Accounting (3-0-3).

Basic accounting theory and practice. Thorough coverage of accounting measurement of income and financial position, including the analysis of business events and their effect on the financial position and income of a business. Closed to students who have completed the equivalent of ACT 221 or ACT 222. (Not available for elective credit.)

ACT 531 Financial Accounting: Resources (addenda revised 12/2006)

ACT 532 Financial Accounting: Equities (addenda revised 12/2006)

ACT 553 Information Systems Auditing. (3-0-3).

Prerequisite: ACT 688 or equivalent. Problems of accuracy and control in computer-oriented applications. Changing audit techniques, especially loss of traditional audit trial opportunities; control problems affected by batch systems and by direct access and real-time systems.

ACT 555 Internal Auditing (3-0-3). Prerequisite: ACT 501. Use of theory and practical application of internal control and internal auditing for management purposes.

ACT 560 International Accounting (3-0-3).

Prerequisite: ACT 501. Coverage of the international dimensions of accounting, including topics in financial and managerial accounting, auditing, taxation, and transfer pricing issues. Discussion of comparative accounting systems and the process of harmonizing accounting standards.

ACT 562 Tax II (3-0-3). Prerequisite: ACT 621 or an undergraduate course in tax. Taxation of the income of various business entities and estates and trusts; federal estate and gift taxes; state and local taxes; methodology of researching intricate tax problems.

ACT 584 Governmental and Institutional Accounting (3-0-3). Prerequisite: Introductory courses in accounting or ACT 501. Accounting principles, standards, and procedures applicable to enterprises operated not-for-profit, e.g., governmental units, institutions such as universities and hospitals, charitable organizations, fraternal organizations, religious groups, clubs, and others.

ACT 600 Managerial Accounting (3-0-3).

Prerequisite: ACT 501. Development of analytical skills using management accounting problems. Emphasis on the basics of managerial accounting; using managerial accounting for planning, controlling, and decision-making purposes; and the behavioral implications of using managerial accounting methods in decision-making. For MBA students.

ACT 611 Financial Accounting: Resources (3-0-3). (addenda revised 12/2006)

Prerequisite: ACT 501. Comprehensive analysis of financial accounting theory with emphasis on the complexities of accounting for financial resources. Where appropriate, the relationship with related liabilities and equities is investigated. Analysis is performed within the framework of the standards established by the Financial Accounting Standards Board. Closed to students who have completed ACT 331 and ACT 332.

ACT 612 Financial Accounting: Equities (3-0-3). (addenda revised 12/2006)

Prerequisite: ACT 611. Comprehensive analysis of financial accounting theory with emphasis on the complexities of accounting for liabilities and equity. Where appropriate, the relationship with related financial resources is investigated. Analysis is performed within the framework of the standards established by the Financial Accounting Standards Board. Closed to students who have completed ACT 331 and ACT 332.

ACT 613 Legal and Ethical Environment of Accountancy (3-0-3).

The relationship of accountancy to its legal environment; accountants' legal liability, contracts, commercial paper, sales, bailments, bankruptcies, corporations, partnerships, and regulatory law.

ACT 621 Federal Income Taxation (3-0-3).

Prerequisite: ACT 501. A comprehensive consideration of the basic process for determining the federal income-tax obligation of individuals and corporations. Closed to students who have completed ACT 361 and ACT 462, except by departmental permission.

ACT 622 Attest Function (3-0-3).

Prerequisites: ACT 612 and ACT 688. Theory of the auditing function and its relationship to professional standards, ethics, internal control systems, nature of evidence, fieldwork, methodology, and types of opinions. Closed to students who have completed ACT 451. (With the successful completion of an equivalent course, this course will be waived and an additional accounting course at the 600 level will be required.)

ACT 631 Selected Topics in Accounting (3-0-3). Prerequisite: ACT 612. Coverage of advanced topics in financial accounting. Covers consolidated statements, foreign currency transactions, SEC disclosure rules, interim reporting, segment reporting, inflation accounting, and not-for-profit accounting. Closed to students who have completed ACT 332 and ACT 441. (With the successful completion of an equivalent course, this course will be waived and an additional accounting course at the 600 level will be required.)

ACT 632 Auditing Standards and Techniques (3-0-3).

Prerequisite: ACT 622 or equivalent. Critical analysis of techniques used in auditing; interrelation of audit standards, procedures, principles, and techniques; trends and developments in the profession of public accounting; report forms; contents, certificates, and comments; auditors' rights and responsibilities; published corporation reports; requirements of the American Institute of Certified Public Accountants, the Securities and Exchange Commission, and other regulatory agencies; and case studies.

ACT 633 Cost Accounting Theory and Analysis (3-0-3).

Prerequisite: ACT 600 or equivalent. Covers advanced quantitative techniques in managerial accounting systems, including computer application. Includes diverse topics in cost/managerial accounting combining aspects of theory and practice.

ACT 634 Accounting Concepts and Principles (3-0-3).

Prerequisites: ACT 612 and ACT 631. An advanced survey of accounting concepts and principles designed to develop an understanding of recurring issues in accounting theory and their development in a global context.

ACT 636 Federal Income Taxation of Corporations and Shareholders (3-0-3).

Prerequisite: ACT 621 or equivalent. A comprehensive analysis of the federal income tax problems of corporations and shareholders, including S corporations.

ACT 637 Taxation of Partnerships (3-0-3).

Prerequisite: ACT 621 or equivalent. A comprehensive analysis of the federal income tax problems of partnerships.

ACT 638 Tax Research and Planning (3-0-3).

Prerequisites: Two undergraduate courses in taxation or ACT 621. A thorough review of the tax research and planning process; discussion of current developments in federal, state, and local taxation. Tax research project required.

ACT 639 Accounting Policy (3-0-3).

Prerequisite: Advanced standing in Master of Accountancy program or permission of instructor. Integration of knowledge developed in the program, SEC regulations, and accounting research with the objective of formulating policy through rational use of these principles.

ACT 641 Estate and Gift Taxation (3-0-3).

Prerequisite: ACT 621. A study of federal estate and gift laws involved in the planning of inter vivos and testamentary transfers of property.

ACT 642 Tax Practice and Procedure (3-0-3).

Prerequisite: ACT 621. Examines the administration and enforcement of the Internal Revenue Code with a focus on practitioner strategy.

ACT 643 Corporate Taxation II (3-0-3).

Prerequisite: ACT 636. Examination of the income tax laws relating to corporate reorganizations and filing consolidated returns by affiliated corporations, the tax consequences to parties involved, and relevant judicial doctrines.

ACT 644 Estate Planning (3-0-3).

Prerequisite: ACT 641. A study of estate tax and federal income taxation of estates and trusts, with emphasis on planning the estate for disposition of property, tax minimization, liquidity requirements, and administrative costs.

ACT 645 Taxation of International Transactions (3-0-3).

Prerequisite: ACT 621. A detailed study of more advanced areas of taxation and tax planning for individuals, including investment, insurance, and retirement planning.

ACT 648 State and Local Taxation (3-0-3).

Prerequisite: ACT 621. Examines common state and local taxation of individuals and businesses, including taxation of multi-state businesses.

ACT 649 Tax Accounting (3-0-3).

Prerequisite: ACT 621. Attention to the timing of recognition of income, tax depreciation, installment reporting, imputed interest, and tax credits.

ACT 653 Advanced Information Systems Auditing (3-0-3).

Prerequisite: ACT 553. Provides the opportunity for the student to gain an awareness of computer-assisted auditing techniques (CAAT), an understanding of specific CAAT software, and an appreciation for future CAAT development. In addition, the student is exposed to a series of topics of current professional interest.

ACT 688 Accounting Systems (3-0-3).

Prerequisite: ACT 611. Business systems as viewed by accounting professionals; system analysis, flow charting, and system design applied to a range of firms, from those with a minimum of electronic and mechanical devices to firms with the most sophisticated types of electronic data-processing equipment; emphasis on business system design to accumulate and communicate information to officials controlling the activities of the enterprise. (With the successful completion of an equivalent course, this course will be waived and an additional accounting course will be required.)

ACT 690 Professional Accounting

Internship (1-4 credits). *Prerequisite:* Permission to register must be obtained from the Accounting Chair early in the semester prior to enrollment in the course. Requires professional accounting work experience in an organizational environment that extends the curriculum and provides meaningful experience related to the student's area of interest. Term report required.

ACT 696 Current Problems in Accounting

(1-3 credits). *Prerequisite:* ACT 600 or ACT 612. Selected problems in the field of accounting. With permission of instructor, may be repeated if topics vary.

ACT 698 Independent Study (1-4 credits).

Prerequisites: Two elective courses in accounting, at least one of which must be at the 600 level; prior approval of a written proposal by ACT faculty advisor and permission of Department Chair. Study of a significant problem or area in accounting, conducted under the supervision of the faculty advisor. Term report required.

ACT 899 Dissertation (1-12 credits).

Prerequisite: Successful completion of comprehensive examinations.

Education Administration

ADM 613 School Law (4 credits).

Prerequisite: ADM 614 or permission of instructor. Areas of law that particularly affect schools, including the education law of Ohio, constitutional law as it relates to school problems, and the law of torts as it applies to educational institutions.

ADM 614 Administration Principles and Practice (4 credits).

Overview of educational administration, including the administration process. Also includes an early field experience to familiarize students with the implementation of administrative theory in the school setting.

ADM 615 Instructional Leadership and Pupil Personnel Administration (4 credits).

Development of leadership skills necessary to assist teachers in developing, implementing, and assessing instructional programs. Development of institutional policies, decision-making processes, and administrative behavior affecting students in the school.

ADM 618 Staff Personnel Administration (2 credits).

Prerequisite: ADM 614 or permission of instructor. Addresses economic, legal, and ethical principles that govern the way in which administrators relate to faculty and staff. Topics include planning, recruitment, selection, induction, compensation, and the laws and regulations relating to each of these administrative functions.

ADM 642/742 Collective Bargaining and Contract Management (2 credits).

Familiarizes prospective administrators with Ohio's Public Employee Collective Bargaining Law and the collective bargaining process. Students learn to develop collective bargaining provisions in light of current law, to research and do contract comparisons, and

to use collective bargaining to achieve school and community goals.

ADM 643/743 School Finance and Economics (4 credits). Overview of sources of public school funding with focus on state taxing and allocation issues. Analysis of federal and state legal issues pertaining to the provision of funds for public education.

ADM 652/752 School Business Management and School Facilities (4 credits).

A comprehensive overview of school business management and techniques and problems in planning and renovating educational facilities. Includes all aspects of the delivery of business-support services to all segments of the school system. Study of trends in school plant design and the examination of all school facilities, including the involvement of architects, engineers, and superintendents.

ADM 674 Special Education Law (4 credits).

Prerequisite: ADM 613. Discussion and analysis of court decisions, statutes, and regulations relevant to individuals with disabilities in education.

ADM 675 Public Relations and Public School Administration (3 credits).

Designed to assist present and future administrators in developing and evaluating public relations policies and procedures. Activities and reports are field-based and require students to evaluate existing programs and to explore new approaches to public relations in a public school environment.

ADM 676 Clinical Supervision and Professional Development (4 credits).

Presents several approaches for effectively supervising teachers and school personnel involved in all aspects of the teaching/learning process. Also provides an array of plans for giving school personnel personalized, professional-growth opportunities.

ADM 677 Legal and Policy Issues in Education (4 credits).

Prerequisite: ADM 613. Discussion and analysis of major legal and policy issues in education. Emphasis on judicial interpretations of relevant statutes and regulations in order to better understand the risks in education management and possible strategies to reduce those risks.

ADM 680 Supervision Practicum (two semesters, 2 credits per semester).

Prerequisites: Completion of a minimum of 20 semester hours; applications must be submitted and approved before registration. Each student plans and implements a field project or series of projects in the work environment.

ADM 681 Elementary School Administration: Theory and Practicum II (2 credits).

Prerequisites: Completion of a minimum of 24 semester hours, including ADM 614, and approved application. Students review administrative practices and procedures in elementary schools, and plan and implement a practical project or projects in their work environment.

ADM 682 Middle School Administration: Theory and Practicum II (2 credits).

Prerequisites: Completion of a minimum of 24 semester hours, including ADM 614, and approved application. Students review administrative practices and procedures in

ADM 683 Secondary School Administration: Theory and Practicum II (2 credits). Prerequisites: Completion of a minimum of 24 semester hours, including ADM 614, and approved application. Students review administrative practices and procedures in secondary schools, and plan and implement a practical project or projects in their work environment.

ADM 811 The School Superintendency (4 credits). A focus on the current problems facing superintendents in their relationship with the board of education, district staff, the community, and state and federal agencies. Field experience at the district level is an important aspect of the course.

ADM 830 Evaluating Educational Policy Making at the Federal and State Levels (4 credits). Explores the political factors influencing the development of policy affecting schools and universities at the federal and state levels through the study of the legislative histories of specific policies.

ADM 831 Implementing Public Policy in Schools and Universities (4 credits). Analyzes court decisions that deal with the implementation of laws and regulations at the local level. Attention is directed to the role of courts in shaping policy and how that role interacts with the goal of schools and universities to deliver educational services.

ADM 832 Managing Change in Schools and Universities (4 credits). Covers the principles of managing change and individual leadership as they apply to colleges and universities. Fundamentals, such as obstacles to change, culture, empowerment, leadership challenges in bringing about change, the role of technology in transforming schools, future trends for education, adapting the workplace, and a systems approach to making change happen are discussed. Other topics include changing systems, shared decision making, and the development of new programs.

ADM 833 Seminar in Urban Education (4 credits). Explores social, economic, political, and organizational factors in urban school settings that inhibit the academic development of students. Students become familiar with changing community paradigms/ structures in urban settings and corresponding changes in the education process that may lead to enhanced student achievement.

ADM 880 Internship (two semesters, 2 credits per semester). Prerequisite: Permission of instructor. Provides an opportunity for participants to engage in planned field experiences at the district level. Field activities are supervised by University staff in cooperation with district personnel.

ADM 889 Advanced Seminar in Administration (4 credits). Prerequisites: Open only to students in the administration track of the Ph.D. program in Urban Education who have completed a minimum of 12 hours in the doctoral specialty or who have successfully completed the core and specialty comprehensive examinations. Discussion of major areas in school and non-school administration. Participant investigation and presentation of theory and research in administration based on assessment of prior learning. Practical exploration of leadership approaches and models.

Adult Learning

ALD 603 Lifespan Development (3 credits). An overview of the various theories of human development and their implications for counselors. The primary focus is on the contributions of each of the theories to individual development at all levels, as well as the applications of these principles and concepts in counseling and education. Course material covers genetic/biological, physical, social/cultural, emotional, and intellectual bases of human development.

ALD 605 Psychology of the Adult Learner (3 credits). An analysis of the developmental, social, and psychological characteristics of adults who are involved in post-secondary education and counseling. Attention is given to lifespan developmental theories, principles of human growth, and learning with special emphasis on this age group.

ALD 606 Modern Higher Education in a Changing Society (4 credits). Assessment of the development of post-secondary education from colonial times to the present. Special focus on current trends, as institutions adjust to demographic changes and other societal forces related to meeting the needs of an adult population.

ALD 607 Adult Education in a Changing Society (4 credits). Overview of the field of adult education; study of the philosophies of adult education; discussion of historical development, future alternatives, and contemporary issues and trends as they affect adult education in diverse settings.

ALD 631 Group Dynamics for Educational Leadership (4 credits). Application of the principles of group dynamics to work teams; task and maintenance roles in working with groups; leadership approaches in working with groups; creating a productive group climate; factors influencing group development and cohesion; group problem solving and conflict resolution.

ALD 645 Organizational Behavior and Change (4 credits). Prerequisite: ALD 605 or ALD 607 or permission of instructor. An exploration of the organizational context of training and staff-development programs in higher education, business and industry, and social service organizations. Discussion of administration, legal constraints on organizational behavior, and interrelationships of individuals, groups, organizations, and the environment. The organizational significance of leadership, motivation, decision-making, conflict resolution, culture, and change theory.

ALD 646 Human Resource Development for Adult Educators (4 credits). Prerequisite: ALD 605 or ALD 607 or permission of instructor. An elective course for graduate students in the Adult Learning and Development program. Addresses the complex skills, concepts, and strategies relating to the adult teaching/learning component of human resource development in business, education, industry, government, and voluntary organizations.

ALD 653 The Two-Year College (4 credits).

Examines the history and development of two-year colleges, as well as current and future problems. Discussion of the administration and funding of two-year colleges.

ALD 663 Planning and Implementing Programs for Adult Learners (4 credits). Prerequisite: ALD 605 or ALD 607 or permission of instructor. Theoretical and practical approaches to designing, planning, promoting, implementing, and evaluating programs, workshops, and curriculum for adult learners. Analysis and practice of theories, principles, and methods of planning programs, assessing needs, establishing program objectives, and critically designing and evaluating programs in various facets of adult education in business, educational, and social service organizations.

ALD 664 Instructional Principles for Adult Learners (4 credits). Participants focus on teaching strategies, group methods, and factors that influence ways in which adults respond to and participate in learning activities. Relevant concepts, principles, and theories concerning adult education are analyzed and applied to teaching methodology. Emphasis is placed on the practical application of instructional strategies for planning and conducting educational experiences for adult learners.

ALD 665 Student Personnel Services in Higher Education (4 credits). Overview of the philosophy, organization, administration, and current practices in student personnel with reference to orientation, housing, health services, advising, student affairs, student development, and other services.

ALD 679 Planning, Marketing, and Budgeting in Nonprofit Organizations (4 credits). Provides an overview of available resources and basic concepts relevant to planning, marketing, budgeting, and proposal writing for nonprofit organizations.

ALD 688 Internship in Adult Learning and Development (4 credits). [\(addenda revised 05/2007\)](#) Prerequisites: Completion of at least 16 hours in ALD program, including ALD 605 and ALD 607, and admission to ALD program. Field-based course providing an opportunity for advanced students in the Adult Learning and Development program to engage in supervised work in colleges, business organizations, and agencies.

ALD 689 ALD Portfolio Development (4 credits). [\(addenda revised 05/2007\)](#) Prerequisite or co-requisite: ALD 688. A capstone experience for students in the ALD program that allows them to reflect on and demonstrate their comprehensive knowledge, skills, and experiences in adult education through the development and presentation of a professional portfolio. Students who choose this course do not take comprehensive examinations. This course does not require extra hours of students in the ALD master's program, but instead becomes one of the students' electives within the program.

ALD 700 Issues in Multicultural Foundations of Urban Adult Education (4 credits). Prerequisite: ALD 605 or ALD

607 or admission to the Ph.D. in Urban Education Program. An elective course for graduate students in the Adult Learning and Development program or for doctoral students enrolled in the Leadership and Lifelong Learning specialization in the Ph.D. in Urban Education program. Addresses cultural (racial, ethnic, linguistic) diversity in the adult educational context. Topics include cultural self-awareness, demographic changes and projections, problems/issues in inter-cultural educational setting(s), theoretical perspectives of multicultural education, adult education practical problems, and related strategies in handling diversity in adult education settings.

ALD 800 Leading Continuing Education for Professionals (4 credits). *Prerequisite:* Standing in the doctoral program. Students examine and analyze the nature and function of programs for developing human resources in business, education, industry, government, social services, and voluntary organizations. Theoretical and research literature related to continuing education for professionals is analyzed and discussed. Topics include professionalism, professional practice, professionals as learners, developing and evaluating educational programs, and the institutional context of continuing professional education.

ALD 801 Adult Learning Theory and Research (4 credits). *Prerequisite:* Standing in the doctoral program. Students in this course analyze research and theory concerning adult learning, including social and psychological aspects of adult learning, development, participation and motivation, self-directed learning, transformative learning, and recent and emerging theoretical perspectives.

Studio Art

ART 505 Museum Studies (2-6-4). *Prerequisite:* Special permission of the instructor. A practical guide for the planning and design of exhibitions as an introduction to the field of museum studies.

ART 511 Drawing: Advanced Studio (2-6-4). *Prerequisite:* Special permission of the instructor. Advanced investigation into experimental approaches to drawing. May be repeated for up to 12 credits. Materials fee.

ART 521 Painting: Advanced Studio (2-6-4). *Prerequisite:* Special permission of the instructor. Advanced investigation into more experimental approaches to painting. May be repeated for up to 12 credits. Materials fee.

ART 526 Sculpture: Advanced Studio (2-6-4). *Prerequisite:* Special permission of the instructor. Development of individual approaches to three-dimensional form. May be repeated for up to 12 credits. Materials fee.

ART 531 Printmaking: Advanced Studio (2-6-4). *Prerequisite:* Special permission of the instructor. Advanced individualized studio projects utilizing printmaking processes. May be repeated for up to 12 credits. Materials fee.

ART 532 Photography: Advanced Studio (2-6-4). *Prerequisite:* Special permission of

the instructor. Advanced study of photographic techniques and concepts, with emphasis on the development of personal style. May be repeated for up to 12 credits. Materials fee.

ART 544 Computer Graphics I: Advanced Studio (2-6-4). *Prerequisite:* Special permission of the instructor. Advanced study of raster-based imagery (Photoshop) or graphic and text imagery for publication (Quark Xpress or PageMaker). May be repeated for up to 12 credits. Materials fee.

ART 545 Computer Graphics II: Advanced Studio (2-6-4). *Prerequisite:* Special permission of the instructor. Advanced study of vector-based imagery (Illustrator) or multimedia production. May be repeated for up to 12 credits. Materials fee.

ART 546 Ceramics: Advanced Studio (2-6-4). *Prerequisite:* Special permission of the instructor. Continuation of individual development of personal style. May be repeated for up to 12 credits. Materials fee.

ART 693 Special Topic in Studio Art (0-2-1, 1-3-2, 1-5-3, or 2-6-4). *Prerequisite:* Special permission of the instructor. Intensive study of a subject or topic to be announced in advance. May be repeated for credit. May have materials fee.

ART 696 Independent Studies in Advanced Studio Art and Design (0-2-1, 1-3-2, 1-5-3, or 2-6-4). *Prerequisites:* Written permission of instructor and art advisor. Studio projects in advanced work. Sections are: (1) computer graphics, (2) ceramics, (3) drawing, (4) painting, (5) photography, (6) printmaking, (7) sculpture, (8) other—four credits, or (9) other—two credits. Materials fee.

Art History

ART 556 Gothic Art (4-0-4). The history of the art and crafts of Western Europe in the later Middle Ages.

ART 563 The Early Renaissance in Italy (4-0-4). The history of art and architecture in Italy from the rise of the city-state to the voyages of Christopher Columbus, from Giotto to Leonardo da Vinci.

ART 564 The High Renaissance and Mannerism in Italy (4-0-4). The history of art and architecture in Italy during the time of Leonardo da Vinci, Michelangelo, Raphael, and their followers.

ART 565 The Renaissance in Northern Europe (4-0-4). The history of the arts in the court of the dukes of Flanders and of the kings of France, from Pucelle to Bruegel.

ART 570 American Art (4-0-4). The history of American art from colonial times through the 20th century. The class will consider issues of modernity, race, and gender as they were expressed in the artistic production of the period and also introduces different methods of interpretation in American art.

ART 571 Art in the 19th Century (4-0-4). A survey of art and culture focusing on romanticism and landscape painting; the deterioration of the distinction between "high" and "low" art forms; the transformation of the modern metropolis; and women, the "Orient," and the "primitive" within art and society.

ART 572 Art in the 20th Century (4-0-4). A survey of art focusing on several nations and themes, including the concept of the avant-garde; the place of the gendered body; the development of abstraction; censorship from fascism to the present; the role of photography and mechanization; and post-modernism.

ART 573 On the Edge: Art Since 1968 (4-0-4). International directions in visual culture since 1968, with emphasis on the development of new media such as performance, conceptualism, video, film, and installation. Exhibition and the increasing importance of race, class, gender, and sexual identity within global culture are discussed.

ART 574 American Architecture (4-0-4). A historical analysis of the built environment from the 17th century to the present. Various styles and types of buildings are related to time and place, defining and identifying central characteristics, social function, cultural expression, technology, and changes in architectural practice.

ART 575 Cities and Planning (4-0-4). Humankind's communal environment since ancient times; social, symbolic, functional, and biotechnical domains as generators of architecture and urban planning; value systems in environmental change; policies, plans, and design proposals as the record of the humanized environment.

ART 576 Architectural History: Great Monuments of Western Architecture in the Urban Context (4-0-4). An inquiry into the forms and meaning of architecture, from antiquity to the present.

ART 583 Indian Art (4-0-4). The history of Indian art, from the Neolithic period through the late medieval period.

ART 584 Buddhist Sculpture (4-0-4). An in-depth study of Buddhist sculpture in India and its spread to Tibet, China, and Japan, with special emphasis on iconography and stylistic development.

ART 585 The Hindu Temple (4-0-4). A historical study of the development of the Hindu temple beginning with simple flat-roofed structures and culminating with later multi-structured temple complexes. Architectural form and iconographical program are equally stressed, as are Indo-Aryan and Dravidian styles.

ART 586 Regional Art in Africa (4-0-4). Examines the historical arts of a selected region of Africa, from the archaeological past to contemporary movements. May be repeated for credit when the treated region changes. Discussed regions include Western Sudan, the Guinea Coast, Central, South, and East Africa.

ART 588 African-American Art (4-0-4). The history of African-American art and architecture in the Diaspora, from colonial times to the present.

ART 590 Art History Internship (1-8 credits). Approved internship with an external museum or other appropriate program. Grading is on an S/F basis.

ART 594 Special Topics in Art History (2-4 credits). Intensive study of a relatively

narrow subject or topic to be announced in advance. May be repeated for up to 12 credits.

ART 675 Cleveland: Form and Development of an Urban Environment (4-0-4). Workshop examining aspects of visual communication relative to the city.

ART 695 Art Seminar (4-0-4). *Prerequisite:* *Permission of instructor.* Close examination of a topic through research and discussion, with emphasis on the social context of art. Instructor and students select topic jointly. May be repeated for credit. Usually offered every semester.

ART 697 Independent Reading and Research: Art History (1-4 credits). *Prerequisites:* *Written permission of instructor and Graduate Advisor.* Study of a topic of special interest to the particular student. Subject and plan of study to be decided jointly by student and instructor. May be repeated for credit.

ART 699 Thesis (1-4 credits). Directed research under supervision, culminating in the writing of a thesis.

Art Education

ART 541 Valuing Processes in the Visual Arts (4-0-4). An exploration of art criticism and aesthetics, as part of a comprehensive art education program, with practical applications in pre-K-12 settings.

ART 593 Special Topics in Art Education (4-0-4 or 2-6-4). Intensive study of a relatively narrow subject or topic to be announced in advance. May be repeated for credit.

ART 596 Independent Reading and Research: Art Education (2 or 4 credit hours). *Prerequisite:* *Written permission of instructor.* Study of an art education topic of special interest to the particular student. Subject and plan of study to be designed jointly by student and instructor. May be repeated for credit.

ART 641 Art in Social and Vocational Contexts (4-0-4). An introduction to philosophical and historical issues in art education, with an emphasis on alternative venues for teaching art to varied populations.

Biology

Courses numbered 500-699 are intended for students seeking the MS in Biology degree. Courses numbered 700-899 are intended for students seeking the Ph.D. in Biology degree. For joint courses, students enrolled at the 700/800 level are expected to make more substantial contributions in papers, presentations, projects, etc., and are graded more stringently than students enrolled at the 500/600 level.

BIO 500/700 Graduate Orientation I (1-0-1). Topics include program rules and regulations, research opportunities, scientific writing, and scientific ethics.

BIO 502/702 Graduate Orientation II (1-0-1). Topics include rules and regulations, laboratory and radiation safety, and animal care and handling.

BIO 504/704 Biological Chemistry (3-0-3). *Prerequisite:* *BIO 306 or equivalent.* Metabolic reactions of the cell for energy production and storage. Structure and function of proteins, carbohydrates, and lipids. Regulation and control of metabolic pathways.

BIO 506/706 Computer Applications in Biology (3-0-3). Uses of computer methods in the biological sciences. Emphasis is placed on computer applications, including programming languages, statistical analysis software, electronic communication, and text-processing tools. An applications-oriented final project is required, as well as regular, interactive computer exercises.

BIO 510/710 Practice and Theory of Light Microscopy (3-0-3). *Prerequisite:* *Permission of instructor; co-requisite: BIO 511/711.* In-depth consideration of principles and diverse modes of light microscopy, which are of major importance in biological research, and aspects of microtechnique.

BIO 511/711 Practice and Theory of Light Microscopy Laboratory (0-2-1). *Prerequisite:* *Permission of instructor; co-requisite: BIO 510/710.* In-depth consideration of principles and diverse modes of light microscopy, which are of major importance in biological research, and aspects of microtechnique. Course includes demonstrations and student projects to be undertaken outside scheduled class time.

BIO 512/712 Immunology (3-0-3). *Prerequisites:* *BIO 308/309, BIO 412/413, and BIO 504/704; co-requisite: BIO 513/713.* The study of immune cell development, organization and expression of immunoglobulin and T cell receptor genes, including antigen processing and presentation, cytokine regulation, apoptosis, immunity to infections, diseases, and vaccines.

BIO 513/713 Immunology Laboratory (0-2-1). *Prerequisites:* *BIO 308/309, BIO 412/413, and BIO 504/704; co-requisite: BIO 512/712.* The laboratory covers antibody production, general immunoassays, tissue culture techniques, and genetic engineering techniques.

BIO 514/714 Parasitology (2-0-2). *Co-requisite: BIO 515/715.* A basic course in animal parasitology, including ecology, life histories, and host-parasite relationships.

BIO 515/715 Parasitology Laboratory (0-4-2). *Co-requisite: BIO 514/714.* Selected exercises designed to reinforce concepts covered in BIO 514/714.

BIO 516/716 Microbiology (3-0-3). *Co-requisite: BIO 517/717.* Structure, function, and genetics of major groups of microorganisms, with emphasis on bacteria; the role of microbes in the economy of nature and man.

BIO 517/717 Microbiology Laboratory (0-4-2). *Co-requisite: BIO 516/716.* The techniques of identification, manipulation, and quantification of microbes.

BIO 518/718 Histology (3-0-3). *Co-requisite: BIO 519/719.* Structure of mammalian cells, tissues, and organs with emphasis on relations of structure and function.

BIO 519/719 Histology Laboratory (0-2-1). *Co-requisite: BIO 518/718.* Laboratory study of mammalian cells, tissues, and organs with emphasis on relations of structure and function.

BIO 520 Explorations in Biology: Inquiry-Based Investigations of Urban Ecosystems (1-2-2). A week-long introduction to the ecology of human-dominated ecosystems. Lectures and laboratories consider biodiversity, human impacts on ecosystems and vice versa, and ecological monitoring programs and their integration into school curricula. Intended for upper elementary, middle, and high school teachers. Held at the Woodlake Environmental Field Station, Peninsula, Ohio.

BIO 522/722 Mammalian Physiology (3-0-3). *Co-requisite: BIO 523/723.* Physiology of major organ systems of vertebrates, with an emphasis on mammalian physiology.

BIO 523/723 Mammalian Physiology Laboratory (0-2-1). *Co-requisite: BIO 522/722.* Exercises that emphasize modern methods of physiological measurement, and the analysis and presentation of physiological data.

BIO 526/726 Neurobiology (3-0-3). *Prerequisite: BIO 302 or equivalent.* Exploration of the relation of behavior to neural function; topics include basic neurophysiology and properties of sensory and motor systems illustrated with human and non-human examples.

BIO 527/727 Neurobiology Laboratory (0-4-2). *Prerequisite or co-requisite: BIO 526/726, or equivalent and permission of instructor.* Classical invertebrate experiments that provide an introduction to standard neurobiological techniques for studying neural activity, including simple dissection, stimulating and recording neural activity, and analyzing data.

BIO 528/728 Endocrinology (3-0-3). Introduction to functions of hormones and endocrine glands, including mechanisms controlling hormone secretion; mammalian systems are emphasized.

BIO 530/730 Bioinformatics (3-0-3). *Prerequisites: BIO 306 and BIO 310, or equivalents, or permission of instructor.* A course in either statistics or computer science is highly recommended. Introduction to the tools and techniques of bioinformatics, with emphasis on computational techniques to analyze genomic and proteomic data. Topics include searching of databases, sequence alignment and analysis, phylogenetic methods, and computer programming to analyze database information. A project using original or Internet bioinformatics tools is required.

BIO 534/734 Elements of Pharmacology (3-0-3). *Prerequisites: BIO 306, and BIO 422 or BIO 424, or permission of instructor.* An analysis of the basic principles of the pharmacokinetics and pharmacodynamics of selected therapeutic agents. Emphasis is on the experimental basis of drug discovery, design, and clinical use.

BIO 535/735 Techniques in Molecular Biology (1-6-4). *Prerequisite: Permission of instructor.* A lecture/laboratory course in the

fundamentals of modern biotechnology with emphasis on the techniques and procedures of molecular biology. Students work together to complete a project.

BIO 536/736 Evolutionary Genetics (3-0-3). An introduction to the modern theory of evolutionary genetics, including development of the concepts of genetic diversity, natural selection, random genetic drift, population substructure, infinite-alleles models, and the neutral theory of molecular evolution.

BIO 538/738 (Addenda new 05/2007)

BIO 540/740 Biostatistics (3-0-3). Introductory course in biostatistics, including probability, statistical inference, hypothesis-testing, regression, and other analytical statistical methods applicable to biology.

BIO 542/742 Morphometrics (3-0-3). Application of mathematical and statistical methodology to problems of biological structure and functional form. Individual projects involve detailed morphometric analyses of real data.

BIO 550/750 Evolutionary Biology (3-0-3). Prerequisite: BIO 304 or equivalent. Advanced lectures on evolution that consider traits, genes, and their interaction with environmental variation. Topics include the basic quantitative methods required to interpret evolutionary change, the consequences of population structure, molecular approaches to phylogenetic studies, and the changes in genetic variation under different models of selection, drift, migration, and mutation.

BIO 552/752 Marine Ecology (3-0-3). Prerequisites: BIO 300 or BIO 301, and BIO 304, or equivalents. An advanced ecology course that encompasses marine biology, ecological adaptations of organisms to the marine environment, and interspecific interactions. This course covers marine habitats and the specializations of organisms that live in them.

BIO 554/754 Ecology (3-0-3). Prerequisite: BIO 304 or equivalent. Study of interactions of organisms within their environment, including growth and regulation of populations, communities, energetics of organisms and ecosystems, life-history evolution, and systems ecology.

BIO 555/755 Ecology Laboratory (0-4-2). Prerequisite: BIO 304 or equivalent. Selected exercises designed to reinforce concepts covered in BIO 554/754 and to provide field experience in ecology. The laboratory includes a few one-day field trips on weekends.

BIO 558/758 Behavior (3-0-3). An introduction to and survey of animal behavior from an evolutionary perspective.

BIO 562/762 Evolutionary Ecology of Sexual Reproduction (3-0-3). Prerequisite: BIO 300 or BIO 302 or permission of instructor. Although organisms spend huge amounts of energy in carrying out activities related to sexual reproduction, it is by far the most dominate mode of reproduction. But why? This course explores that question and examines various modes of sexual reproduction in diverse organisms in an evolutionary context.

BIO 564/764 Developmental Biology (3-0-3). Prerequisite: A course in embryology or developmental biology; co-requisite: BIO 565/765. An experimental analysis of the mechanisms of development with emphasis on events at the molecular, cellular, and tissue levels of organizations.

BIO 565/765 Developmental Biology Laboratory (0-2-1). Prerequisite: A course in embryology or developmental biology; co-requisite: BIO 564/764. An experimental analysis of the mechanisms of development with emphasis on events at the molecular, cellular, and tissue levels of organization.

BIO 570/770 Protozoology (3-0-3). Prerequisite: A course in microbiology; co-requisite: BIO 571/771. Classification, morphology, and physiology of protozoa.

BIO 571/771 Protozoology Laboratory (0-2-1). Prerequisite: A course in microbiology; co-requisite: BIO 570/770. Laboratory methods for isolation, examination, manipulation, and experimentation with protozoa.

BIO 572/772 Wetland Ecology (3-2-4). Prerequisites: BIO 300 and BIO 304 or equivalent, or permission of instructor. A study of the interaction of physical, geochemical, and biological components of wetland ecosystems. Adaptations of organisms in wetland ecosystems and community interactions are emphasized. Field and laboratory study give students experience in inquiry-based activities involving data-collection and analyses used in wetland ecology. Techniques in wetland characterization and delineation are covered.

BIO 574/774 Stream Ecology (3-2-4). Prerequisite: BIO 300 or 302 or 304 or equivalent. A study of the interaction of physical, geochemical, and biological components in stream ecosystems. Adaptations of organisms in aquatic environments, community interactions, and ecosystem energetics are emphasized. Field and laboratory study give students experience in inquiry-based activities involving data collection and stream ecosystem analyses. Techniques in stream habitat and water-quality assessment are covered. An eight-week summer course held at Woodlake Environmental Field Station, Peninsula, Ohio.

BIO 576/776 Plant Biochemistry (3-0-3). Co-requisite: BIO 577/777. Basic physiological processes in plants; photosynthesis, uptake of nutrients, respiration, growth, and the role of hormones and enzymes involved in these processes.

BIO 577/777 Plant Biochemistry Laboratory (0-2-1). Co-requisite: BIO 576/776. Selected exercises designed to reinforce concepts covered in BIO 576/776.

BIO 578/778 Morphology of Flowering Plants (3-0-3). Prerequisite: Any botany course for biology majors, or permission of instructor; co-requisite: BIO 579/779. Study of the overall form, the development, and to a minor extent, the microscopic structure of the vegetative and reproductive structure of flowering plants (angiosperms).

BIO 579/779 Morphology of Flowering Plants Laboratory (0-2-1). Prerequisite: Any botany course for biology majors, or permission of instructor; co-requisite: BIO 578/778. Study of the overall form, the development, and to a minor extent, the microscopic structure of the vegetative and reproductive structure of flowering plants (angiosperms).

BIO 580 Biology Content for Middle School Teachers (3-4-5). Enrollment is restricted to in-service middle school teachers without science

specialty and students enrolled in the MED Middle School Science program. No credit towards completion of a graduate degree in biology. Biological concepts relevant to teaching middle-schoollevel biology are discussed and related to timely issues. Lectures coordinate with laboratory exercises and inquiry-based activities.

BIO 584/784 Writing and Editing Grant Proposals (1-0-1). The fundamentals of preparing grant proposals to private, state, and federal agencies. Key topics include formulating specific experimental aims, experimental design, critique, and re-submission.

BIO 588 (addenda new 04/2007)

BIO 593 Special Topics in Biology (3-0-3). Prerequisite: Permission of instructor. Study of a particular topic in biology. Topics to be announced in semester online Course Schedule. May be repeated for credit with change of topic.

BIO 594 Special Topics in Biology (4-0-4). Prerequisite: Permission of instructor. Study of a particular topic in biology. Topics to be announced in semester online Course Schedule. May be repeated for credit with change of topic.

BIO 595 Environmental Seminar (1-0-1). Prerequisite: Permission of instructor. An interdisciplinary seminar addressing the scientific, technological, and policy aspects of environmental issues. Primarily for students seeking the MS degree in Environmental Science.

BIO 596/796 Independent Study in Biology (0-4-2). Prerequisite: Permission of Graduate Program Director. Special research problem or independent study course. May be repeated for credit with change of topic.

BIO 597/797 Independent Study in Biology (0-8-4). Prerequisite: Permission of Graduate Program Director. Special research problem or independent study course. May be repeated for credit with change of topic.

BIO 602/802 Enzymology (3-0-3). Prerequisite: BIO 504/704 or equivalent. General consideration of enzyme nomenclature, purification, assay, introductory kinetics and mechanisms, cofactors, active sites, subunit structure, allosteric and regulatory properties, and the control of multi-enzyme systems.

BIO 604/804 Cell Biology (3-0-3). Examination of basic cellular processes, including structure and function of organelles and biomembranes, intra-cellular transport, cell motility and shape, and cellular signaling events as they relate to proliferation, differentiation, apoptosis, and integration of cells into tissues. Consideration of experimental basis with extensive use of the primary literature.

BIO 606/806 Pharmacology (3-0-3). The study of specific drug actions with regard to organ systems; covers specific drugs, their mechanisms of action, as well as their pharmacological effects. Therapeutic actions of drugs are stressed.

BIO 608/808 Pharmacodynamics (3-0-3). Principles of the interaction between drugs and tissues.

BIO 610/810 Molecular Biology and Genetics (3-0-3). *Prerequisite:* BIO 504/704 or equivalent. Structure and function of nucleic acids. Replication, modification, and recombination of DNA. Transcription, translation, and regulation of transcription and translation.

BIO 612/812 Microbial Physiology (3-0-3). *Prerequisites:* BIO 416 and BIO 504/704, or equivalents. Microbial growth and reproduction considered at the molecular level; discussions of structure, growth kinetics, synthesis of DNA, RNA, and protein, regulation of metabolism, and other biological molecules; physiology; metabolic pathways of bacteria, fungi, and protozoans.

BIO 616/816 Proliferative Signal Transduction (3-0-3). *Prerequisite:* BIO 504/704. A general overview of the cell cycle and consideration of factors involved in proliferative signal transduction at the cell surface.

BIO 622/822 Advanced Vertebrate Physiology (3-0-3). *Prerequisites:* BIO 200/201 and BIO 202/203 or equivalents, and suitable background in chemistry and physics. Physiology of major organ systems of vertebrates, with an emphasis on mammalian physiology and a major focus on system characteristics, including concepts of homeostasis, feedback regulation, stability, and dynamics.

BIO 624/824 Foundations of Biomedical Physiology (3-0-3). *Prerequisite:* BME doctoral student status or permission of instructor. A graduate-level introduction, providing a foundation for applied and basic research in human and mammalian physiology, including basic information and current active research.

BIO 630/830 Recombinant DNA Techniques (3-0-3). *Prerequisite:* BIO 504/704. Theoretical background and practical application of plasmids, restriction and modifying enzymes, lambda phage, and vectors. Discussion of genomic and DNA libraries and a variety of detection systems for isolating and characterizing cloned DNA, including hybridization techniques and DNA sequence analysis.

BIO 632/832 Population Genetics (3-0-3). *Prerequisite:* Permission of instructor. Theoretical analysis of the mechanisms and consequences of allele frequency changes in populations of organisms.

BIO 634/834 Developmental Genetics (3-0-3). *Prerequisite:* BIO 504/704. A molecular genetics course. Genetics of development in single and multi-cellular systems, with emphasis on programmed and differential gene expression.

BIO 638/838 Advances in Cell Biology (3-0-3). *Prerequisite:* Permission of instructor. In-depth study of significant, recent conceptual, or methodological advances in cell biology. Topic varies with instructor. May be repeated for credit with change of topic.

BIO 640/840 Molecular Evolutionary Genetics (3-0-3). *Prerequisite:* Permission of instructor. Theoretical and practical analyses of genomic evolution at the molecular level. Individual projects involve quantitative studies of nucleotide and protein sequences.

BIO 651/851 Advanced Research in Field Biology (0-6-3). *Prerequisite:* Previous course work in ecology, evolution, behavior, or conservation biology, or permission of instructor. Examines field techniques for the analysis of biodiversity and ecological relationships through participation in field research projects. Some study sites are in remote, primitive locations and may involve international travel. See instructor for location, costs, and preparations necessary for the course.

BIO 653/853 Advanced Research in Field Biology (0-8-4). *Prerequisite:* Previous course work in ecology, evolution, behavior, or conservation biology, or permission of instructor. Four-credit version of BIO 651/851.

BIO 656/856 Environmental Physiology (3-0-3). *Prerequisite:* BIO 424/425 or equivalent. Physiological adaptations to environmental problems; major environmental variables considered: food and energy, light, temperature, oxygen, water, and salinity; adaptations to daily and seasonal changes in the environment.

BIO 670/870 Advances in Biology (2-0-2). *Prerequisite:* Permission of BGES Graduate Committee. In-depth study of significant, recent conceptual, or methodological advances in modern biology explored through lectures, discussion, and readings of the primary literature. Topic varies with instructor. May be repeated for credit with change of topic.

BIO 672/872 Advances in Molecular Biology (3-0-3). *Prerequisite:* Permission of BGES Graduate Committee. In-depth study of significant, recent conceptual, or methodological advances in molecular biology. Topic varies with instructor. May be repeated for credit with change of topic.

BIO 674/874 Advances in Ecology (3-0-3). *Prerequisite:* Permission of BGES Graduate Committee. In-depth study of significant, recent conceptual, or methodological advances in ecology. Topic varies with instructor. May be repeated for credit with change of topic.

BIO 676/876 Advances in Physiology (3-0-3). *Prerequisite:* Permission of BGES Graduate Committee. In-depth study of significant, recent conceptual, or methodological advances in physiology. Topic varies with instructor. May be repeated for credit with change of topic.

BIO 678/878 Advances in Evolution (3-0-3). *Prerequisite:* Permission of BGES Graduate Committee. In-depth study of significant, recent conceptual, or methodological advances in evolution. Topic varies with instructor. May be repeated for credit with change of topic.

BIO 684/884 Research Seminar (1-0-1) Weekly topics vary with instructor and guest speakers. May be repeated for credit.

BIO 688 Graduate Seminar (MS) (1-0-1). Topic varies with instructor. May be repeated for credit with change of topic.

BIO 690 Qualifying Examination (non-thesis MS) (1-0-1). *Prerequisite:* Permission of BGES Graduate Committee. Examinations in selected areas of biology. Graded S, F, I.

BIO 691 MS Research (1-10 credits). *Prerequisite:* Approval of BGES Graduate Program Director. Research prior to approval of the CSU Thesis Research Proposal Approval Form for students seeking the MS degree. Graded S, NS, F, T.

BIO 693 Graduate Project (MS) (0-4-2). *Prerequisite:* Approval of project supervisor. An independent research project terminating with a written report. May be repeated for a maximum of six credit hours. Graded S, F, I.

BIO 694 Graduate Project (MS) (0-6-3). Three-credit version of BIO 693. Graded S, F, I.

BIO 695 MS Thesis Research (1-10 credits). *Prerequisite:* Approval of BGES Graduate Program Director. Research following submission of the CSU Thesis Research Proposal Approval Form for students seeking the MS degree. Graded S, NS, F, T.

BIO 888 Ph.D. Seminar (1-0-1). Topic varies with instructor. May be repeated for credit with change of topic.

BIO 891 Ph.D. Research (1-10 credits). *Prerequisite:* Approval of BGES Graduate Program Director. Research prior to approval of the CSU Dissertation Research Proposal Approval Form for students seeking the Ph.D. degree. Graded S, NS, F, T.

BIO 895 Ph.D. Dissertation Research (1-10 credits). *Prerequisite:* Approval of BGES Graduate Program Director. Dissertation research following submission of the CSU Dissertation Research Proposal Approval Form for students seeking the Ph.D. degree. Graded S, NS, F, T.

Chemical Engineering

CHE 502 Advanced Thermodynamics (4-0-4). *Prerequisite:* Graduate standing in chemical engineering or permission of instructor. Principles of chemical engineering thermodynamics applied to advanced problems, first and second law, property relations, equilibrium and stability, mixtures, phase and chemical equilibria, systems under stress, and surface phases. Offered every year.

CHE 504 Advanced Reactor Design (4-0-4). *Prerequisite:* Graduate standing in chemical engineering or permission of instructor. Flow patterns in ideal and real reactors. Residence time distribution as a reactor design tool. Reactor design for multiple reactions, yield, and selectivity concepts. Parametric sensitivity. Reactor dynamics and stability. Introduction to high-temperature, non-catalytic reactions.

CHE 506 Advanced Transport Phenomena (4-0-4). *Prerequisite:* Graduate standing in chemical engineering or permission of instructor. The fundamental theories governing momentum transport, energy, and mass transport are studied with an aim at investigating the analogies that exist among them.

CHE 508 Advanced Separation Processes (4-0-4). *Prerequisite:* Graduate standing in chemical engineering or

permission of instructor. Traditional and developmental advanced separation techniques. Multicomponent distillation, multicomponent absorption/stripping, membrane separations, adsorptive separations, and hybrid systems.

CHE 510 Structure of Materials (4-0-4).

Prerequisite: Graduate standing in chemical or civil engineering, or permission of instructor. Basic principles determining the atomic and crystal structures of materials. Topics include instrumental and structural analysis techniques, evolution of microstructures (phases/phase diagrams), processing (diffusive, solidification, mechanical working) techniques, and their influence on microstructures. Cross-listed with MME 510.

CHE 551 Agile Manufacturing (3-0-3).

Prerequisite: Graduate standing in engineering or permission of instructor. An interdisciplinary course in agile manufacturing. Emphasis is placed on re-configurable, self-directed work teams, flexible structures, adoption of advanced technology, and quality improvements.

CHE 561 Principles of Air Pollution Control (3-0-3).

Prerequisite: Graduate standing in chemical engineering or permission of instructor. The application of engineering principles to the analysis and control of air pollution includes techniques of air sampling and analysis, atmospheric chemistry and transport, air-quality standards, and methods of air-pollution abatement.

CHE 566 Biochemical Engineering (3-0-3).

Prerequisite: Graduate standing in chemical engineering or biology, or permission of instructor. Introduction to the fundamental concepts in biochemical engineering. Topics include enzyme kinetics, immobilized enzymes, genetic engineering, cell growth kinetics, and batch and continuous reactor design.

CHE 568 Process Modeling (3-0-3).

Prerequisite: Graduate standing in chemical engineering or permission of instructor. Review of the basic principles of transport of momentum, heat, and mass with applied problems. Numerical methods for solving more complex problems of transport phenomena and kinetics.

CHE 572 Principles of Adsorption and Catalysis (3-0-3).

Prerequisite: Graduate standing in chemical engineering or permission of instructor. An in-depth study of the chemical principles governing the adsorption of molecules onto the chemically active surfaces of catalysts and determining how this adsorptive interaction causes chemical reactions to be promoted. Emphasizes the study of catalysts in industrially significant reactions, such as in petroleum refining.

CHE 574 Multiphase Reactors (3-0-3).

Prerequisite: Graduate standing in chemical engineering or permission of instructor. Isothermal and non-isothermal analysis of kinetic data for gas-solid catalytic and non-catalytic reacting systems. Design of packed-bed, fluidized-bed, and moving-bed reactors.

CHE 576 Multicomponent Mass Transfer (3-0-3).

Prerequisite: Graduate standing in chemical engineering or permission of instructor. Diffusion and mass transfer, as applied to stagewise and continuous operations. Emphasis on multicomponent, non-isothermal, and unsteady-state operations. A considerable amount of time is devoted to computer programs.

CHE 578 Introduction to Molecular Simulation (addenda new 05/2007)

CHE 580 Advanced Materials Processing (3-0-3).

Prerequisite: Graduate standing in chemical engineering or permission of instructor. Use of fundamental principles in design and analysis of advanced materials processing, such as fabrication of semiconductor devices, optical materials fabricated by sol-gel processes, ceramic-metal composites, and control of morphology at submicron levels. Statistical treatment and analysis of experimental/plant data.

CHE 582 Introduction to Combustion Phenomena (3-0-3).

Prerequisite: Graduate standing in chemical engineering or permission of instructor. Develops a foundation in combustion phenomena, including transport and other mechanisms in homogeneous and heterogeneous combustion. Environmental implications of combustion. Elementary modeling and preliminary design calculations in industrial and modern applications of combustion, such as hazardous-waste incineration, gas turbines, catalytic converters, and coal-combustion systems. Regulatory concerns, stoichiometry, thermochemistry, incinerators, and air-pollution control.

CHE 584 Principles and Applications of Rheology (3-0-3).

Prerequisite: Graduate standing in chemical engineering or permission of instructor. Rheological models for non-Newtonian fluids. Study of principles of equipment design.

CHE 586 Fundamentals of Polymers (3-0-3).

Prerequisite: Graduate standing in chemical engineering or permission of instructor. Emphasis on polymer molecular structure and its relation to physical properties, such as molecular weight distributions, gel point, glass transition, heat capacity, and viscosity. Other topics include polymerization kinetics; condensation esterification; emulsion polymerization; and methods of analysis, such as X-ray diffraction, infrared spectroscopy, and other important basic engineering properties of polymers.

CHE 594 Selected Topics in Chemical Engineering (See Addendum)

CHE 598 Master's Project (Addendum)

CHE 600 Chemistry Teaching (addenda new 2/2007)

CHE 602 Surface Phase Equilibria (3-0-3).

Prerequisite: CHE 502 or equivalent. Equilibrium between surface phases and bulk phases; adsorption; two-dimensional thermodynamics.

CHE 603 Fundamentals of Adsorption (3-0-3).

Prerequisites: CHE 502 and CHE 506. Physical and chemical principles of adsorption, thermodynamics of adsorption, single and multicomponent equilibria, kinetics of adsorption, adsorption column dynamics, and a review of industrially important adsorption processes. An emphasis on zeolites and their applications.

CHE 604 Multiphase Reactor Design (3-0-3).

Prerequisite: CHE 504 or equivalent. Advanced reaction-engineering principles applied to the design and operation of multi-phase reactors. Multiple reactions and heat effects in gas-solid,

gas-liquid, and gas-solid/liquid reacting systems. Optimization of chemical reactors.

CHE 605 Advanced Kinetics (3-0-3).

Prerequisite: CHE 504 or equivalent. Consideration of the fundamentals of homogeneous and heterogeneous reacting systems. Discussion of kinetic mechanisms, non-isothermal kinetics, enzyme kinetics, and solid-phase reactions.

CHE 606 Advanced Mass Transfer (3-0-3).

Prerequisite: CHE 506 or equivalent. Multicomponent diffusion considered in detail; experimental data interpreted by film and penetration theories; discussion of unsteady-state and unconventional diffusional processes, such as thermal diffusion.

CHE 607 Advanced Heat Transfer (3-0-3).

Prerequisite: CHE 506 or equivalent. Investigation of theory and methods of heat transfer of interest to chemical engineers. Topics include transient conduction, thermal boundary layer, forced convection, free convection, and radiative heat transfer.

CHE 612 Combustion Systems (3-0-3).

Prerequisites: CHE 504, CHE 506, and CHE 582, or equivalents. Examination of systems that utilize combustion for generation of mechanical and thermal energy for specific applications. Representative systems, such as turbines and fluid-bed units, are examined in detail.

CHE 614 Turbulent Flow (3-0-3).

Prerequisite: CHE 506 or equivalent. In-depth study of fundamentals of turbulent flow. Phenomenological theories of turbulence. Experimental methods of measuring turbulence. Recent topics of research interest in turbulence.

CHE 616 Advanced Numerical Methods (3-0-3).

Prerequisite: CHE 506 or equivalent. Modern numerical procedures in approximation theory, matrix Eigen values, initial and boundary-value problems, and partial differential equations. Skill in selecting appropriate procedures for particular problems is developed. Required projects consist of finding programming solutions to engineering problems.

CHE 617 Process Optimization Methods (3-0-3).

Prerequisite: CHE 616 or equivalent. An introduction to optimization theory and methods. Examination of the application to process design. Study of the formulation of the engineering optimization problem. A design-optimization project is required.

CHE 618 Catalysis (3-0-3).

Prerequisites: CHE 502 and CHE 504. In-depth study of solid catalysts and catalytic-process analysis and design. Kinetics of elementary steps and overall reactions. Kinetics of two-step reactions on non-uniform surfaces. Structure-sensitive and structure-insensitive reactions. Parasitic phenomena.

CHE 651 Biomechanical Engineering (3-0-3).

Prerequisite: Graduate standing in chemical engineering or permission of instructor. Understanding the terms and concepts of biomechanical engineering, as it relates to medical needs and patients, including topics such as artificial joints, mechanics and modeling of soft tissue; properties of blood, cardiac valves, heart

function and heart-assist replacement; and biomechanical issues in rehabilitation equipment and prosthetics, renal function, and oxygen transport.

CHE 653 Tissue Engineering (3-0-3). Prerequisite: Graduate standing in chemical engineering or permission of instructor. Essential concepts and technologies in cellular and molecular biology, as relevant to the design, application, and evaluation of biological constructs in tissue engineering, with preliminary understanding of commercial applications. See Addenda 12/2007

CHE 655 Biomaterials (3-0-3). Prerequisite: Graduate standing in chemical engineering or permission of instructor. An introduction to materials in medicine designed to develop an understanding of the terms and concepts that relate basic and applied biomaterials engineering research to medical devices.

CHE 657 Medical Devices and Biomaterials (3-0-3). Prerequisite: Graduate standing in engineering. Comprehensive overview of issues surrounding medical-device design and regulation, including characteristics, function, in-vitro testing, evaluation, and intellectual property.

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CHE 659 Medical Imaging (3-0-3). Prerequisite: Graduate standing in chemical engineering or permission of instructor. Introduction to the principles of X-rays, ultrasound, radio nuclide imaging, and magnetic resonance imaging; Description of data acquisition and image-reconstruction techniques; Introduction to image-processing techniques; clinical applications, and industrial procedures and regulations.

CHE 692 Chemical and Biomedical Engineering Internship (addenda new 12/2006)

CHE 694 Selected Topics (1-3 credits).

Prerequisite: Graduate standing in chemical engineering or permission of instructor. Advanced selected topics in chemical engineering. Offered on sufficient demand. May be repeated for credit with change of topic.

CHE 698 Master's Project (1-3 credits).

Prerequisite: Graduate standing in chemical engineering or permission of instructor. Analysis of a specific problem in an area of mutual interest to the student and instructor. A formal written report is required.

CHE 699 Master's Thesis (1-12 credits).

Prerequisite: Graduate standing in chemical engineering or permission of instructor. The Thesis/Dissertation proposal approval form must be on file in the College of Graduate Studies, prior to enrollment. Research under the guidance of a faculty member, culminating in the writing of a thesis.

CHE 700 Chemistry Teaching (addenda new 2/2007)

CHE 702 Surface Phase Equilibria (3-0-3).

Prerequisite: CHE 502 or equivalent. Equilibrium between surface phases and bulk phases, adsorption, two-dimensional thermodynamics.

CHE 703 Fundamentals of Adsorption (3-0-3).

Prerequisites: CHE 502 and CHE 506. Physical and chemical principles of adsorption, thermodynamics of adsorption, single and multi-component equilibria, kinetics of adsorption, adsorption column dynamics, and a review of

industrially-important adsorption processes. An emphasis on zeolites and their applications.

CHE 704 Multiphase Reactor Design (3-0-3).

Prerequisite: CHE 504 or equivalent. Advanced reaction engineering principles applied to the design and operation of multi-phase reactors. Multiple reactions and heat effects in gas-solid, gas-liquid, and gas-solidliquid reacting systems. Optimization of chemical reactors.

CHE 705 Advanced Kinetics (3-0-3).

Prerequisite: CHE 504 or equivalent. Consideration of the fundamentals of homogeneous and heterogeneous reacting systems. Discussion of kinetic mechanisms, non-isothermal kinetics, enzyme kinetics, and solid phase reactions.

CHE 706 Advanced Mass Transfer (3-0-3).

Prerequisite: CHE 506 or equivalent. Multicomponent diffusion considered in detail; experimental data interpreted by film and penetration theories; discussion of unsteady-state and unconventional diffusion processes, such as thermal diffusion.

CHE 707 Advanced Heat Transfer (3-0-3).

Prerequisite: CHE 506 or equivalent. Investigation of theory and methods of heat transfer of interest to chemical engineers. Topics include transient conduction, thermal boundary layer, forced convection, free convection, and radiation heat transfer.

CHE 710 Phase Diagrams and Applications (3-0-3).

Prerequisite: CHE 510 or equivalent. Gibbs phase rule binary diagrams and their correlation with Gibbs free energy; influence of pressure on binary diagrams. Ternary equilibrium diagrams for condensed systems. Methods of presentation of equilibrium diagrams of four and more components.

CHE 712 Combustion Systems (3-0-3).

Prerequisites: CHE 504, CHE 506, and CHE 582, or equivalents. Examination of systems that utilize combustion for generation of mechanical and thermal energy for specific applications. Representative systems, such as turbines and fluid bed units, are examined in detail.

CHE 714 Turbulent Flow (3-0-3).

Prerequisite: CHE 506 or equivalent. In-depth study of fundamentals of turbulent flow. Phenomenological theories of turbulence. Experimental methods of measuring turbulence. Recent topics of research interest in turbulence.

CHE 716 Advanced Numerical Methods (3-0-3).

Prerequisite: CHE 506 or equivalent. Modern numerical procedures in approximation theory, matrix eigenvalues, initial and boundary value problems, and partial differential equations. Skill in selecting appropriate procedures for particular problems is developed. Required projects consist of programming solutions to engineering problems.

CHE 717 Process Optimization Methods (3-0-3).

Prerequisite: CHE 716 or equivalent. An introduction to optimization theory and methods. Examination of the application to process design. Study of the formulation of the engineering optimization problem. A design optimization project is required.

CHE 718 Catalysis (3-0-3).

Prerequisites: CHE 502 and CHE 504. In-depth study of solid catalysts and catalytic process analysis and design. Kinetics of elementary steps and overall reactions. Kinetics

of two-step reactions on non-uniform surfaces. Structure-sensitive and structure-insensitive reactions. Parasitic phenomena.

CHE 751 Biomechanics Engineering (3-0-3).

Understanding the terms and concepts of biomechanical engineering, as they relate to medical needs and patients, including topics in artificial joints, mechanics, and modeling of soft tissue, properties of blood, cardiac valves, heart function, and heart-assist replacement, biomechanical issues in rehabilitation equipment and prosthetics, renal function, and oxygen transport.

CHE 753 Tissue Engineering (3-0-3).

Prerequisite: Standing in Engineering Doctoral program. Essential concepts and technologies in cellular and molecular biology, as relevant to the design, application, and evaluation of biological constructs in tissue engineering with preliminary understanding of commercial applications. See Addenda 12/2007

CHE 757 Medical Devices and Biomaterials (3-0-3).

Prerequisite: Standing in Engineering Doctoral program. Comprehensive overview of issues surrounding medical device design and regulation, including characteristics, functioning vitro testing, evaluation, and intellectual property. Fundamental properties of many of the materials that are used in medical devices.

CHE 759 Medical Imaging (3-0-3).

Prerequisite: Standing in Engineering Doctoral program or permission of instructor. Ultrasound, Radio Nuclide Imaging, and Magnetic Resonance Imaging; description of data acquisition and image reconstruction techniques; introduction to image processing techniques; clinical applications; and industrial procedures and regulations.

CHE 794 Selected Topics (1-4 credits).

Prerequisite: Standing in Engineering Doctoral program or permission of instructor. Advanced selected topics in chemical engineering. Offered on sufficient demand.

CHE 892 Chemical and Biomedical Engineering Internship (addenda new 12/2006)

CHE 895 Doctoral Research (1-12 credits).

Prerequisite: Standing in Engineering Doctoral program or permission of instructor. Analysis of a specific problem in an area of mutual interest to the student and instructor. A formal written report is required. Up to 10 credits may be used toward the dissertation credit requirement.

CHE 899 Dissertation (1-12 credits).

Prerequisite: Successful completion of candidacy examination. The Dissertation Proposal Approval Form must be on file in the College of Graduate Studies prior to enrollment. Research under the guidance of a faculty member, culminating in the writing of a dissertation.

Chemistry

CHM 501 Chemical Information (2-0-2).

Prerequisite: CHM 332 or equivalent. Use of the chemical literature, automated chemical filing systems, and computerized library searches.

CHM 502 Biochemistry (4-0-4).

Prerequisite: CHM 332. Protein chemistry and metabolism of carbohydrates, lipids,

proteins, nucleic acids, vitamins, and hormones, with major emphasis on biochemical processes in human cells and organs, protein purification, enzyme kinetics, and energetics of metabolic reactions. Immunology and AIDS, cancer and ontogenesis, DNA replication, RNA synthesis, protein synthesis, and regulation of gene expression. A scientific review manuscript on a research topic will be required from students signing up for CHM 502. See Addendum

CHM 503 See Addendum

CHM 507 See Addendum

CHM 504 Environmental Chemistry (3-0-3). *Prerequisite:* CHM 331 or equivalent. Chemical aspects of environmental problems: energy, air, and water pollution; solid waste; toxic substances; and related topics.

CHM 506 Environmental Chemistry Laboratory (0-3-2). *Prerequisite:* CHM 316 or equivalent. Emphasis on standard methods of analysis of air and water samples.

CHM 510 Electronics for Chemical Instrumentation (2-2-4). Introductory modular approach to analog and digital electronics, processing of signals, display of results, and control of experimental parameters.

CHM 511 Advanced Instrumental Analysis (3-0-3). *Prerequisite:* CHM 311 or equivalent; *co-requisite:* CHM 516. Advanced theory and techniques of modern instrumental analysis with emphasis on optical spectroscopies, potentiometry, amperometry, and coulometry.

CHM 516 Advanced Instrumental Analysis Laboratory (0-6-4). *Prerequisite:* CHM 300 or equivalent; *co-requisite:* CHM 511. Laboratory course designed to accompany CHM 511. Offered day and evening.

CHM 521 Special Topics in Physical Chemistry (4-0-4). *Prerequisite:* Approval of advisor. Discussion of special topics in physical chemistry, reflecting student and faculty interests.

CHM 523 Statistical Thermodynamics (4-0-4). *Prerequisite:* CHM 322 or equivalent. Fundamentals of statistical mechanics and distribution laws; development and application of partition functions to the evaluation of thermodynamics properties of chemical substances.

CHM 524 Chemical Kinetics (4-0-4). *Prerequisite:* CHM 322 or equivalent. Principles of rate processes considered and applied to chemical kinetics; investigation of unimolecular and bimolecular reactions and effects of isotopic substitution.

CHM 531 Advanced Organic Chemistry (2-0-2). *Prerequisite:* CHM 332 or equivalent. Applications of spectroscopic techniques in the study of organic reactions and compounds.

CHM 561 Polymer Chemistry (3-0-3). *Prerequisites:* CHM 332 and CHM 322, or equivalents. Introduction to structure, properties, kinetics, and mechanisms of polymerization, copolymerization, and polycondensation.

CHM 541, 542, 551, 552
See Addendum

CHM 580 Introductory Chemistry for Middle School Teachers (5-0-5). Introduction to basic chemistry principles and laboratory techniques.

CHM 597 Topics in Chemistry (1-8 credits). *Prerequisite:* Permission of instructor. Discussion of selected topics in chemistry as determined by faculty and student interest. Offered occasionally.

CHM 600/700 Chemistry Teaching (2-0-2). *Prerequisite:* Approval of advisor. Orientation to the philosophy and methods used in teaching chemistry; observation and directed practice teaching in the laboratory and classroom.

CHM 604/704 Special Topics in Environmental Chemistry (3-0-3). *Prerequisites:* CHM 504 and approval of advisor. Discussion of special topics in environmental chemistry, reflecting student and faculty interests. May be repeated for credit with change of topic.

CHM 605/705 Analytical Toxicology I (1-3-3). *Prerequisite:* CHM 311 or equivalent. Introduction to medical toxicology and therapeutic drug monitoring. Lectures and laboratories on drug analysis by chromatographic techniques.

CHM 606/706 Analytical Toxicology II (1-3-3). *Prerequisite:* CHM 605. Lectures and laboratories on principles and practice of assessing the impact of exposure to environmental pollutants. Levels of pollutants, metabolites, and adducts in human tissues, cells, and body fluids are examined by various methods of analyses.

CHM 611/711 Special Topics in Analytical Chemistry (3-0-3). *Prerequisite:* Approval of advisor. Discussion of special topics in analytical chemistry, reflecting student and faculty interests. May be repeated for credit with change of topic.

CHM 612/712 Advanced Analytical Chemistry (3-0-3). *Prerequisite:* CHM 511 or equivalent. Theoretical principles of analytical chemistry, including equilibrium, error analysis, and quantitative calculations.

CHM 613/713 Advanced Electroanalytical Chemistry (4-0-4). *Prerequisite:* CHM 511 or prior approval of the Faculty instructor. Theory, principles, and applications of electroanalytical chemistry. Electron transfer in molecular mechanisms and molecular imaging, sensors, and state-of-the-art devices for analysis and diagnosis. Theory and application of advanced scanning probe techniques, including AFM, STM, Scanning Electrochemical Microscopy (SECM), and coupled AFM-electrochemical analysis.

CHM 614/714 Chromatography and Separation (4-0-4). *Prerequisite:* CHM 511 or equivalent. Comprehensive survey of separation techniques, including solvent extraction, gas chromatography, liquid chromatography, supercritical fluid chromatography, chromatography detectors, gel electrophoresis, and capillary electrophoresis.

CHM 615/715 Mass Spectrometry (3-0-3). *Prerequisite:* Approval of advisor. This course covers electro spray, MALDI, CI, APCI, EI, and other novel ionization methods, as well as quadrupole, TOF, FTMS, and

double sector mass spectrometry. GC/MS and LC/MC also are discussed.

CHM 616/717 Advanced Spectroscopic Methods (3-0-3). *Prerequisite:* CHM 511 or equivalent. Theory and techniques in modern optical spectroscopic analysis.

CHM 618/718 X-Ray Crystallography (3-0-3). Introduction to X-ray crystallographic theory and techniques for the determination of molecular structure, including heavy atom and direct methods of solving structure.

CHM 619/719 Theory of Analytical Chemistry (3-0-3). *Prerequisite:* CHM 612/712. Advanced theoretical treatment of analytical chemistry.

CHM 625/725 Quantum Mechanics (4-0-4). *Prerequisite:* Approval of advisor or one year of undergraduate physical chemistry. Principles of quantum theory including aspects of structure and spectroscopy. Will include projects using common quantum computational software programs.

CHM 630/730 Special Topics in Organic Chemistry (4-0-4). *Prerequisite:* CHM 631/731 or approval of instructor. Discussion of special topics in organic chemistry, reflecting student and faculty interests. May be repeated for credit with change of topic.

CHM 631/731 Organic Structure and Bonding (4-0-4). *Prerequisite:* CHM 332 or equivalent. Structure and properties of organic compounds, including stereochemistry, conformational analysis, aromaticity, reactions, and reaction intermediates.

CHM 633/733 Organic Reactions (4-0-4). *Prerequisite:* CHM 631/731. A study of the mechanisms of organic reactions and their implications in synthetic and structural organic chemistry.

CHM 640/740 Special Topics in Inorganic Chemistry (4-0-4). *Prerequisite:* Approval of advisor. Discussion of special topics in inorganic chemistry, reflecting student and faculty interests. Currently, bioinorganic chemistry and inorganic nanotechnology are the modern topics. Examples from the newest chemical literature will be discussed.

CHM 641/741 Inorganic Mechanisms and Structures (4-0-4). *Prerequisite:* CHM 441 or equivalent. Application of chemical kinetics, thermodynamics, and elementary quantum chemistry to the determination of mechanisms of inorganic reactions; structural aspects of inorganic reactivities. Introduction to bioinorganic chemistry. Applications cover almost every element and example from the newest chemical literature.

CHM 642/742 Theoretical Inorganic Chemistry (4-0-4). *Prerequisite:* CHM 625/725 or equivalent. Symmetry and group theory of inorganic and organometallic compounds; irreducible representations and character tables; applications to valence-bond and molecular-orbital theories of chemical bonding, structures, and spectroscopy. Applications cover examples from the newest chemical literature.

CHM 651/751 Clinical Chemistry I (4-0-4). Laboratory diagnosis of kidney, liver, and hemolytic diseases. Instruction includes physiology and pathophysiology in conjunction with laboratory testing for the above diseases. Laboratory statistics also are covered.

CHM 652/752 Clinical Chemistry II (4-0-4).

Laboratory investigations of disorders in acid-base balance, lipid and carbohydrate metabolism, and endocrine functions. Biochemical markers of myocardial infarction. Case studies.

CHM 653/753 Advanced Biochemistry I (4-0-4).

Prerequisite: CHM 332 or CHM 402. Chemistry of proteins, carbohydrates, and lipids; immunology and AIDS. Enzymes and energetics of metabolic reactions.

CHM 654/754 Advanced Biochemistry II (4-0-4).

Prerequisite: CHM 653/753. Metabolism of nitrogen-containing compounds, vertebrate metabolism, neurotransmission, nucleotides, and nucleic acids, DNA processes, RNA synthesis and processing, protein synthesis, gene expression, and cancer.

CHM 655/755 Biotechnology Techniques (1-5-4).

Techniques of immunoassays and techniques of isolation, manipulation, and analysis of proteins/nucleic acids are covered. Includes both lecture and laboratory.

CHM 656/756 Internship in Clinical Chemistry I (6 credits).

Prerequisite: Approval of the Director of Clinical Chemistry. Students rotate through the clinical laboratory at Cleveland medical centers, being trained in instrumentation, quality control, and diagnostic uses of various testing methodologies. Students are assigned evaluations and/or development projects for a more in-depth experience. Management issues of the clinical laboratory also are addressed. Offered in the summer to clinical chemistry majors only.

CHM 661/761 Macromolecular Structure and Dynamics (4-0-4).

Prerequisite: Undergraduate organic chemistry, physical or analytical chemistry or prior permission of the faculty instructor. Survey of basic and advanced analytical techniques that are critical in investigations of structure and dynamics of biomolecules, including protein, DNA and RNA folding, and structures and function. Examination of biomolecules using basic and advanced techniques, including spectroscopic, time-resolved, and molecular-imaging techniques.

CHM 679/779 Advanced Chemistry Laboratory (1-11 credits).

Prerequisite: Approval of advisor. An advanced laboratory program in selected techniques to be determined by the needs and interests of the student. Offered every semester.

CHM 690/790 Annual Research Report (addenda new 05/2007)**CHM 695/795 Chemistry Seminar (1-0-1).**

Introduction to effective collection, organization, and presentation of technical information. Students are required to present seminars, preferably dealing with some aspect of their proposed research program.

CHM 699 MS Thesis (1-16 credits).

Prerequisite: Departmental approval. Methods and techniques of experimental research under the direction of a faculty advisor; includes submission of an acceptable thesis. Offered every semester.

CHM 750 Special Topics in Clinical Chemistry (1-0-1).

Prerequisite: Approval of advisor. Discussion of special topics in clinical chemistry and related clinical disciplines. May be repeated for credit with change of topic.

CHM 757 Internship in Clinical Chemistry II (6 credits).

Prerequisite: Approval of the Director of

Clinical Chemistry. Students rotate through instrumentation stations not covered in the first internship course (CHM 656/756) in the clinical laboratory at The Cleveland Clinic Foundation or other medical facility. Topic areas are the same as described for CHM 656/756. Offered in the summer to clinical chemistry majors only.

CHM 759 Clinical Chemistry Seminar (1-0-1).

Tutorial and student-participation program emphasizing current developments in various facets of clinical chemistry. Open only to clinical chemistry majors.

CHM 891 Candidacy Examination (1-0-1).

Prerequisite: Approval of advisor. Offered every semester.

CHM 899 Ph.D. Dissertation (1-16 credits).

Prerequisite: Departmental approval. Doctoral research under the direction of a faculty advisor; includes submission of an acceptable dissertation. Offered every semester.

Computer and Information Science

The CIS course titles preceded by an asterisk (*) are intended for non-majors or for satisfaction of the preparatory program requirements and are not available for credit toward the Master of Computer and Information Science degree.

***CIS 500 Introduction to Programming (4-0-4).**

Introduction to the principles of computation, problem-solving methods, and algorithm development, using a popular programming language. Development of effective programming style and basic skills of designing, coding, debugging, and documenting programs. Use of libraries. Topics include functions, arrays, strings, structures, recursion, file I/O, pointers, and introduction to linked lists.

***CIS 505 Analytical Methods in Computer Science (4-0-4).**

Prerequisite: OMS 500. Methods and concepts necessary for use in computer programming, data structures, relational databases, algorithm analysis, and other areas of computer science. Topics include sets, combinatorics, logic, induction, matrices, relations, functions, graphs and trees, and recurrence equations.

***CIS 506 Data Structures and Algorithms (4-0-4).**

Prerequisites: CIS 500 and OMS 500. Continuation of CIS 500. Emphasis on data structures and their use. Topics include stacks, queues, linked lists, trees, and graphs; complexity analysis of sorting, searching, and hashing algorithms.

***CIS 508 Internet Programming (4-0-4).**

Prerequisite: CIS 506. Introduces Internet and intranet programming languages such as HTML, XML, Perl, JavaScript, and ASP in the context of building Internet and World Wide Web applications. Discusses other technologies including UNIX, socket programming, remote procedure calls, and Web-based application servers.

CIS 524 Comparative Programming Languages (4-0-4).

Prerequisite: CIS 506. A short history of programming languages and

styles precedes the study of an important collection of programming paradigms. The major programming paradigms are surveyed, including procedural, functional, object-oriented, graphical-user-based, and logic programming.

***CIS 530 Database Systems and Processing (4-0-4).**

Co-requisite: CIS 506. Database systems; their application, advantages, and disadvantages; layered architecture and its physical/logical organization. Relational databases, foundations, and applications. Detailed study of query languages, including relational algebra, Structured Query Language (SQL), Query-By-Example (QBE). Other non-relational systems including the network and hierarchical database models, their data definition and manipulation sub-languages. Data abstraction, E-R models, normalization theory.

***CIS 535 Language Processors (4-0-4).**

Prerequisite: CIS 506. Foundations of PC architecture and assembly language. Topics include machine language, hardware fundamentals, registers, numbering systems, data definition, and addressing modes. Fundamentals of systems programming, including the implementation and use of assemblers, macro processors, linkers, loaders, and compilers. Examples of language processors are studied on various computers.

***CIS 540 C/C++ for Systems Programming (2-0-2).**

Co-requisite: CIS 506. Covers the basics of the C/C++ languages and standard library functions needed for systems programming. Teaches students with a Java background to write C/C++ programs using standard library functions.

CIS 543 Graphical User Interfaces (3-0-3).

Prerequisites: CIS 545 and CIS 559 or CIS 568. Graphical-user interfaces for advanced bit-mapped display systems characterized by close interaction with pointing devices. Consideration of both the underlying application programming interfaces, as well as the use of a framework of C++ classes. Use of an interactive environment for design and debugging. A specific industry standard system is explored in detail with extensive programming involvement.

***CIS 545 Architecture and Operating Systems (4-0-4).**

Prerequisite: CIS 506. PC architecture, including interrupts, I/O handling, and memory management. Management of computer resources by an operating system, including hardware, processes, main memory, file systems, input/output, synchronization, and deadlocks. Along with the concepts, an in-depth study of a real operating system is presented and its interfaces examined at the command level as well as the system call level. Finally, topics unique to distributed operating systems are examined, including communication, synchronization, and distributed file systems.

CIS 554 Data Communications and Networking (4-0-4).

Prerequisite: CIS 545. Data communications: characteristics of physical transmission media, including international standards for data encoding and device interfacing; transmission principles,

modems and multiplexors, data link protocols, mechanisms for error detection/correction, and flow control. Computer Networks: broad survey of existing networks; network topology; network layers from the ISO OSI reference model; network programming; analytical tools for network analysis and design.

CIS 559 Object-oriented Programming in C++ (3-0-3). Prerequisite: CIS 506. The methodology of object-oriented design and programming using the C++ language. Previous knowledge of C is required. The C++ language includes built-in data types, pointers, classes, operator overloading, code reusability via simple and multiple inheritance, polymorphism, stream I/O, and the use of class libraries.

CIS 568 Object-oriented Design and Programming (4-0-4). Prerequisite: CIS 506. Builds on basic knowledge of computer programming and Java language. Presents in-depth practical exposure to object-oriented analysis and design. Based on the fundamental O-O concepts of inheritance and polymorphism. Introduces Unified Modeling Language (UML). Examines how fundamental building blocks of encapsulation, inheritance, and polymorphism can be put together to build sensible libraries (packages) of classes.

CIS 569 Java Programming (4-0-4). Prerequisite: CIS 559. An in-depth look at the Java programming language. Classes and objects in Java, Java applets and applications, graphics, basic and advanced GUI components of Java, exception handling and multithreading in Java, files and streams. Use of Java on the Internet, networking, and Java Beans. Event-driven programming in Java.

CIS 590 Foundations of Computing (3-0-3). Prerequisites: CIS 505 and CIS 506. Sets, relations, regular languages, finite automata, context-free languages, pushdown automata, phrase-structure languages, Turing machines, Church's theory, recursion, computability, decidability, computational complexity.

CIS 600 Computer Architecture (4-0-4). Prerequisites: CIS 535 and CIS 545. Logic circuit design concepts, including various CPU implementation methods. Architectural features of minicomputers and microcomputers, including processor organization and control, storage addressing, and input/output structures; emphasis on impact on application and system software; detailed study of popular minicomputers and microprocessors and their use of architectural features.

CIS 601 Graduate Seminar in Computer and Information Science (1-0-1). Prerequisite: Completion of the MCISM preparatory program. Introduction to current research topics in computer science and information systems. Explores how research is done in these areas. State-of-the-art industrial practices are also examined. Students prepare presentations on current research topics in computer science or information systems based on surveys of recent articles. Must be taken the first semester after completion of the preparatory program.

CIS 606 Analysis of Algorithms (3-0-3). Prerequisites: CIS 505 and CIS 506. Algorithms and their time/space complexities; models of computation; design of efficient algorithms: recursion,

divide-and-conquer, dynamic programming; algorithms for sorting, searching, and graph analysis. Algorithms for parallel computing.

CIS 611 Relational Database Systems (3-0-3). Prerequisites: CIS 505 and CIS 530. Detailed study of the relational model of data, including its query languages: relational algebra and relational calculus. Expressive power of query languages. Design of relational databases, functional and multi-valued dependencies, normalization theory, elimination of update anomalies, lossless joins, and dependency-preserving decompositions. Exposure to practical aspects of relational design and query evaluation.

CIS 612 Advanced Topics in Database Systems (3-0-3). Prerequisites: CIS 505 and CIS 530. Discussion of data models, including relational, functional, ER, enhanced ER, object-oriented, and networks. Query processing and optimization. Transaction handling, recovery, and concurrency control. Enforcing security and integrity constraints. Distributed and multimedia databases. Hands-on experience with some relational/non-relational DBMS systems.

CIS 620 Comparative Operating Systems Interfaces (4-0-4). [\(Addenda revised 5/2007\)](#) Prerequisites: CIS 535 and CIS 545. Processes and inter-process communication. Network interfaces and socket programming. Command-level shell programming; program development tools and file systems. Topics in distributed operating systems including naming, synchronization, consistency/replication, fault tolerance, and security.

CIS 630 Enterprise Application Development (4-0-4). Prerequisite: CIS 568. Issues surrounding the development of distributed applications, including their architecture, design, and implementation; use of the Java Enterprise APIs; includes servlets, JavaServer Pages (JSP), Java Database Connectivity (JDBC), RMI, CORBA, JNDI, Enterprise JavaBeans, and XML; design and development of complex, distributed Web applications.

CIS 631 Distributed Object Systems (4-0-4). Prerequisite: CIS 630. Covers the latest Web services technology from both the Sun Microsystems' Open New Environment (ONE) and Microsoft Corporation's .NET point of view. The underlying core Web Services Technologies—XML, SOAP, WSDL, UDDI, JAXM, JAX-RPC, SAAJ, and JAXR—are thoroughly explored. Course objectives include development of skills to design, implement, and deploy (using both .NET and Java) server-side SOAP-based Web Services, and SOAP client Web Services capable of accessing any existing Web Service.

CIS 632 Mobile Computing (4-0-4). Prerequisite: CIS 630. This course teaches the latest in wireless technologies, including wireless networks, wireless carriers, operating systems for mobile devices, wireless security, WAP (Wireless Application Protocol), WML (Wireless Markup Language), and micro-browsers. Design and implementation of wireless applications using Sun's J2ME (Java 2 Micro Edition), including applications that utilize user interfaces, graphics, Graduate Course Descriptions / 223

multimedia (the Mobile Media API for J2ME), storage to device's database, and network connections. Included will be n-tier applications that use servlets on a Web server and mobile device software as the first tier. Also covered will be Microsoft Windows CE and Pocket PC.

CIS 634 Object-oriented Software Engineering (4-0-4). Prerequisite: CIS 568 or permission of instructor. Presents concepts, principles, and methods in software architectures, and object-oriented software engineering. Required project gives students an opportunity to apply the knowledge acquired from this course by undertaking the development of a small-scaled software system. By the end of the course, students should: 1) understand the differences between the structured paradigm and the object-oriented paradigm in software development; 2) understand the concepts, principles, and state-of-the-art methods in software architectures and its relationship to other areas of software engineering, specifically requirements, OO analysis and design, and implementation; and 3) be able to design, manage, and implement a computer-based software system using the OO software engineering approach in a group setting.

CIS 635 Software Engineering Metrics, Economics, and Management (4-0-4). Prerequisite: CIS 568 or permission of instructor. Successful software projects need to deal with people and economic considerations, as well as technical considerations. This course enables the student to understand the fundamental principles underlying software management and economics; to analyze management situations via case studies; to analyze software cost/schedule tradeoff issues via software cost-estimation tools and microeconomic techniques; and to apply the principles and techniques to practical situations. A special focus is on rapid application development (RAD), a critical success factor for many projects, and on emerging agile methods for realizing RAD.

CIS 640 Parallel Computers and Programming (3-0-3). Prerequisite: CIS 600. Continuation of computer architecture; microprogramming and its use; architecture of device interfaces, including CRT and floppy-disk interfaces, direct-memory-access support chips; object-oriented computer architectures; special machine organizations, including stack, vector, and parallel machines. Software environments and program-development techniques for parallel computers.

CIS 650 Compiler Design (3-0-3). [\(Addenda revised 4/2006\)](#) Prerequisites: CIS 535 and CIS 620. Practical overview of the principles involved in the design and construction of translators. Language theory and its relation to pushdown automata, parsing methods, finite-state machines and lexical methods, including data representation and run-time environments. In-depth coverage of major parsing and syntax-directed translation ranging from top-down recursive-descent methods, including LL(k) and SLL(k), to bottom-up LR methods, including simple LR, canonical LR, and look-ahead LR, with exposure to the YACC parser generator tool. Lexical analysis, including regular expressions, finite-state machines, and the lex scanner generator tool.

CIS 657 Computer Graphics and Imaging (4-0-4).

Prerequisites: CIS 506 and CIS 540. The fundamental principles of traditional computer graphics, including algorithms for 2D and 3D graphics. Also covers the sophisticated imaging capabilities in Java 2D and the powerful functionality of the new JAI APIs. Students learn how to create all types of graphics; how to load, render, and manipulate images, and how to perform image analysis. The APIs can be used to create cross-platform, Internet-enabled imaging software.

CIS 658 Multimedia Computing (4-0-4).

Prerequisite: CIS 506. Introduces digital capture, representation, processing, and playback of multimedia data audio, video, and images. Java is used for programming assignments, and Java media APIs are studied and used. Commercial products for multimedia capture, editing, and broadcast also are used.

CIS 662 Performance Analysis of Computer Systems (3-0-3).

Prerequisites: CIS 600 and CIS 620. View of computer hardware, software, and applications from a queuing perspective; analysis of single queues and queuing networks for evaluation of system performance; operational analysis.

CIS 665 Artificial Intelligence Languages and Applications (3-0-3).

Prerequisites: CIS 505 and CIS 506. This course introduces an overview of traditional artificial intelligence, often called symbolic AI, with particular emphasis on knowledge discovery or data mining. Topics include: an overview of the field of AI; various techniques of knowledge discovery such as decision-tree based machine learning, statistical approaches, and inductive logic programming; techniques under uncertainty such as Bayesian networks and Dempster-Shafer theory; a brief introduction of major AI languages.

CIS 666 Topics in Artificial Intelligence (3-0-3).

Prerequisites: CIS 505 and CIS 506. Study of recent AI techniques important for practical applications, including neural networks, genetic algorithms and evolutionary computing, fuzzy systems, and chaotic systems.

CIS 667 Bioinformatics (4-0-4).

Prerequisite: CIS 506. An introductory course in biology or chemistry is recommended, but not required. Computational methods for study of biological sequence data in molecular biology. Analysis of genome content and organization. Techniques for searching sequence databases, pair wise and multiple-sequence alignment, phylogenetic methods. Protein structure prediction and modeling, proteomics and the use of Web-based bioinformatics tools.

CIS 669 Computer Executive Programs (3-0-3).

Prerequisites: CIS 600 and CIS 620. Further study of operating systems through detailed case studies of a multi-user operating system written in high-level language.

CIS 675 Information Security (3-0-3).

Prerequisites: CIS 535, CIS 545, and CIS 554. A comprehensive study of security vulnerabilities in information systems and the basic techniques for developing secure applications and practicing safe computing. Topics including common attacking techniques such as buffer overflow, Trojan, virus, and others. UNIX, Windows, and Java security; conventional encryption; Hash functions and data integrity; public-key encryption (RSA, Elliptic-Curve); digital signature; watermarking for multimedia;

security standards and applications; building secure software and systems; legal and ethical issues in computer security.

CIS 676 Computer Networks (3-0-3).

Prerequisites: CIS 554, CIS 600, and CIS 620. Protocol software and conceptual layering, reliable delivery over an unreliable channel, addressing and address resolution, internetworking and routing algorithms, congestion and flow-control techniques, transport protocols, name and name binding, network file systems, the client-server paradigm, analytical tools for network analysis, and performance measurement.

CIS 690 Professional Internship (0-0-1).

Prerequisite: Permission of a CIS Department faculty advisor. Work experience in a professional environment. The work performed must extend the academic curriculum and provide a meaningful learning experience in the student's area of interest. Term paper required.

CIS 693 Special Topics in Computer and Information Science (3-0-3).

Prerequisite: Varies depending on content. Special topics of current interest in computer and information science. Content varies each offering. May be repeated with change of topic.

CIS 694 Special Topics in Computer and Information Science (4-0-4).

Prerequisite: Varies depending on content. Special topics of current interest in computer and information science. Content varies each offering. May be repeated with change of topic.

CIS 698 Independent Study (1-4 credits).

Prerequisites: Prior approval of written proposal by CIS faculty advisor and permission of Department Chair. Project in any approved area of computer and information science. May be repeated with departmental approval. Term report required.

CIS 699 Master's Thesis Research in Computer and Information Science (3-0-3).

Prerequisite: Departmental approval of written proposal. Research in some area of computer and information science; primarily for students who intend to pursue doctoral studies. May be repeated with departmental approval.

Education Counseling

CNS 558 Mediation and Dispute Resolution (2 credits).

Trains participants to resolve disputes as trained mediators. Review of a six-phase process of mediation in which disputing parties isolate critical issues, identify commonalities, generate alternatives, and reach consensus. Focuses on practical skills and the understanding of theoretical and empirical bases of the technique. Includes lectures, demonstrations, skill-building exercises, role-playing, and group activities. Application of the procedure to varied settings is discussed.

CNS 604 Cultural and Social Foundations in Counseling (2 credits).

Provides a foundations background in current social/cultural issues, including multiculturalism, alcohol/drug use and dependency, and issues related to our pluralistic society.

CNS 611 Appraisal in Counseling (2 credits).

An introductory study of the psychological tests most widely used in the fields of school and clinical counseling. Includes an introduction to the practical use of psychological tests as well as material on test construction, validation, reliability, ethics, and testing in a culturally diverse society. Designed to train the counselor as a responsive, reflective professional who is a partner in the counseling process.

CNS 617 Ethical and Legal Issues in Counseling (3 credits).

Introduction to ethical standards for the profession and to the research relevant to ethical behavior of counselors in mental health and school settings. Study of important legal developments related to confidentiality, testing, research, and supervision. Application of ethical and legal standards to complex cases. Examination of emerging ethical issues and models of ethical decision-making.

CNS 620 Laboratory in Counseling

Techniques (3 credits). Prerequisite: Admission to one of the counseling programs. Practicum in individual counseling with a focus on skill development and the establishment of a trusting counseling relationship. Students conduct actual counseling sessions with other class participants. Orientation to the role of the professional counselor in school and non-school settings is included. Must be taken in the first semester of enrollment in the counseling program. Graded on an S/U basis.

CNS 622 Individual Counseling: Theory and Process (3 credits).

Prerequisite: Admission to counseling program or permission of instructor. An overview of the stages of the counseling process and major theories of counseling. Humanistic, psychodynamic, behavioral, and cognitive theories are discussed with attention to research literature and application to diverse populations. Focus is on evaluating the strengths and weaknesses of the theories and building counseling skills through class exercises and role playing.

CNS 623 Group Process and Practice (3 credits).

Prerequisites: CNS 620 and CNS 622. Overview of group dynamics, leadership, and procedures. Examines the use of interactive groups to reach the goals of a school or agency guidance program. Students are required to participate in group activities.

CNS 624 Career Development and Information Services (3 credits).

Intensive study of the psychological and social factors in career development, as well as major theories of career development and how they influence the use of career and educational information in schools and agencies. Includes a review of major assessment tools and computer packages to assist in career decision-making. Discussion of the relationship of career to other facets of development.

CNS 665 [\(addenda new 09/2006\)](#)**CNS 780 [\(addenda new 09/2006\)](#)****CNS 781, 782 [\(addenda revised 09/2006\)](#)**

CNS 629 Community Agency Counseling (3 credits). Historical development of the community mental health services movement; analysis of current trends, practices, and issues in mental health service delivery.

CNS 632 Seminar in Counseling: Selected Topics in Counseling (3 credits). *Prerequisite: Permission of instructor.* Presentation of counseling innovations; critical examination of theory and/or research. Offered occasionally.

CNS 633 Women and Mental Health (2 credits). Provides counselors and other mental health professionals with an understanding of the changing nature of treatment modalities for women in counseling and psychotherapy. Introduces feminist theories of counseling and special topics such as victimization, dual careers, gender discrimination, reproductive issues, and mid-life transition. Offered every other summer (odd years).

CNS 634 Counseling and Spirituality (2 credits). Provides an overview of the relationship of spirituality to counseling and psychotherapy. Covers the theoretical and applied aspects of integrating spiritual issues into clinical work with clients in both school and agency settings. The course material also includes diagnostic issues, related clinical techniques, and how spirituality is also an aspect of client diversity. Offered in the summer every other year (even years).

CNS 650 Case Studies and Interventions (3 credits). *Prerequisites: Admission to the graduate program in counseling and CNS 620, CNS 622, and CNS 624.* Designed to help counseling students use diagnostic information in planning appropriate counseling interventions with clients. Students become familiar with major treatment modalities and learn to make effective choices among them for individual clients. The role of cultural, social, and individual variables in treatment planning is emphasized. Case studies are utilized frequently.

CNS 670 Counseling Children and Adolescents (3 credits). *Prerequisite: CNS 622 or equivalent.* Major theories and interventions in counseling children and adolescents in schools and community settings. Topics include psychoanalytic, humanistic, play-therapy, behavioral, and cognitive models of counseling children and adolescents, and issues in multicultural counseling for this population.

CNS 678 Foundations of School Counseling (3 credits). *Prerequisite: Admission to counseling program or permission of instructor.* Survey of the history, philosophy, and current trends in school counseling. Role, function, and identity of the school counselor. Developmental approaches to assist students at points of educational and personal transition. Collaborative work and consultation with other school personnel such as teachers, administrators, school social workers, and nurses.

CNS 679 Techniques in School Counseling (3 credits). *Prerequisite: CNS 678.* Use management, analysis, and presentation of data from school-based information to design a comprehensive developmental school-counseling program. Individual, group, and

classroom guidance approaches that assist students to be successful academically. Addresses career and personal/social concerns. Approaches to peer facilitation as an intervention strategy.

CNS 680 Counseling Practicum (3 credits). *Prerequisites: Admission to the school or community counseling program, and CNS 620, CNS 622, CNS 623, CNS 624, and CNS 617, or equivalents.* Offers students field placements in schools or community agencies in which they provide individual and group counseling to clients under the supervision of a qualified professional. Placement requires a minimum of 100 hours on site, 40 of which must be in direct service to clients. Students also meet on campus for individual and/or group supervision weekly.

CNS 685 Internship in School Counseling (two semesters; 3 credits per semester). *Prerequisites: CNS 604, CNS 679, CNS 680, CNS 706, and approval of application two semesters in advance.* Supervised field experience in school counseling, development of skills in counseling students, consulting with school personnel, interaction with parents and guardians. Emphasis on the development of individual counseling skills. Application for internship must be submitted two semesters in advance, and enrollment must begin in fall semester.

CNS 686 Practicum/Internship in Community Agency Counseling (3 credits). *Prerequisites: CNS 680, CNS 706, and approval of application two semesters in advance.* Supervised field experience in community counseling with emphasis on the development of skills in individual counseling. First part of a two-course sequence, offered fall semester only.

CNS 687 Advanced Internship in Community Agency Counseling (3 credits). *Prerequisite: CNS 686.* Supervised field experience in community counseling with emphasis on the development of skills in individual counseling. Second part of a two-course sequence, offered spring semester only.

CNS 701 Assessment for Counselors (3 credits). *Prerequisite: CNS 611 or equivalent.* Further educates students about assessment instruments that can be used as part of the diagnostic and counseling process. Includes content focusing on selection, administration, scoring, and interpretation of several commonly used clinical assessment devices. Students also learn about inherent cultural biases in those instruments and develop skills in incorporating test data into their counseling.

CNS 702 Individual Intelligence Testing (3 credits). *Prerequisites: Admission to graduate program in counseling and CNS 611.* Presents the current versions of the Weschler Adult Intelligence Scale and the Weschler Intelligence Scale for Children, and the Adaptive Behavior Scale, the psychological test commonly used to assess individual intelligence and adaptive behavior in mental health settings. Instruction for competent administration, scoring, and reporting of test results is included. Also discussed are the history of intelligence testing, differential diagnosis, issues in use of these measures

with culturally diverse populations, and ethical and legal issues.

CNS 703 Personality Assessment for Counselors (3 credits). *Prerequisites: Admission into graduate program in counseling and CNS 611.* Reviews the psychological tests commonly used to assess individual personality functioning in mental health settings. The role of tests in assessing psychological dysfunction and treating mental and emotional disorders is discussed. Legal and ethical issues and the limitations of personality testing are examined.

CNS 706 Psychopathology and Diagnosis for Counselors (3 credits). *Prerequisite: CNS 622 or equivalent, or permission of instructor.* A review of major categories of psychopathology with emphasis on the behavioral, cognitive, and affective components of human dysfunction. Emphasis on the assessment of psychopathology, research evidence, and controversies about the appropriate role of the diagnosis of mental and emotional disorders in a multicultural society. Introduction to the current diagnostic manual in use in mental health settings. Review of testing concepts and the use of testing in diagnosing psychopathology.

CNS 709 Psychopharmacology for Counselors (3 credits). *Prerequisite: CNS 706.* Psychological and physiological effects of the five major classes of psychotropic drugs are examined to assist counselors in understanding the ways these drugs affect their clients. Examples of commonly used drugs in mental health settings are included with review of their effects, side-effects, and impact on the counseling process. Provides knowledge essential for counselors to understand drug impact and raise informed questions when seeking psychiatric consultation. Special attention is given to medications used to treat disorders of anxiety, depression, and psychosis.

CNS 712 Theories of Personality and Counseling (4 credits). *Prerequisite: CNS 622 or equivalent.* A systematic and intensive examination of the philosophy, process, and technique of the major theories of personality, including theories of counseling and psychotherapy. Research findings related to these theories also are discussed along with their practical application.

CNS 725 Advanced Career Development: Theory and Practice (4 credits). *Prerequisites: CNS 624 and current doctoral standing, or permission of instructor.* Further educates students on career theory, research, and practice. Content focuses on convergence of career theory, integrating theory into practice, current topics in career counseling, special populations, and assessment practices.

CNS 726 Fundamentals of Supervision and Consultation (4 credits). *Prerequisite: Current doctoral standing or permission of instructor.* Provides students with the theory base and skill background to be effective clinical supervisors or mental health clinicians. Focus on the social context of urban agencies and organizations, and how supervision practice interfaces with the social and political aspects of institutional functioning. Emphasis on contrasting models of supervision and comparison of strategies between

models, and how each of those models facilitates supervisee development. There also is a component on effective consultation, through which students acquire the skills necessary to assess an organization's needs, and help the organization to meet those needs.

CNS 727 Advanced Family Issues in Counseling (4 credits). *Prerequisite:* Current doctoral standing or permission of instructor. Prepares students to understand and deal with family counseling situations that require an in-depth knowledge of research data relating to family issues in an urban setting, family life cycles, and family systems and their process of change. Challenging cases that family practitioners frequently face in clinical and school situations are discussed. Presentations, readings, and assignments are keyed to issues experienced by class members, especially those that focus on urban populations and their unique needs.

CNS 728 Advanced Counseling Theory Seminar (4 credits). *Prerequisites:* CNS 622 and CNS 706 or equivalents, or permission of instructor. Provides an in-depth study of one theoretical approach to counseling and psychotherapy. Through discussions and experiential learning, students gain knowledge about advanced concepts and applications of either psychoanalytic/psychodynamic, cognitive behavioral, Gestalt, humanistic, family systems, or contemporary brief therapy models.

CNS 732 Seminar in Leading Interactive Groups (3 credits). *Prerequisites:* CNS 622, CNS 623, and permission of instructor. Group leadership for advanced counselor education students and practicing counselors. Includes at least 30 hours of field placement as a group leader, along with class instruction in group-process theory and practice, philosophy of group processes, and practical approaches for implementing group programs in schools and community agencies.

CNS 738 Family Counseling (3 credits). *Prerequisite:* CNS 622 or equivalent. Review of major theories of family development and family counseling with special attention to families in crisis. Examines research data and applications to families in a multicultural society.

CNS 771 Using the Current Diagnostic and Statistical Manual of Mental Disorders (2 credits). *Prerequisite:* CNS 706 or equivalent. Includes an understanding of each category of mental disturbance, criteria used to identify specific forms of disturbance, training in differential diagnosis, case studies illustrating different forms of pathology, and discussion of how treatment plans and interventions are linked to specific diagnoses.

CNS 781 Internship in Counseling (3 credits). *Prerequisites:* Admission into the Educational Specialist degree program and successful completion of EdS basic core requirements in counseling and human behavior, or permission of instructor. Field-based internship in counseling for post-master's students to refine diagnostic and counseling skills, expand areas of competency, and develop abilities in counseling clients with mental and emotional disorders.

Students are required to gain experience in the appropriate use of standardized tests. Field supervision is complemented by University faculty. May be repeated once.

CNS 782 Internship in Diagnosis and Testing (3 credits). *Prerequisites:* Admission into graduate program in counseling, CNS 702, CNS 703, and CNS 706. The purpose of this 220-hour internship is to gain supervised experience in diagnosis of mental and emotional disorders using the DSM or related diagnostic systems and to administer and interpret personality inventories and individual intelligence tests in field settings. It is designed to help counselors understand the relationship between diagnosis, testing, and treatment planning in counseling. Interns are expected to comply with all ethical and legal standards in diagnosis and testing and to demonstrate understanding of the special considerations with culturally diverse clients.

CNS 888 Research and Evaluation in Counseling (4 credits). *Prerequisite:* Current doctoral standing. A critical analysis of the current research data on the counseling process and outcome, and a review of models for effective evaluation of counseling programs. Acquaints students with the history and current status of counseling research, and helps students develop competencies in critically analyzing and designing counseling research and evaluation projects. Discussion of the ethical issues in counseling research also is included.

Communication

COM 501 Pro Seminar in Communication (4-0-4). Introduction to the history of science, communication theories, and the nature of scientific inquiry. Focuses on a survey of major theories, the logic of communication inquiry, techniques in literature search and review, and the skills in critiquing research. Also examines the structure and logic of the scientific method, as well as different research methodologies and when they are employed. Introduces students to key principles of design, sampling, reliability and validity, measurement, and hypothesis testing.

COM 510 Organizational Communication Theory (4-0-4). *Prerequisite:* COM 501 or permission of instructor. Focuses on three main issues: 1) major theoretic approaches to studying organizations, and the communication models emphasized in each approach; 2) major variations in processes and effects of organizational communication when analyzed by the structure, function, and level of communication systems; 3) applications of concepts and principles for describing and analyzing organizational communication processes and effects.

COM 512 Communication Research Methods (4-0-4). Examines specific quantitative and qualitative research methods, including survey, experimental, content analytic, and observational designs. Emphasis is on design and execution of research for exploratory, descriptive, and explanatory purposes. Students also learn statistical procedures employed in analyzing data through an introduction to multivariate statistics and

an overview of t-tests, analysis of variance, and multiple regression techniques.

COM 520 Interpersonal Communication Theory (4-0-4). *Prerequisite:* COM 501 or permission of instructor. Focuses on communication networks and the relational dimensions of communication behavior, including control and affective functions of verbal and nonverbal communication and examination of human communication models as they relate to both information theory and the "systems approach." Emphasis on interaction theories of personality in explaining interpersonal communication behavior.

COM 530 Mass Communication Theory (4-0-4). Provides students with an introduction to the major theories and concepts in the field of mass communication. Attention is devoted to communication perspectives and to psychological perspectives. Topics include determinants of mass media news, effects of television news, political advertising and debates, television violence effects, TV and children, media economics, and the sociology and psychology of the mass media audience.

COM 531 Multivariate Statistical Methods (4-0-4). *Prerequisite:* COM 512. Advanced methods course on multivariate statistical methods used in analyzing research in human communication. Focuses primarily on understanding these methods and statistics rather than on their actual performance and calculation. Students should be able to critically read and analyze published research in communication, including the methodological and statistical sections of these articles, as well as to use computer programs to apply multivariate statistical tests, including factor analysis, multiple regression, discriminant analysis, MANOVA models, cluster analysis, and multi-dimensional scaling.

COM 532 Audience/Media Research Methods (4-0-4). Introduction to applied research methods in public relations, advertising, and media in relation to the nature of and relations between audience and media. Focuses on demographic and psychographic research methods, audience measurement techniques such as audience ratings, quantitative and qualitative research data gathering, analysis and interpretation methods, such as focus groups, surveys, and experiments.

COM 533 Content Analysis Research Methods (4-0-4). An empirical and systematic investigation of documented messages in print, graphical, and audio-visual forms and observed human communication behaviors. Focuses on the design and execution of content analytic studies, including form vs. content variables, measurement issues, reliability and validity assessment, a systems view of research findings, use of a computer text analysis program, and traditional human-coder techniques.

COM 534 Ethnographic/Qualitative Research Methods (4-0-4). Assumptions behind and strategies for conducting ethnographic research. Qualitative techniques of data collection, including intensive interviews, field observations, and use of various cultural texts. Methods of data analysis and the writing of ethnographic studies. Emphasis on the ethnography of communication.

COM 535 Participant Observation/ Interviewing Methods (4-0-4). An examination of the basic principles and strategies of participant observation, a method of collecting information utilizing creative judgment and systematic procedures. Theoretical basis for collecting data using the combination of qualitative and quantitative methodologies is discussed. Techniques of interviewing and mini-fieldwork participant observation are discussed and practiced.

COM 540 Persuasive Communication and Campaigns (4-0-4). Prerequisite: COM 501 or permission of instructor. Study of persuasive communication and campaigns. Focuses on major communication theories of persuasion, current issues and problems in persuasive communication, and an examination of mass and interpersonal persuasive campaign issues such as attitude formation, fear appeals, cognitive dissonance theory, and interpersonal persuasion. Students may construct campaigns and persuasive appeals for application.

COM 541 Political Communication (4-0-4). This seminar explores theory and research on political communication. The role of mass media and public opinion in American politics is examined, focusing on media and elections, agenda setting, political advertising, campaigning, and presidential debates. Contemporary and classic theories of press and politics are critically examined.

COM 542 Communication and Technology (4-0-4). An in-depth study of the fundamental nature and components of existing and emerging communication technologies and their relationship to society. Focuses on the discussion of current sociocultural, economic, and regulatory issues relevant to the development of these technologies and their ongoing convergence in the information society, as well as their impact on communication systems.

COM 543 Theory Building (4-0-4). The examination of the structure, assumptions, and testing of various theories in the physical and social sciences and their application to communication science, as well as theory construction techniques.

COM 544 Mediation and Collaborative Problem Solving (4-0-4). Examines how mediation works, factors that determine whether mediation can be used to resolve disputes, and the conditions under which mediation is most effective.

COM 548 Managing Organizational Teams (4-0-4). Focuses on the structure, functions, and processes of organizational teams and work groups. Special attention is given to promoting effective teamwork in today's organizations through methods of team building and examining leadership issues confronting teams.

COM 549 Health Communication (4-0-4). Focuses on interactions of people involved in the health care process and the dissemination and interpretation of health-related messages. Emphasis is on provider-recipient communication, communication about health concerns as they relate to physical, mental, and social health issues.

COM 589 Collaborative Research Project (1-4 credits). Prerequisite: Grade of "B" or higher in COM 531. Exit option for completion of the master's program. Students work with faculty on a significant team project and are involved in conceptualization, project design, data collection, data analysis and

evaluation, preparing and writing reports, and presentation of results to clients. The nature of the project selected is announced in advance. Graded S/F.

COM 595 Seminar in Communication Theory and Methodology (4-0-4). In-depth analysis of one or more specific issues in communication theory in relation to an applied problem in communication. Area of primary emphasis varies depending on the instructor. Theory or methodology course; may be repeated with change of topic.

COM 596 Problems in Communication (1-4 credits). In-depth examination of a student-selected communication topic via independent study. Typically involves the utilization of appropriate research methods (e.g., field survey, attitude poll, experimental investigation) as applied to the student's proposed research topic. Students may serve as research interns in a faculty member's program of research. Offered every semester; see advisor for help in scheduling. No more than four credit hours from COM 596 may be counted toward the MACTM degree.

COM 597 Comprehensive Examination (2 credits). Prerequisites: Permission of instructor and Graduate Director, and completion of 36 hours required for graduation. Students enroll in the course the semester they take the comprehensive examination. May be repeated. Graded S/F.

COM 598 Research Project (1-9 credits). Design and execution of an individual research project directed toward analysis of a communication problem found in a career-related setting. May be repeated until completed. Graded S/F.

COM 599 Thesis (1-9 credits). Writing of a master's thesis under the direction of a member of the department faculty. Thesis research must be conducted within the boundaries set by faculty expertise. May be repeated until completed.

Graded S/F.
COM 650/750 see addenda new 05/07
COM 660/760 Strategic Communication
(addenda new 05/2007)

COM 660/760 see addenda new 05/07

Counseling Psychology

CPY 663 - 668 **(addenda new 04/2005)**

Civil Engineering

CVE 500 Mathematical Methods in Engineering Mechanics (4-0-4). Partial differential equations, integral equations, complex variables, integral transforms, and variational calculus, as applied to the areas of elasticity, plasticity, fracture mechanics, materials science, and structural engineering.

CVE 504 Civil Engineering Systems Analysis (4-0-4). Application of standard mathematical optimization procedures to the solution of linear and nonlinear civil engineering systems.

CVE 505 Reliability (4-0-4). Includes a basic review of probability and statistics. Aspects of Monte Carlo simulation are discussed, as they relate to reliability analysis and parameter estimation. Concepts of Weibull analysis and weakest-link theory are discussed thoroughly

along with other system-reliability topics. Standard techniques to estimate statistical parameters are presented. Limit-state functions, the reliability index, and approximate methods are discussed. Code provisions based on probabilistic methods are presented.

CVE 509 Energy Methods in Structural Mechanics (3-0-3). Prerequisite: Permission of instructor. Development of the principles of virtual work, total potential energy, complementary virtual work, total complementary energy, and Reissner's principle for solid mechanics problems. Castigliano theorems, Ritz, Galerkin, and finite-element methods. Applications in structural mechanics problems for bars, beams, columns, plates, and shells.

CVE 511 Matrix Methods of Structural Analysis (3-0-3). Energy-methods approach to matrix structural analysis, including the development of element material stiffness, geometric stiffness, and mass matrices of basic structural elements; emphasis on the displacement method with computer-program solutions of truss and frame problems.

CVE 512 Finite Element Analysis I (3-0-3). **(addenda revised 06/2007)** Prerequisite: CVE 511 or permission of instructor. Theory and application of finite-element methods as an analysis tool for two- and three-dimensional stress-analysis problems in engineering.

CVE 513 Advanced Strength of Materials (4-0-4). Prerequisite: ESC 211. Fosters an understanding of a number of advanced concepts in the field of engineering mechanics. Topics include three-dimensional stress-strain relationships, including failure theories; bending of non-symmetrical members; curved-beam theory; beams on elastic foundations; torsion of non-circular shafts, using the membrane analogy; and plate theory.

CVE 514 Analysis and Design of Composite Materials (4-0-4). Prerequisite: ESC 211. Behavior of uni-directional composites, rule of mixtures, short-fiber composites, analysis of orthotropic lamina, analysis of laminated composites, design of polymer-composite structures, and repair of reinforced concrete structures with composite materials.

CVE 515 Elastic Instability (3-0-3). Prerequisite: CVE 511. Euler buckling of bars, beam/columns, and plates using matrix methods; concepts of geometric nonlinearity including bifurcation and limit-point analysis, using iterative numerical techniques; applications to load eccentricity and system imperfection.

CVE 517 Structural Vibrations (4-0-4). Prerequisites: ESC 202 and CVE 412. Dynamic response of single and multiple degree-of-freedom and continuous structural systems to general force inputs by integration and modal methods; approximate design methods of structural systems under dynamic loading.

CVE 521 Behavior and Properties of Concrete (3-0-3). Prerequisite: CVE 422. Properties of hydraulic cements, aggregates, plastic, and hardened concrete; effect of admixtures and curing conditions; specifications and acceptance tests; and placement, consolidation, finishing, and durability of concrete.

CVE 523 Pre-stressed Concrete (3-0-3).

Prerequisite: CVE 422. Immediate and long-term stress losses in post-tensioned and pre-tensioned members; analysis and design of post-tensioned and pre-tensioned members for flexure and shear; proportioning of members, calculation of the amount, and positioning of reinforcement.

CVE 524 Nondestructive Evaluation (3-2-4).

Theory, methods, applications, and case studies of nondestructive evaluation for detecting and evaluating flaws and estimating the engineering properties of materials. Methods covered such as ultrasonics, acoustic emissions, impact-echo, seismic waves, ground penetrating radar, and thermal methods, with hands-on applications in a laboratory setting. Cross-listed with MME 524.

CVE 525 Advanced Structural Design (3-0-3).

Topics in reinforced concrete and steel design—plastic design of beams and frames, composite construction, plate-girder design, torsion, two-way slab design, and limit-state design.

CVE 528 Structural Wood Design (4-0-4).

Vertical dead and live loads due to gravity, roof, and floor. Lateral design loads due to wind and seismic activity. Properties and grades of sawn lumber and glulam members, modification factors of allowable stresses; analysis and design of axially-loaded members, combined axial and bending effects. Properties and grades of plywood and other rated sheathing; analysis and design of horizontal diaphragms, chords, drag struts, and shearwalls. Design of nailed, bolted connections; timber connectors and connection hardware.

CVE 530 Advanced Soil Mechanics (3-0-3).

Soil mineralogy, determination of soil composition, clay-water electrolyte systems, soil composition, and engineering properties. Conduction phenomenon. Frozen-soil engineering.

CVE 531 Advanced Foundations (3-0-3).

Subsurface explorations; shallow foundations; design of spread footings, mats, retaining walls, and deep foundations; design of piles, piers, and caissons.

CVE 540 Soil Stabilization and Decontamination (3-1-4).

Engineering classification of soils, clay mineralogy, properties of different types of soils, such as strength, permeability, volume-density characteristics; soil contaminant interaction, methods of soil stabilization, methods of soil decontamination, process selection, and site remediation. Soil-decontamination design project.

CVE 546 Transportation Engineering (3-0-3)

Survey of transportation development, characteristics, and planning; traffic characteristics capacity of various systems, including basic procedures, controls, and criteria in highway design; environmental considerations.

CVE 547 Highway Engineering (4-0-4).

Properties of materials used in highway construction. Effects of loading and the environment on pavement life. Design of flexible and rigid pavement systems. Construction methods and management.

CVE 561 Hydrologic Analysis (3-0-3).

Characterization and analysis of the hydrologic cycle and associated hydrologic abstractions. Statistical analysis of hydrologic events, hydrologic routing, and the effects of urbanization on the hydrologic response of a watershed.

CVE 562 Open-Channel Hydraulics (3-0-3).

Application of the principles of the conservation of mass, energy, and momentum to open-channel flow phenomena. Analysis of open channel hydraulic structures and floodplain hydraulics. Emphasis is on computer applications and numerical methods.

CVE 563 Water Resources Engineering (3-0-3).

Analysis and hydraulic design of water-resource engineering subsystems, including subsurface drainage, pressure-flow systems, pumps and turbines, reservoirs, spillways, and landfills.

CVE 564 Groundwater Hydrology (3-0-3).

Analysis of the physical properties and the resultant groundwater flow in porous media. Application of the principles of the conservation of mass, energy, and momentum to groundwater flow systems. Includes well hydraulics, well design, aquifer analysis, infiltration, flow in the unsaturated zone, and introduction to groundwater contamination.

CVE 565 Hydrologic Modeling (3-0-3).

Prerequisite: CVE 561. Numerical and statistical methods employed in computer models that simulate the movement of surface water through the hydrologic cycle. Emphasizes the utilization of computer programs to evaluate the hydrologic response of watersheds.

CVE 566 Groundwater Modeling (3-0-3).

Prerequisite: CVE 564. Numerical and statistical methods employed in computer models that simulate the movement of groundwater through the hydrologic cycle. Emphasizes the utilization of computer programs to evaluate the groundwater-flow system.

CVE 571 Environmental Management Systems and Compliance (3-0-3).

The study of environmental legislation and the resultant regulations as they apply to the environmental engineering profession. Addresses federal, state, and local regulations as applied to soil, water, air, and multimedia engineering activities.

CVE 593 Special Topics in Civil Engineering (1-4 credits).

Topics of current interest to the civil engineering profession. Offered on sufficient demand.

CVE 601 Civil Engineering Graduate Seminar (1-0-1)

Prerequisite: Graduate Standing. Provides students with experience and instruction on research and presentation methods and oral communication of technical information, focused on civil engineering issues. Invited experts from industry and academia, from various civil engineering fields, present and discuss current issues and trends in research and professional practice. Students will present a research paper at the end of the course.

CVE 602 Civil Engineering Internship

(Addenda new 5/2006)

CVE 604 Elasticity (4-0-4).

Prerequisite: CVE 513. Elasticity topics include tensor algebra, fundamentals of stress analysis, fundamentals of deformation theory, thermoelastic constitutive relationships, uniqueness of solution, Airy's stress function, and various solution techniques for two-dimensional problems.

CVE 612 Finite Element Analysis II (3-0-3).

(Addenda revised 06/2007) Prerequisite: CVE 512. Extension of the finite-element method to the solution of advanced three-dimensional stress-analysis problems.

CVE 613 Nonlinear Finite Element Analysis (3-0-3).

Prerequisites: CVE 512 and/or permission of instructor. Isoparametric finite-element discretization, incremental equations of motion. Total and updated Lagrangian formulations. Nonlinear geometry, nonlinear material problems in two and three dimensions. Computer solution of problems.

CVE 620 Fracture Mechanics and Plasticity Theory (4-0-4).

Prerequisite: CVE 604. The stress and deformation field in the region of a crack are derived using linear elastic analysis. Topics include analyzing the change in potential energy due to crack propagation (Griffith's analysis), understanding the origin of critical fracture toughness parameters, and developing fundamental fracture criteria. In addition, the course focuses on time-dependent plastic deformation analysis. Relationships between stress and strain that agree with experimental observations beyond the yield stress are constructed. Applications of these inelastic, constitutive relationships in predicting plastic deformations in simple components are presented. Drucker's stability postulates are discussed, and the principles of slip-line theory are given. General theorems of limit analysis and their application in structural analysis are highlighted. The J-integral and fundamentals of elastic-plastic fracture analysis are presented.

CVE 622 Fatigue Analysis (2-0-2).

Prerequisite: CVE 620. The fundamental concepts of crack growth in the presence of cyclic stress are considered. The fracture-mechanics approach is adopted. Similitude concepts, common empirical and semi-empirical equations, variable amplitude loading, and rainfall analysis are discussed.

CVE 625 Viscoelasticity (2-0-2).

Prerequisite: CVE 604. Modeling of continua as a viscoelastic material in which stress and strain fields in deformable bodies are time- and spatially-dependent. Viscoelastic models include Maxwell fluids and Kelvin solids. Creep phenomena, stress relaxation, hereditary integrals, viscoelastic beams, beams on continuous supports, vibration, and wave propagation in viscoelastic materials are studied.

CVE 693 Special Problems in Civil Engineering (1-4 credits).

Detailed study of a special topic under the guidance of a faculty member.

CVE 696 Independent Study in Civil Engineering (1-4 credits).

Prerequisite: Chair approval. Detailed individual study on a special topic under the guidance of a faculty member.

CVE 697 Master's Research (1-8 credits per semester).

Prerequisite: Graduate standing in civil engineering. Up to eight credits may be considered toward thesis credit requirements.

CVE 699 Thesis (1-8 credits).

A design project or a research problem under the guidance of a faculty member, culminating in the writing of a thesis.

CVE 701 Civil Engineering Graduate Seminar (1-0-1) *Prerequisite: Graduate Standing.* Provides students with experience and instruction in research and presentation methods and oral communication of technical information, focused on civil engineering issues. Invited experts from industry and academia, from various civil engineering fields, present and discuss current issues and trends in research and professional practice. Students will present a research paper at the end of the course.

CVE 704 Elasticity (4-0-4). *Prerequisite: CVE 513.* Elasticity topics include tensor algebra, fundamentals of stress analysis, fundamentals of deformation theory, thermo-elastic constitutive relationships, uniqueness of solution, Airy's stress function, and various solution techniques for two-dimensional problems.

CVE 709 Energy Methods in Structural Mechanics (3-0-3). *Prerequisite: CVE 604 or permission of instructor.* Development of the principles of virtual work, total potential energy, complementary virtual work, total complementary energy, and Reissner's principle for solid mechanics problems. Castigliano theorems, Ritz, Galerkin, and finite element methods. Applications in structural mechanics problems for bars, beams, columns, plates, and shells. Offered on sufficient demand.

CVE 712 Finite Element Analysis II (3-0-3). *Prerequisite: CVE 512.* Extension of the finite element method to the solution of advanced three-dimensional stress analysis problems. Offered on sufficient demand.

CVE 713 Nonlinear Finite Element Analysis (3-0-3). *Prerequisites: CVE 512 and/or permission of instructor.* Isoparametric finite element discretization and incremental equations of motion. Total and updated Lagrangian formulations. Nonlinear geometry and nonlinear material problems in two- and three-dimensions. Computer solution of problems. Offered on sufficient demand.

CVE 714 Elastic Instability (3-0-3). *Prerequisite: CVE 511.* Euler buckling of bars, beam/columns, and plates using matrix methods; concepts of geometric nonlinearity, including bifurcation and limit point analysis using iterative numerical techniques; applications to load eccentricity and system imperfection.

CVE 720 Fracture Mechanics and Plasticity Theory (4-0-4). *Prerequisite: CVE 604.* The stress and deformation field in the region of a crack are derived using linear elastic analysis. Topics include analyzing the change in potential energy due to crack propagation (Griffith's analysis), understanding the origin of critical fracture toughness parameters, and developing fundamental fracture criteria. In addition, the course focuses on time-dependent plastic deformation analysis. Relationships between stress and strain that agree with experimental observations beyond the yield stress are constructed. Other highlighted topics include the application of these inelastic, constitutive relationships in predicting plastic deformations in simple components; Drucker's stability postulates; the principles of slip-line theory; general theorems of limit analysis and their application in structural analysis;

and the J-integral and fundamentals of elastic-plastic fracture analysis.

CVE 722 Fatigue Analysis (2-0-2). *Prerequisite: CVE 620.* The fundamental concepts of crack growth in the presence of cyclic stress are considered. The fracture mechanics approach is adopted. Similitude concepts, common empirical and semi-empirical equations, variable amplitude loading, and rainfall analysis are discussed.

CVE 725 Viscoelasticity (2-0-2). *Prerequisite: CVE 604.* Modeling of continua as viscoelastic materials where stress and strain fields in deformable bodies are time- and spatially-dependent. Viscoelastic models include Maxwell fluids and Kelvin solids. Creep phenomena, stress relaxation, hereditary integrals, viscoelastic beams, beams on continuous supports, vibration, and wave propagation in viscoelastic materials are studied.

CVE 765 Hydrologic Modeling (3-0-3). *Prerequisite: CVE 561.* Numerical and statistical methods employed in computer models that simulate the movement of surface water through the hydrologic cycle. Emphasizes the utilization of computer programs to evaluate the hydrologic response of watersheds.

CVE 766 Groundwater Modeling (3-0-3). *Prerequisite: CVE 564.* Numerical and statistical methods employed in computer models that simulate the movement of groundwater through the hydrologic cycle. Emphasizes the utilization of computer programs to evaluate the groundwater flow system.

CVE 771 Physical and Chemical Principles of Environmental Engineering (3-0-3). *Prerequisite: CVE 570.* Theory and application of physical and chemical processes for water treatment and related environmental control systems. Offered spring semester.

CVE 774 Industrial Waste Treatment (3-0-3). *Prerequisite: CVE 570.* Study of sources of industrial wastewater and their treatability by physical, chemical, and biological processes; problems and solutions involved in combining municipal and industrial waste treatment; and treatment of wastewater from selected industries.

CVE 775 Environmental Engineering Laboratory (2-3-3). *Prerequisites: CVE 471 and CVE 570.* Laboratory evaluation and discussion of the unit operations and processes in water and waste treatment, with emphasis on the interpretation of theoretical concepts in full-scale systems. Offered on sufficient demand.

CVE 780 Biological Waste Treatment (3-0-3). *Prerequisite: CVE 572.* Biological treatment processes and systems used in water-quality control; biological and engineering considerations of wastewater treatment, including theory, purpose, evaluation, and design of secondary and tertiary processes. Offered spring semester.

CVE 782 Air Pollution Control Engineering Design (3-0-3). *Prerequisite: CVE 581.* Design of air-pollutant-control systems for mobile and stationary sources of pollutants. Offered on sufficient demand.

CVE 783 Occupational Health Engineering (3-0-3). *Prerequisites: CVE 476 and*

CVE 570. Principles and application of occupational health engineering for the control of physical and chemical hazards in the workplace. Includes ventilation design, noise control, ionizing and non-ionizing radiation controls, and ergonomics. Offered on sufficient demand.

CVE 785 Hazardous Waste Engineering Management (3-0-3). *Prerequisites: CVE 671 and CVE 680.* Hazardous-waste risk factors, environmental audits, and pollution prevention. Design and operation of hazardous-waste management facilities.

CVE 786 Hazardous Waste Site Remediation (3-0-3). *Prerequisites: CVE 671 and CVE 680.* Hazardous-waste risk factors, site characterization, remediation technologies, remedial alternatives analysis, and radioactive wastes. Offered on sufficient demand.

CVE 793 Special Problems in Civil Engineering (1-4 credits). Detailed study of a special topic under the guidance of a faculty member. Offered on sufficient demand.

CVE 796 Independent Study in Civil Engineering (1-4 credits). *Prerequisite: Chair approval.* Detailed individual study on a special topic under the guidance of a faculty member. Available every semester.

CVE 897 Doctoral Research (1-16 credits). *Prerequisite: Standing in Engineering Doctoral program.* Up to ten credits may be used toward the dissertation credit requirements. Available every semester.

CVE 899 Dissertation (1-16 credits). *Prerequisites: Successful completion of candidacy examination and Dissertation Proposal Approval Form on file with the College of Graduate Studies.* A design project or a research problem under the guidance of a faculty member, culminating in the writing of a dissertation. Available every semester.

Doctor of Business Administration

DBA 720 Seminar on Business Teaching Methods (2-0-2). *Prerequisite: Approval of DBA Director.* Exposes students to a variety of teaching-related issues, such as developing effective lecturing techniques and testing procedures; handling student questions and complaints; preparing the course syllabus; using instructional aids and technology; and understanding faculty and student rights and responsibilities. Includes both formal lectures on teaching fundamentals and practical in-class teaching experiences. DBA 720 is a requirement for all teaching and research assistants. Credit for this course does not count toward the minimum of 34 hours of DBA course work. Grades assigned on a Satisfactory/Fail basis.

DBA 802 Applied Multivariate Statistical Analysis (4-0-4). *Prerequisite: OMS 633/733.* Develops applications of multivariate statistical methods such as multiple regression, analysis of variance and covariance, discriminant analysis, and factor analysis. Computer program packages for the methods are used

extensively. The emphasis is on the analysis of actual data from areas of interest to the students.

DBA 803 Business Research: Analysis and Applications (4-0-4). Prerequisite: DBA 802. Develops students' formal research skills and provides an opportunity to integrate skills and knowledge obtained in other core courses in designing and conducting a research study. In-depth study of current business research methodology and design. Key research studies are critiqued in a variety of business areas. As a course project, students select a research hypothesis, access an appropriate data set, and apply appropriate statistical techniques to test the hypothesis. A comprehensive written report of the research process and the conclusions reached is required.

Doctor of Physical Therapy
DPT 598 – DPT 895 (Addendum)

Executive MBA

EBA 600 The Manager's Workshop (5-0-5). Prerequisite: EMBA student. The opening six-day residency includes an orientation to the EMBA program's curriculum and academic/administrative policies and introduces key management decision-making concepts, skills and techniques; presents models and frameworks for ethical analysis in decision-making; and assesses technical skills in areas where students are weak and introduces them to concepts in management, accounting, finance, business communications, and team dynamics.

EBA 604 Economic Perspectives in Management (2-0-2). Prerequisite: EMBA student. Introduces principles of microeconomics. The course takes a managerial perspective as it applies various economic concepts to real-world problems encountered in the management of the firm.

EBA 605 Ethical Perspectives in Business (2-0-2). Prerequisite: EMBA student. Discusses and investigates the ethical environment of business and the impact of business decisions and activities on society and its various stakeholders. Ethical issues, introduced during the Opening Residency (EBA 600), will be explored in more depth in EBA 605.

EBA 606 Accounting for Managers (4 credits). Prerequisite: EMBA student. Introduces financial and management accounting theories and practices including coverage of accounting measurement of income and financial position, the analysis of business events, and their effects on the financial position and income of a business. Emphasis on the basics of managerial accounting, using managerial accounting for planning, controlling, and decision-making purposes, and the behavioral implications of using managerial accounting methods in decision-making.

EBA 607 Organization & Leadership (2-0-2). Prerequisite: EMBA student. Discusses issues involving leadership and its role in bringing about organizational change; tools to be effective leaders in dynamic organizational settings; building understanding about how organizational change is achieved; anchoring organizational changes into the organization's culture, and enhancing personal capabilities and abilities to navigate change in managerial careers.

EBA 608 Strategic Human Resources Management and Labor Relations (2-0-2). Prerequisite: EMBA student. Reviews significant issues pertaining to strategic human resources management and labor relations. Topics include employment relationship, strategic planning and staffing, reward systems, employee development, and conflict resolution and negotiation. Parallels and contrasts between union and non-union firms are key to this course.

EBA 609 Marketing Strategy (4-0-4). Prerequisite: EMBA student. Advanced theories, concepts, and techniques for formulating strategic marketing plans and making marketing decisions for business and nonbusiness organizations in U.S. and global environments. Topics include environmental analysis, market opportunity analysis, segmentation and positioning, marketing-mix decisions, and formulating strategic plans.

EBA 610 Finance for Managers (4-0-4). Prerequisite: EMBA student. Introduces basic and advanced concepts of corporate financial management to EMBA students with significant educational background and employment history. Topics include ratio analysis, risk concepts, capital budgeting, cost of capital, capital structure, dividend policy, mergers and acquisitions, and long-range financial planning.

EBA 611 Management Information Systems (4-0-4). Prerequisite: EMBA student. Provides an overall view of the issues central to an enterprise's information system (IS), including, but not limited to, decision support, enterprise resource planning systems, business process re-engineering and systems design, change management, and knowledge management, as well as managing out-sourcing and off-shore IS projects. It does not require any technical expertise and will not teach any specific computer programming. On the completion of this course, students will not only become familiar with the key forces shaping the firm's IS environment but also issues pertaining to the management of the firm's IS portfolio, strategic uses of IS, as well as how to realize the value there is within the organization.

EBA 612 Supply Chain Management (4-0-4). Prerequisite: EMBA student. Provides a comprehensive survey of supply chain concepts, strategies, and models in a format that is suitable to executives. Topics include such fundamentals as supply management, push-pull supply chain systems, centralized versus decentralized control, e-business issues, third-party logistics companies, distribution systems, purchasing, and the decision support tools for supply chain.

EBA 613 International Business Strategy (3-0-3). Prerequisite: EMBA student. Explores the impact of global environmental forces on management strategies for entering and operating in international markets. Surveys theories and concepts in international marketing, finance, operations, and strategic planning. Considers managerial implications of global trends in politics, trade, culture, and regulatory practices, and the role of international institutions.

EBA 614 International Study Tour (0-8-1). Prerequisite: EMBA student. Extends material from EBA 613 International Business Strategy by

providing an international business experience beyond classroom instruction and learning. EBA

614 widens the global perspective of participants; provides "on location" experience, and interaction with foreign business, government, and nonprofit sector executives; and affords opportunities to analyze corporate strategies in selected industrial sectors and foreign markets.

EBA 615 Business Strategy (4-0-4). Prerequisite: EMBA student. Explores the integrative and cross-functional nature of corporate strategy and decision-making. Applies principles, concepts, and theories from business and marketing strategy, corporate finance, human resource management, managerial accounting, and operations management-to-management decisions and the formulation of strategic business plans.

EBA 616 Applied Integrative Seminar (1-3-4). Prerequisite: EMBA student. Application and integration of business strategy decision-making and solutions. Applies principles, concepts, and theories from business and marketing strategy, corporate finance, human resources management, managerial accounting, and operations management to a field experience in business, and analyzing and solving practical, real-world business problems.

Early Childhood Education

Courses numbered from 500 to 510 are core-course offerings within specializations. Whenever possible, they should be completed prior to enrollment in higher-level courses and may actually serve as prerequisites for same.

ECE 500 Foundations of Early Childhood Education (4 credits). Prerequisite: EDC 501. Historical, philosophical, and theoretical introduction to contemporary early childhood education; overview of early childhood models; and survey of current issues and trends; examination of the role of the early childhood teacher in the lives of children between birth and age eight and their families. Required for early childhood teaching license.

ECE 501 Developmental Curriculum for Early Childhood Education (4 credits). Prerequisites: ECE 500 and EDC 501. Study of curriculum development for educational settings that serve children from age three through the primary grades, including typically developing children and children with mild/moderate disabilities. Attention is given to developmental considerations; national and state subject-matter standards; and different curricular theories and models, as well as their implementation. Required for early childhood teaching license.

ECE 502 Teaching Methods in Early Childhood Education (4 credits). **(addenda revised 01/2007)** Prerequisites: ECE 500, ECE 501, and EDC 501. Field Experience required (two hours per week, final ten weeks). Study of teaching methods for educational settings that serve

children from age three through age eight. Attention is given to strategies for planning, teacher-child interactions, guiding children's behavior, organizing the learning environment, conducting lessons/activities, caregiving, and supporting play, projects, and integrated curriculum. Required for early childhood teaching license.

ECE 503 Teaching Children with Mild and Moderate Disabilities (3 credits).

Prerequisites: ECE 500 and EDC 501. Introduction to educational issues related to working in regular early childhood settings with young children who have mild and moderate disabilities. Attention is given to characteristics, etiology, classification, and legal and interdisciplinary issues, as well as to curricular and pedagogical approaches for the inclusive classroom. Required for early childhood teaching license.

ECE 511 Infant and Toddler Development and Education (3 credits).

Focuses on the development, care, and education of children from birth through age three. Attention is given to developmental needs, staffing considerations, individualized care, responsive environments, and home-center coordination.

ECE 512 Collaboration with Families and Professionals in Early Childhood Settings (4 credits).

Prerequisites: ECE 500 and EDC 500. Explores the relationships between early childhood professionals and families, as well as those with other professionals. Strategies for communicating and collaborating with others and for fostering home-school connections are examined. History, philosophy, and issues related to collaboration and family involvement, including diversity, are discussed.

ECE 514 Expressive Arts in Early Childhood Education (3 credits).

Prerequisites: ECE 500 and EDC 501. Emphasis on the integration of music, rhythmic movement, arts and crafts, dramatics, and literature into preschool, kindergarten, and primary school curricula as a means of discovering and developing children's creative abilities and aesthetic interests.

ECE 515 Mathematics Instruction and Assessment in Preschool and the Primary Grades (3 credits).

Prerequisites: EDC 501 and either ECE 500 or ESE 500 (Note: EDC 501 is not a prerequisite for special education students). Aimed at developing a philosophy and justifiable rationale for teaching and learning mathematics in preschool and the primary grades that takes into account the interrelationships among curriculum, instruction, and assessment. Includes exploration of constructive processes involved in developing mathematical understanding in young children, with particular attention given to the acquisition of numeracy and problem-solving strategies. Current standards, methods, and materials for teaching and learning mathematics during early childhood are examined and evaluated.

ECE 516 Social Studies Instruction and Assessment in Preschool and the Primary Grades (3 credits). *Prerequisites:* ECE 500, EDC 500, and EDC 501. Explores objectives, principles, trends, materials, and current practices for teaching social studies and fostering social development through early

childhood education. Focuses on developmentally appropriate content and strategies for introducing young children to the study of history, geography, economics, and other social sciences.

ECE 517 Science Instruction and Assessment in Preschool and the Primary Grades (3 credits).

Prerequisites: EDC 501 and either ECE 500 or ESE 500 (Note: EDC 501 is not a prerequisite for special education students). Covers the nature, scope, and role of science experiences in the learning and development of young children. Emphasis is given to a constructivist, inquiry-oriented approach consistent with national standards. Discussions, demonstrations, and experiments draw from physical, biological, and earth sciences.

ECE 518 Administration and Management of Early Childhood Education Programs (3 credits).

Prerequisites: ECE 500 and EDC 501. Students develop specialized administration and leadership skills for use in early childhood care centers or other settings serving young children and their families. Emphasizes licensing regulations and NAEYC center accreditation; proposal writing; lobbying/advocacy; and such management functions as housing, equipping, financing, budgeting, and staffing centers.

ECE 695 Seminar in Early Childhood Education (4 credits).

Prerequisite: 28 hours of graduate course work in early childhood education or permission of instructor. Final course in the early childhood master's degree sequence. Provides opportunities for in-depth exploration of selected topics and application of knowledge to professional settings.

Economics

ECN 501 Macroeconomic Analysis (3-0-3).

Concentration on macroeconomics, the money and banking system, and national income and employment analysis. For MBA students only; candidates for the MA in Economics may not include this course as part of their required 33 hours.

ECN 502 Microeconomic Analysis (3-0-3).

Emphasis on microeconomics, theory of consumer behavior and of the firm, and the pricing process in markets. For MBA students only; candidates for the MA in Economics may not include this course as part of their required 33 hours.

ECN 503 Economic Concepts (3-0-3).

A survey of microeconomic and macroeconomic concepts. Topics include supply and demand; comparative advantage; marginal and sunk costs; market structure; profits; aggregate fluctuations; money; and fiscal and monetary policy. For MBA students only. Candidates for the MA in Economics may not include this course as part of their required 33 hours, nor to fulfill program prerequisites.

ECN 511 American Economic History (3-0-3).

Prerequisites: Intermediate microeconomic and macroeconomic theory. Examination of the economic theories

underlying the development of the American economy. Offered on sufficient demand.

ECN 515 History of Economic Analysis (3-0-3).

Prerequisites: Intermediate microeconomic and macroeconomic theory. Development of economic theories and their relationship to each other, from ancient to modern schools of thought. Offered on sufficient demand.

ECN 516 Comparative Economic Systems (3-0-3).

Prerequisites: Intermediate microeconomic and macroeconomic theory. Analysis of selected economic systems with an emphasis on economic planning. Offered on sufficient demand.

ECN 541 Business Fluctuations and Forecasting (4-0-4).

Prerequisite: Intermediate macroeconomics or equivalent. Nature and causes of business fluctuations, business cycle theories; methods of forecasting GDP, inflation, and unemployment; micro-foundations of macroeconomic forecasting equations dealing with consumption functions, investment function, demand for money, Okun's law, Phillip's curve, and price equation.

ECN 550 Economics of Law (4-0-4).

Prerequisite: Intermediate microeconomics or equivalent. The concepts of public and private goods, externalities, and benefits versus cost are used to analyze the effects and efficiency of property, contract, tort, and criminal law. In addition, the trade-offs are examined in such areas as plea-bargaining, trial versus settlement of civil cases, and various arrangements for payment of legal costs.

ECN 561 Public Expenditures (3-0-3).

Prerequisite: Intermediate microeconomics. Introduction to public-sector economics, including welfare economics and the role of the public sector in a mixed economy; public expenditure theory; and economic analysis of various federal government expenditure programs. Offered on sufficient demand.

ECN 562 Taxation (3-0-3).

Prerequisite: Intermediate microeconomics. Economic theory of taxation; economic analysis of federal taxation, including the personal income, corporate, and social security taxes; and analysis of such state and local taxes as property and sales. Offered on sufficient demand.

ECN 570 Urban and Regional Economics (3-0-3).

Prerequisite: Intermediate microeconomic theory. Location theory of the firm and industry, industrial locational patterns, land-use patterns, measurement of economic activity, and regional trade; regional hierarchies and systems of cities; techniques of regional analysis; base theory, local multipliers, input-output analysis, gravity, potential, and spatial interaction models. Offered on sufficient demand.

ECN 572 Urban Manpower Problems (3-0-3).

Prerequisite: Intermediate microeconomic theory. Intensive analysis of labor markets; wages and income determination and distribution; structural versus demand unemployment; productivity and the supply of labor; technology and changes in demand for labor; unemployment and urban poverty; job security, wage and hour regulation; training and manpower policies. Offered on sufficient demand.

ECN 574 Environmental and Natural Resource Economics (4-0-4). Prerequisite: Intermediate microeconomic theory. Analysis of the causes of environmental problems using the concepts of public goods and externalities. Examination of the impact and efficiency of regulatory approaches in controlling pollution and congestion. Externality and sustainability issues involving the rate of exploitation of natural resources are explored. Both positive and normative economic reasoning are applied to the related issues of population size, economic-ecological interactions, and future prospects for humanity.

ECN 582 International Economics (4-0-4). (Addenda revised 4/2006) Prerequisites: Intermediate microeconomics and intermediate macroeconomics. The determinants of comparative advantage and the pattern of international trade; the gains from trade, and the effects of trade restrictions; trade, growth, and development; the balance of payments; the economics of exchange rates; and macroeconomics in an open economy. Cross-listed with ECN 782. Candidates for the MA in Economics should register for ECN 582.

ECN 585 Economics of Development and Growth (3-0-3). (Addenda revised 1/2007) Prerequisites: Intermediate microeconomic and macroeconomic theory. A theoretical approach to development problems of the less-developed nations; comparison of various growth theories; the role of capital, infrastructure, international assistance; and the surplus labor economy. Offered on sufficient demand.

ECN 610 Mathematical Economics for Economists (2-0-2). Prerequisite: MTH 181 or equivalent. Provides a technical foundation for other graduate courses. An examination of calculus of one and several variables, including partial and total differentiation, and first- and second-order derivatives, with applications to economic analysis and optimization. Elements of matrix algebra are studied along with various applications.

ECN 622 Statistical Methods for Economists (3-0-3). Prerequisite: OMS 201 or equivalent. Econometric methods and their applications; regression analysis and its extensions.

ECN 625 Econometrics (4-0-4). Prerequisites: ECN 610 and ECN 622 or equivalents. Classical least squares assumptions for simple and multiple regression; estimation; associated statistics, e.g., R^2 , hypothesis testing, and confidence intervals; scaling; prediction; dummy variables; heteroscedasticity; autoregressive disturbances; multicollinearity; certain types of specification error; lagged relationships; simultaneous equilibrium models; limited dependent variable models; time series topics. Cross-listed with ECN 725. Candidates for the MA in Economics should register for ECN 625.

ECN 633 Advanced Microeconomics (4-0-4). Prerequisites or co-requisite: ECN 610 or equivalent and intermediate microeconomics. Consumer theory; choice and demand under certainty and uncertainty; intertemporal choice; production, input demand and cost, supply; and perfectly competitive markets and applications. Cross-listed with ECN 733. Candidates for the MA in Economics should register for ECN 633.

ECN 635 Competition and Strategy (4-0-4). Prerequisites or co-requisite: ECN 610 or equivalent and intermediate microeconomics. Organization of firms and markets in perfectly competitive industries. Internal organizational strategies (scale and scope, make-or-buy, centralization versus decentralization), external competitive strategies (pricing, product choice, advertising, entry and exit, R&D), and their mutual interdependence are analyzed. Cross-listed with ECN 735. Candidates for the MA in Economics should register for ECN 635.

ECN 643 Advanced Macroeconomics (4-0-4). Prerequisites: ECN 610 or equivalent and intermediate macroeconomics. An analytical examination of the forces that determine the level of national income, employment, prices, and economic growth under the classical, Keynesian, and post-Keynesian assumptions; Ricardian equivalence, time inconsistency issue, growth models, and macroeconomic policy. Cross-listed with ECN 743. Candidates for the MA in Economics should register for ECN 643.

ECN 654 Financial Economics (4-0-4). Prerequisite: Undergraduate Statistics and Intermediate Macroeconomics. Monetary systems; financial markets; financial intermediation; risk; term structure of interest rates; models of stock and bond prices; capital asset pricing model; financial derivatives; the efficient markets hypothesis; central banking; and monetary theory. Cross-listed with ECN 754. Candidates for the MA in Economics should register for ECN 654.

ECN 656 Monetary Theory and Policy (3-0-3). Prerequisite: ECN 654. Monetary theories, supply and demand for money, and the instruments of monetary control, including the influence of monetary policy on money and capital markets; and an examination of proposed alternate monetary policies. Offered on sufficient demand.

ECN 675 Labor Economics (4-0-4). Prerequisite: Economics MA Program student or permission of instructor. Analysis of labor market issues such as labor supply and demand, wage inequality, human capital formation, unemployment, the minimum wage, labor mobility, and unions. Considers policy applications including school quality choices and the effect of health and safety regulations.

ECN 694 Special Topics in Economics (1-4 credits as arranged). Prerequisite: Permission of instructor. Course title and content may change from term to term. May be repeated with change of topic.

ECN 695 Seminar in Economics (1-4 credits as arranged). Prerequisite: Permission of instructor. Discussion course in a particular area of economics with one instructor and a small group of students. May be repeated with change of topic.

ECN 725 Econometrics (4-0-4). Prerequisites: ECN 610 and ECN 622, or permission of instructor. Classical least squares assumptions for simple and multiple regression; estimation; associated statistics, e.g., R^2 , hypothesis testing, and confidence intervals; scaling; prediction; dummy variables; heteroscedasticity; autoregressive disturbances; multicollinearity;

certain types of specification error; lagged relationships; simultaneous equilibrium models; limited dependent variable models; time series topics. Cross-listed with ECN 625.

ECN 733 Advanced Microeconomics (4-0-4). Prerequisites or co-requisite: ECN 610 and intermediate microeconomics. Consumer theory; choice and demand under certainty and uncertainty; intertemporal choice; production, input demand and cost, supply; and perfectly competitive markets and applications. Cross-listed with ECN 633.

ECN 735 Competition and Strategy (4-0-4). Prerequisites or co-requisite: ECN 610 and intermediate microeconomics. Organization of firms and markets in perfectly competitive industries. Internal organizational strategies (scale and scope, make-or-buy, centralization versus decentralization), external competitive strategies (pricing, product choice, advertising, entry and exit, R&D), and their mutual interdependence are analyzed. Cross-listed with ECN 635.

ECN 743 Advanced Macroeconomics (4-0-4). Prerequisites: ECN 610 and intermediate macroeconomics. An analytical examination of the forces that determine the level of national income, employment, prices, and economic growth under the classical, Keynesian, and post-Keynesian assumptions; Ricardian equivalence, time inconsistency issue, growth models, and macroeconomic policy. Cross-listed with ECN 643.

ECN 754 Financial Economics (4-0-4). Prerequisite: Permission of instructor. Monetary systems; financial markets; financial intermediation; risk; term structure of interest rates; models of stock and bond prices; capital asset pricing model; financial derivatives; the efficient markets hypothesis; central banking; and monetary theory. Cross-listed with ECN 654.

ECN 782 Advanced International Economics (4-0-4). Prerequisite: Intermediate microeconomics and Intermediate Macroeconomics. The determinants of comparative advantage and the pattern of international trade; the gains from trade and the effects of trade restrictions; trade, growth, and development; the balance of payments; the economics of exchange rates; and macroeconomics in an open economy. Cross-listed with ECN 582.

ECN 794 Special Topics in Economics (1-4 credits as arranged). Prerequisite: Permission of instructor. Course title and content may change from term to term. May be repeated with change of topic.

ECN 795 Seminar in Economics (1-4 credits as arranged). Prerequisite: Permission of instructor. The seminar focuses on a particular area of economics, and requires class presentations by students and out-of-class writing assignments, as well as other assignments chosen by the instructor. May be repeated with change of topic.

Counseling/ Administration Special Topics

EDA 593 Current Issues in Counseling (1-4 credits). Specific topic is included in the course schedule. Provides students with the opportunity to investigate a designated topic in-depth and/or to carry out a supervised investigation within the limits of the seminar topic. Group meetings enhance discussion and problem exploration. May be repeated with change of topic. Offered infrequently.

EDA 651 Individual Projects in Education (1-4 credits). Prerequisite: Permission of department chair. An independent project in a selected area of education; project must be approved by and arrangements made with permission of department chair, the advisor, and a supervising faculty member. Offered every semester.

EDA 693 Current Issues in Administration (1-4 credits). Specific topic is included in the course schedule. Provides students with the opportunity to investigate a designated topic in-depth and/or to carry out a supervised investigation within the limits of the seminar topic. Group meetings enhance discussion and problem exploration. May be repeated with change of topic. Offered infrequently.

EDA 698 Project (1-4 credits). May be repeated for a total of four credit hours. Registration by permission of advisor. Offered every semester.

EDA 699 Thesis (1-4 credits). May be repeated for a total of four credit hours. Registration by permission of advisor. Offered every semester.

Education – Foundation

EDB 502 Psychological Foundations of Education (3 credits). Provides prospective teachers with an understanding of the theories and research of human development and learning, and teaching practices based on these theories and research studies. Topics addressed include cognitive, social, emotional, and psychomotor development, individual differences, theories of teaching and learning, inclusion, motivation, instructional strategies, and evaluation. Offered annually.

EDB 505 Teaching and Management in the Secondary School (3 credits). ([see Addenda revised 06/2007](#)) Combines educational theory with actual classroom practice. Students identify and plan appropriate instructional strategies for diverse learners and secondary school contexts and identify appropriate classroom management skills and techniques for secondary students. Students examine a variety of classroom management techniques and develop a disciplinary unit of instruction to implement. Provides students with an opportunity to reflect on their own teaching. Offered annually.

EDB 511 Seminar on Classroom Inquiry ([see Addenda new 04/2007](#))

EDB 555 Women and Education (4 credits). Examination of sexist beliefs, attitudes, and values in

schools and society, and their effects on the aspirations and autonomy of women; multidisciplinary examination of effects of socialization process on women; consideration of possible school-based remedies to sexism. Women's Studies course.

EDB 595 Seminar on Integrating Theory and Practice (3 credits). Exit seminar for initial licensure programs in secondary and middle childhood education. Students complete and present a professional teaching portfolio and action research project.

EDB 601 Educational Research (3 credits). Prerequisite or co-requisite: ETE 501. An introduction to quantitative and qualitative methods used in educational research. Emphasis on understanding, interpreting, and critiquing research studies. The role of the socio-cultural context in research is considered. Offered every semester.

EDB 604 Social Issues and Education (3 credits). Focuses on the relationship of crucial issues in society to educational questions. Alternative purposes of education in light of the changing intellectual, social, and technological climate of modern America are considered. Offered every semester.

EDB 606 Philosophy of Education (3 credits). Familiarizes students with persisting issues in the philosophy of education by examining selected topics from both historical and contemporary perspectives. Focuses on relating theories of knowledge and learning to current educational practices, and exploring questions of value in light of various philosophies. Offered annually.

EDB 608 School and Society in the American Past (3 credits). Historical examination of changing perceptions of the purpose and nature of education, the relationship of schools to social and economic forces, substance and impact of major school-reform movements, experience of minorities in schools, the role of schooling in social mobility, and development of urban schools. Offered annually.

EDB 609 Comparative and International Education (3 credits). Examines selected foreign educational systems with emphasis on the historical, sociological, philosophical, and cultural influences that have shaped their development. Special attention is given to educational practices and innovations of interest to American educators. Offered annually.

EDB 612 Curriculum Theory and Instruction (3 credits). Overview of theoretical perspectives on the development, organization, implementation, and evaluation of curriculum. Topics include philosophical, social, technological, economic, and political influences on curricular decision-making; identification of curricular and instructional aims; the relationship between curriculum theory and instructional methodology; current issues in curriculum reform; issues of diversity and equity; and the role of federal and state standards. Offered every semester.

EDB 620 Psychology of the Adolescent Learner (3 credits). Emphasis on basic principles of human growth and the development of learners from early to late adolescence; social and school environment as it relates to principles of human

development; and the implications of research findings in the behavioral sciences.

EDB 628 Psychology of Learning and Instruction (3 credits). Development of cognitive-affective processes; review and evaluation of current research in attentional processes, concept formation, motivational behavior, perception, and problem solving.

EDB 651 Individual Projects in Education (1-2 credits). Prerequisite: Permission of department chair. Individual study at the graduate level under the supervision of a graduate faculty member.

EDB 671 History of Minority Education (3 credits). Examines the experience of minority groups, including Native Americans, African Americans, European Americans, Asian Americans, and Hispanic Americans, in American education in a historical context.

EDB 675 Productive School and Classroom Discipline (3 credits). Examines four major theoretical approaches to problems of management and discipline, including 1) behavior management and practices that emerge from theories of operant conditioning; 2) socio-emotional designs based on humanistic theories; 3) group-process designs with a basis in social psychology; and 4) group-management designs based on research and systematic observation of classroom teachers. Familiarizes teachers with these approaches and improves their skill in applying them in the classroom.

EDB 691 Individual Projects—Comprehensive Examination (1 credit). Designed for MEd candidates taking the comprehensive examination who have completed all course requirements. MEd candidates must be registered for one credit to take the examination and to graduate. Offered every semester.

EDB 693 Special Topics in Curriculum and Foundations (1-4 credits). Prerequisites: Undergraduate methods course in content area and permission of instructor. Exploration of a special topic through individual and group work under graduate faculty supervision.

EDB 698 Project (1-3 credits). May be repeated for a total of 6 credits. Registration by permission of advisor.

EDB 699 Thesis (1-3 credits). May be repeated for a total of 6 credits. Registration by permission of advisor.

EDB 701 Advanced Educational Research (4 credits). Prerequisite: EDB 601. Continuation and extension of EDB 601. Basic principles include reading, interpreting, and understanding research reports, and an introduction to basic descriptive and inferential statistics used in the analysis of educational data. Also provides an introduction to basic computer application of statistical analyses. Theoretical assumptions, sources of research questions, data collection and analysis, and rhetoric are addressed, as well.

EDB 711 Educational Evaluation and Innovation (4 credits). Prerequisite: EDB 601. Provides knowledge and skills to

conduct educational evaluations. Also focuses on research findings concerning the process of innovation and the evaluator's role in it. Offered once a year.

Elementary and Secondary Education

Courses numbered from 500 to 510 are core-course offerings within specializations. Whenever possible, they should be completed prior to enrollment in higher-level courses and may actually serve as prerequisites for same.

EDC 500 Diversity in Educational Settings (3 credits). Focuses on issues related to the education of culturally and linguistically diverse children, gifted children, and children with special needs. Gender issues in education and the relation of diversity to all areas of the teaching-learning process are discussed. Course work involves the development of effective strategies for teaching all children about diversity and for promoting positive relationships among teachers, parents, and children. Required for early childhood teaching license, prekindergarten endorsement, and TESOL endorsement.

EDC 501 Child Development (3 credits). Emphasis on various aspects and phases of human growth and development from conception to adolescence, including physical/ motor, socio-emotional, moral, and cognitive development. Attention is given to relationships among aspects of development and between development and school learning. Human Development option in the College core; required for early childhood teaching license.

EDC 511 Instructional Design and Delivery (3 credits). Explores theories, methods, and procedures underlying the development and design of instruction, with particular attention given to selected models of teaching and their practical applications, strengths, and limitations. Other topics include the systematic analysis, design, implementation, and evaluation of instruction as a continuous integrated process; the importance of audience awareness and the learning environment in instruction planning; and the use of instructional technologies to enhance student learning and develop curricular materials.

EDC 512 Instructional Development in Foreign Language Education (4 credits). Aids practicing elementary and secondary educators in developing curriculum, objectives, classroom materials, and appropriate teaching methods. Students critically review current research and trends in relation to national and state standards for foreign language instruction.

EDC 513 Instructional Development in English Language Arts Education (4 credits). Aids practicing elementary and secondary educators in developing curriculum, objectives, classroom materials, and appropriate teaching methods. Students critically review current research and trends in relation to national and state standards for instruction in the English language arts.

EDC 514 Instructional Development in Art Education (4 credits). Aids practicing elementary and secondary educators in developing curriculum, objectives, classroom materials, and appropriate

teaching methods. Students critically review current research and trends in relation to national and state standards for instruction in the visual arts.

EDC 515 Instructional Development in Mathematics Education (4 credits). Aids practicing elementary and secondary educators in developing curriculum, objectives, classroom materials, and appropriate teaching methods. Students critically review current research and trends in relation to national and state standards for mathematics instruction.

EDC 516 Instructional Development in Social Studies Education (4 credits). Aids practicing elementary and secondary educators in developing curriculum, objectives, classroom materials, and appropriate teaching methods. Students critically review current research and trends in relation to national and state standards for social studies instruction.

EDC 517 Instructional Development in Science Education (4 credits). Aids practicing classroom teachers by providing strategies and tools for modifying commercial curricula, enhancing teaching methods, and adapting instructional technologies. Students critically review research and trends related to continuing issues in science education.

EDC 518 Teaching Basic Physical Science (3 credits). Considers topics from the areas of physics, chemistry, and earth/ space science. Emphasis is given to enhancement of the science-content knowledge of future and practicing teachers. Combines lecture, discussion, and laboratory activities, thereby modeling appropriate instructional practices.

EDC 520, 521, 522
See Addendum

Literacy Development and Instruction

Courses numbered from 500 to 510 are core-course offerings within specializations. Whenever possible, they should be completed prior to enrollment in higher-level courses and may actually serve as prerequisites for same.

EDL 500 Phonics Assessment and Instruction (3 credits). Focuses on the nature and role of word recognition in proficient reading and spelling. Provides the background necessary for teaching and assessing phonics, phonemic awareness, and word recognition.

EDL 501 Beginning and Intermediate Reading Instruction and Assessment (3 credits). Survey of methods and materials used to teach reading in elementary and middle school settings. Includes overview of the reading process, critical examination of related theory and research, how beliefs of reading relate to reading instruction, and introduction to classroom-based assessment of reading development.

EDL 502 Foundations of Literacy: Theory and Practice (3 credits). Explores the linguistic, psychological, social, cultural, and historical bases of literacy. Particular emphasis is given to current research and classroom practice. Required for reading endorsement.

EDL 503 Assessment and Evaluation of Diverse Literacy Learners (4 credits).

Prerequisite: EDL 502. Assessment and evaluation of literacy development, with a focus on reading, writing, and complementary language-arts processes for students of all ages. Linguistic, affective, cognitive, and physical factors that may influence encoding, decoding, comprehension, and composition and their evaluation are considered. The construction, administration, interpretation, and critique of formal and informal assessment procedures are addressed. The course also looks at the public discourse around literacy assessment. Course includes supervised, practical experience with a client resulting in the development of a case study. Required for reading endorsement.

EDL 504 Literacy Development: Meeting the Needs of Diverse Learners (4 credits).

Prerequisite: EDL 503. Includes a supervised practice in teaching reading and writing with emphasis given to the preparation, analysis, and evaluation of individualized instructional programs based on case-study evaluation. Approaches of developing positive attitudes toward and strategies aimed at overcoming difficulties in reading and writing development. The course also introduces literacy staff development within schools. Includes a supervised practical teaching experience with a client and preparation of a progress report. Required for reading endorsement.

EDL 505 Content Area Literacy (3 credits).

Critique and analysis of current theory, research, and practice as they relate to content-area reading instruction. Particular attention is given to the development of comprehension, metacognitive awareness, and effective studying strategies. Also stresses thinking skills, the integrated use of reading and writing across the curriculum, and materials and methods to promote lifelong learning. Other topics include media literacy, inquiry learning, authentic assessment, action research, and diversity issues. Required for reading endorsement.

EDL 506 Second Language Learning and Pedagogy (3 credits).

The first of a two-course sequence in ESL/EFL pedagogy, this course covers theories of second-language acquisition, competing methods for teaching English to speakers of other languages, psycholinguistics, sociolinguistics, and issues involving language learning in multicultural settings. Required for TESOL endorsement.

EDL 507 TESOL Methods and Materials (3 credits). [\(addenda revised 06/2007\)](#)

Prerequisite: EDL 506. The second of a two-course sequence in ESL/EFL pedagogy, this course provides critical exploration and analysis of current approaches for teaching English to speakers of other languages. Emphasis on the development of communicative competence. Consideration of the role of assessment in instructional design, student placement and advancement, as well as related legal issues. Required for TESOL endorsement.

EDL 508 Applied Linguistics for Teachers (3 credits). Designed for practicing and prospective teachers, this course provides an introduction to linguistic theory as it relates to the language development of native and non-native speakers of English. Emphasis is given to the practical application of linguistic knowledge in phonetics, phonology, syntax, morphology, and semantics in classroom practice. Required for TESOL endorsement.

EDL 509 Assessment and Evaluation in the ESL/Bilingual Classroom (3 credits). Explores the notion of second-language proficiency, and helps students develop an understanding of how they can assess or evaluate LEP (limited English proficiency) students' progress in the development of proficiency. Addresses topics of formal and informal methods of assessing language proficiency, test preparation, and interpretation of test results. Students practice creating authentic assessment tasks.

EDL 510 Pedagogical Grammar (3 credits). This experiential, discussion-based course provides foundational knowledge of the history and structure of the English language and explores a variety of approaches to teaching grammar in the ESL/EFL classroom. Reviews the historical development of English and explains many of the irregular aspects of the language. Major focus is on the grammatical structures of English and their functions in communication. Required for TESOL endorsement.

EDL 511 Emergent Literacy (3 credits). Examines theory, research, and practice as it pertains to the processes by which young children learn to read and write in day care, preschool, and primary classrooms. Consideration of language, literacy, and concept development, with emphasis on factors that influence children's growth in these areas. Addresses the relationships between thought and language, as well as instructional practices and informed assessment that build on these relationships and contribute to the acquisition of literacy during early childhood.

EDL 512 Literature-based Reading Methods for Children (3 credits). Focuses on techniques for using classic, contemporary, and multiethnic children's literature of all genres to support reading acquisition and instruction in preschool, primary and elementary grades, with particular attention given to teaching methods using literature. Other topics for discussion include the evaluation and selection of appropriate trade and picture books for classroom use and the role of children's literature in family literacy and recreational reading.

EDL 513 Literature-based Reading Programs for Adolescents (3 credits). Familiarizes language arts teachers and other school personnel with contemporary and multi-ethnic literature and nonfiction appropriate to the needs of middle and secondary school students. Emphasizes the developmental nature of reading preferences and comprehension, the application of reader-response theory to the selection and design of teaching strategies and materials, the potential use of adolescent literature across the curriculum, and criteria for selecting and evaluating books for young adults.

EDL 514 Adult Literacy (3 credits). Designed for teachers of adult learners, program providers, and others who have an interest in adult literacy. Participants examine the current research and theory that informs the teaching of adult learners from multiple perspectives (e.g., socio-cultural, historical, and political). Particular emphasis on the roles of teachers and learners in reading and writing instruction. Addresses elements of successful literacy programs, the selection of appropriate materials, effective instructional strategies, and techniques for authentic evaluation. Resources are shared.

EDL 580 Reading Recovery Internship (6 credits). *Prerequisites: Permission of the department chair and a minimum of three years experience as a kindergarten, first-grade, or remedial reading teacher.* Teachers learn to use Reading Recovery diagnostic and intervention procedures to accelerate first-graders' learning. Year-long practicum during regular school day and school district support are required.

EDL 695 Seminar in Literacy Research (3 credits). *Prerequisites: EDL 502, EDL 503, EDL 505; and EDL 511, EDL 512, EDL 513, or EDL 514. Prerequisite or Co-requisite: EDL 504.* Concluding seminar for the master's degree in literacy education. Provides synthesis of program content and exploration of the implications of current theory and research for practice. An original teacher research project and a portfolio are requirements for the course, the reading endorsement, and the Master's degree in literacy. May be used to satisfy exit requirement in Reading and Adult Literacy Program only with grade of B or better.

Middle Childhood Education

EDM 513 Teaching and Assessing Language Arts in the Middle School (4 credits). Critical exploration and analysis of student-centered methods that encourage integrated study of the language arts. Areas of study include pragmatic and theoretical aspects of reading, writing, listening, seeing, and oral language development during adolescence—especially as they apply to the selection of objectives, strategies, and materials for instruction and the evaluation of pupil progress.

EDM 515 Teaching and Assessing Mathematics in the Middle School (4 credits). Materials and strategies for teaching mathematics to all pupils; stresses the importance of assessment to provide for individual differences in abilities and needs. Includes activities for developing students' problem-solving, reasoning, and communication skills; fostering mathematical connections; and applying technology.

EDM 516 Teaching and Assessing Social Studies in the Middle School (4 credits). *Prerequisites: Minimum of 75% of social studies content courses completed and completion of all education foundation and curriculum courses.* Explores concepts,

purposes, and underlying assumptions of teaching the social sciences; develops activities to improve children's understanding of democratic citizenship in a pluralistic society; addresses interdisciplinary curriculum linkages.

EDM 517 Teaching and Assessing Science in the Middle School (4 credits). Introduction to the structure and function of science instruction in upper elementary, middle, and junior high school settings. Provides background and principles of science education, including instructional planning, methods, materials, and a philosophy for teaching science.

Secondary Education

EDS 513 Secondary Language Arts Instruction and Assessment (4 credits). *Co-requisite: EST 582.* Critical exploration and analysis of current developments in the teaching of secondary English with emphasis on student-centered methods that encourage integrated study of the language arts. Pragmatic and theoretical aspects of language, literature, and composition instruction are considered—especially as they apply to the selection of objectives, strategies, and materials for instruction and evaluation. Areas of study include reading and writing development, the writing process, the processes involved in reading literary works, oral language and listening-skill development, as well as formative and summative techniques for assessing pupil progress.

EDS 515 Mathematics Education in the Secondary School (4 credits). *Co-requisite: EST 583.* Traces the historical development of various fields of mathematics and provides opportunities for the prospective mathematics teacher to gain experience in preparing and teaching problem-centered lessons. Focuses on materials and strategies for teaching mathematics at the intermediate and secondary level. Also considered are student characteristics, teaching and learning styles, issues of equity and diversity, and constructivist theories of learning. Topics for discussion include issues associated with inquiry learning and changing instructional practices that provide a problem-rich environment for learning and the use of technology.

EDS 516 Social Studies Education in the Secondary School (4 credits). *Prerequisites: Minimum of 75% of social studies content courses completed and completion of all education foundation and curriculum courses; co-requisite: EST 584.* Explores concepts, purposes, and underlying assumptions of teaching social sciences; develops activities to improve intermediate and secondary students' interest and competence in democratic citizenship in a pluralistic society; addresses interdisciplinary curriculum linkages.

EDS 517 Science Education in the Secondary School (4 credits). *Co-requisite: EST 585.* Introduction to structure and function of science instruction in the secondary schools; provides background and principles of science education, including instructional

planning, methods, assessment, materials, and philosophy for teaching science.

Doctoral Education

EDU 715 Applied Programming and Data Analysis (4 credits). Students develop expertise in at least three interrelated computer software programs usable in data preparation, data exchanging (IMPORT and EXPORT), data analysis and communicating research findings to a scholarly audience. Several quantitative (e.g., SPSS, HLM) and qualitative (e.g., Nvivo) packages are discussed. Advantages and limitations of each package are discussed to enable students to evaluate their usefulness.

EDU 800 Advanced Research Design and Measurement (3 credits). *Prerequisite:* EDB 601 or EDB 701. Topics include techniques of data analysis and statistical inference used in educational research; applications of descriptive and inferential statistics for analyzing educational data and understanding published studies; methods used to analyze discrete and continuous educational data, including z- and t-tests, cross-tabulations, and bivariate correlation. Attention also is given to psychometric issues of tests and data collection instruments, including reliability and validity issues in educational research.

EDU 801 Inferential Statistics and Hypothesis Testing (3 credits).

Prerequisite: EDU 800. Advanced techniques of data analysis used in educational and behavioral research, including analysis of variance, simple and multiple regression, analysis of covariance, and basic principles of experimental design in educational research.

EDU 802 Quantitative Research (3 credits).

Prerequisites: EDU 800 and EDU 801. Provides doctoral students with advanced study in parametric correlational statistics and multivariate statistical techniques, including 1) multivariate analysis of variance (single and multiple sample); 2) the general linear model, including multiple regression, discriminant function analysis, factor analysis, canonical correlation, and cluster analysis; and 3) principal component analysis. Special topics such as hierarchical linear models (HLM), structural equation modeling (SEM), and nonparametric statistics are also introduced.

EDU 803 The Life Cycle: Development and Learning (4 credits).

Prerequisite: Previous course work in the psychology of human development and learning. Accompanies the first segment of the research sequence. Topics include theoretical models of human learning; genetic, biological, and neuropsychological influences in development; cognition; language and learning; affective and moral development; the individual within the family and societal systems; and bio-behavioral concomitants of aging. Though students may concentrate on an age level of their individual choice, seminar presentations of research provide a conception-to-death perspective.

EDU 805 Cultural Foundations of Education I: Social Perspectives (4 credits).

Advanced study of the contributions of history, sociology, philosophy, and anthropology to the conceptualization and resolution of issues in urban education. Emphasis is placed on the role and purposes of education in contemporary urban society; the impact of class, gender, and ethnicity on schooling are examined.

EDU 806 Cultural Foundations of Education II: Race and Ethnicity (2 credits).

Prerequisite: EDU 805. A study of the experience of minorities in urban education with particular emphasis on Blacks, Hispanics, and White ethnics; policy options for achieving equal educational opportunity and pluralistic models of urban education; nature and significance of culture conflict in urban schools; patterns of minority school achievement; significance of education to economic mobility; school-community conflict and resolution in minority communities.

EDU 807 Introduction to Qualitative Research in Education (4 credits).

Introduction to the theories, methodologies, and findings of qualitative research. Particular attention is given to the nature of fieldwork in various research settings: community, institutional, classroom, and life-history studies. Also examined are issues in qualitative research: thick vs. thin descriptions; the politics of interpretation; ethics of fieldwork; possible applications of qualitative research findings. Focuses on specific methodologies such as participant observation, interpretive biography, and open-ended interviewing.

EDU 808 Advanced Qualitative Research in Education (4 credits).

Prerequisite: EDU 807. Emphasizes training in fieldwork methods in qualitative research for community and educational settings. Also examines issues and strategies involved in gaining access, developing and maintaining rapport, designing research plans and sampling strategies, using theory, solving ethical dilemmas, coding and analysis of data, and writing up findings. The use of qualitative research software (e.g., Nvivo) are introduced.

EDU 809 Urban Education: Organizational Change and Development (4 credits).

The study of organizations as systems, foundations of the change process, and the application of theories and models of change to urban education. Ethical, political, legal, financial, leadership, and motivational considerations are explored in designing change strategies for urban organizations.

EDU 811 Intellectual Variability: Seminar in Learning and Development (3 credits).

An exploration of theoretical and research perspectives on the nature and significance of individual differences from birth to adulthood as related to instructional and service-delivery systems. Human variability as manifested in biological, cognitive, socio-cultural, and emotional characteristics is analyzed. Part one of two-part course with EDU 812.

EDU 812 Personal and Social Factors: Seminar in Learning and Development (3 credits).

Prerequisite: EDU 811. See description of EDU 811. Part two of two-part course.

EDU 813 Differentiating Intervention: Learning and Development Settings (2 credits).

An exploration of the theoretical and practical characteristics of intervention research. The relationship among knowledge development, knowledge utilization, intervention design, formative and summative evaluation, and dissemination is examined.

EDU 814 Urban Educational Policy (4 credits).

Formulation, justification, and implementation of educational policy. Topics include the relationship of educational policy to other areas of public policy; past, present, and proposed models of public-private cooperative programs; impact of economic, political, and legal factors on policy design; alternative strategies for planning and implementation; the role of research and evaluation in educational policy. Students design a policy proposal incorporating elements treated in the course.

EDU 816 Telecommunications for Doctoral Studies (2 credits).

Provides doctoral students with telecommunications skills needed to do background exploration, conduct research, engage in online professional communication, and carry out electronic publication. Focuses on uses of the Internet appropriate to doctoral studies. A basic comfort level with computers is assumed, as is at least slight experience using e-mail and visiting the World Wide Web. Topics include advanced e-mail; participation in online discussion groups; techniques for locating information on the Internet; file retrieval (including decompression and file formats); integration of online materials with local software; ethical and legal issues; CMC and telecommunication research as it relates to the educational process; and electronic publication.

EDU 895 Dissertation Research (1-9 credits).

Prerequisite: Completion of first year of program and permission of program coordinator. Students must take six semester hours of EDU 895 during the second year of cohort courses, including the second summer. Then students must take at least one semester hour of EDU 895 each semester under the guidance of an advisor or other doctoral faculty during the academic year until the prospectus is approved.

EDU 897 Individual Projects in Education (1-9 credits).

Prerequisite: Permission of program coordinator. An independent project in a selected area of urban education; the project must be approved and arrangements made with permission of the program coordinator and advisor. May be repeated for a maximum of eight credits. Offered every semester.

EDU 899 Ph.D. Dissertation (1-9 credits).

Prerequisite: Approval of program coordinator. Doctoral research under the direction of faculty advisor; continues until submission of acceptable dissertation. Offered every semester. This is taken after the approval of the prospectus.

Electrical Engineering

EEC 510 Linear Systems (4-0-4).

Prerequisite: Graduate standing. Fundamental concepts in linear system theory: matrix algebra, linear vector space, linear operator, linearity, causality, relaxedness, and time invariance. Input-output and state-space models. Solutions of linear dynamic equation and impulse response. Characteristics of linear systems: controllability, observability, and stability.

EEC 512 Probability and Stochastic Processes (4-0-4).

Prerequisite: Graduate standing. General concepts of probability and random variables, including random experiments, inequalities, joint distributions, functions of random variables, expectations, and the law of large numbers. Basic concepts of random processes and their properties are introduced. Markov processes, linear systems with stochastic inputs, and power spectra are presented.

EEC 517 Embedded Systems (2-4-4).

Prerequisite: Graduate standing. Software design of microcontroller-based embedded systems. Topics include microcontroller architecture; assembly programming; C programming; real-time interrupts; external interrupts; program size considerations; input/output issues; analog-to-digital conversion; and serial port reception/transmission.

EEC 521 Software Engineering (4-0-4).

Prerequisite: Graduate standing. Software process, methods, and tools; phases of software development process, including requirements analysis, engineering, and software project management, metrics, and quality assurance.

EEC 522 Software Systems Modeling and Analysis (4-0-4).

Prerequisite: Graduate standing. Software systems formal mechanisms, including specification, validation, and verification. Formal specification with algebraic specification and abstraction/ reasoning about system properties. Evolution of formalism to model a certain system. Proof of models, using analytical methods, and experimental methods, using simulators.

EEC 525 Data Mining (4-0-4).

Prerequisite: Graduate standing. Data-mining process; data-mining tasks including classification, clustering, association, and prediction; methods and procedures for data mining using machine learning, neural networks, and database techniques; data-mining tools, systems, and applications.

EEC 530 Digital Signal Processing (4-0-4).

Prerequisite: Graduate standing. Modeling of DSP operations using discrete-time signals and systems: difference equations, Z-transforms, Fourier methods. Signal sampling (A/D) and reconstruction (D/A); digital filters; sample rate converters and over sampling; DFT and spectrum estimation; selected applications. Out-of-class projects completed on DSP equipment in lab.

EEC 561 Electromagnetic Compatibility (4-0-4).

Prerequisite: Graduate standing. Methods of electromagnetic coupling between devices, shielding, grounding, frequency spectra of unintentional radiation sources, radiation coupling between distant devices, absorption and reflection losses in nonmagnetic shielding, high-permeability

shields, shielding penetration by wires and cables, electromagnetic compatibility (EMC) regulations and measurements.

EEC 571 Power Systems (4-0-4).

Prerequisite: Graduate standing. Power system components modeling: transformers, generators, and transmission lines. Power flow, economic scheduling of generation, power systems faults, and transient stability.

EEC 574 Power Electronics II (4-0-4).

Prerequisite: EEC 470. Advanced course in power electronics: switching function representation of converter circuits (DC-DC, AC-DC, DC-AC, and AC-AC), resonant converters, adjustable torque drives, field-oriented motor control, residential and industrial applications, utility applications, power supply applications.

EEC 580 Modern Digital Design (4-0-4).

Prerequisite: Graduate standing. Overview of modern digital design methodology and CAD tools, VHDL description for combinational and sequential logic, VHDL description for state machine, VHDL description for RTL design, synthesis, and implementation, using CPLD/FPGA devices. No graduate credit for students who have completed EEC 480.

EEC 581 Computer Architecture (4-0-4).

Prerequisite: Graduate standing. The design of high-performance computer systems, with emphasis on cost-performance tradeoff, performance evaluation, instruction set design, hardwired control-unit design, micro- and nano-programming, pipelining, memory hierarchy, and I/O interfaces.

EEC 584 Computer Networks (4-0-4).

Prerequisite: Graduate Standing. Provides a comprehensive overview of computer networks. Topics include network architectures, communication protocols; data link control, medium access control, LANS and MANS; network layer, TCP/IP; and network security.

EEC 587 Rapid Digital System Prototyping (2-4-4).

Prerequisite: EEC 580. Experiments and projects utilizing VHDL, modern EDA software tools and CPLD/FPGA devices to design, synthesize, simulate, implement and test combinational circuits, sequential circuits, register-transfer-level systems and processor.

EEC 592 Special Topics in Electrical Engineering ([addenda new 12/2006](#))

EEC 601 Graduate Seminar (1-0-1).

Prerequisite: Graduate standing. Invited experts from industry and academia present and discuss current issues and trends in research and the professional practice of electrical and computer engineering. Registration may be repeated for credit. Credits earned by registering for this seminar do not fulfill degree requirements. Graded S/U.

EEC 602 Electrical Engineering Internship ([addenda new 12/2006](#))

EEC 621/EEC 721 Internet Software Systems (4-0-4). Prerequisite: EEC 521. Analyzing, designing, constructing, testing, and maintaining Internet-based software systems; hypertext markup language, Java servlet, Java server pages, Javascript, extensible markup language (XML), extensible stylesheet language (XSL), XML schema, document-object model.

EEC 623 Software Quality Assurance (4-0-4).

Prerequisite: EEC 521. Software quality, software quality aspects; software quality assurance SQA; SQA components, activities, and infrastructures; cost of software quality; software quality metrics and models; software quality standards.

EEC 624 Software Testing (4-0-4).

Prerequisite: EEC 521. Software errors, bug reports, test case design, white box testing, black box testing, unit testing, integration testing, system testing, regression testing, test planning and management.

EEC 625 Software Design and Architecture (4-0-4).

Prerequisite: EEC 521. An in-depth look at software design. Study of design patterns, frameworks, and architectures. Survey of current middleware architectures. Design of distributed systems using middleware. Component-based design. Measurement theory and appropriate use of metrics in design. Designing for qualities such as performance, safety, security, reusability, reliability, etc. Measuring internal qualities and complexity of software. Evaluation and evolution of designs. Basics of software evolution, reengineering, and reverse engineering.

EEC 626 Software Engineering Project ([Addenda new 05/2007](#))

EEC 640 Advanced Control System Design (4-0-4).

Prerequisite: EEC 510. Systematic approach of applying modern control design methods, such as digital control, adaptive control, and heuristic methods to practical design problems. Practical approaches to typical industrial problems, such as nonlinearity, control saturation, parasitic effects, chattering, and other challenges. Useful stability analysis techniques, such as the Circle Criterion and Popov's Criterion. Polynomial matrix interpolation and its applications in control and system identification. Design examples and assignments.

EEC 641 Multivariable Control (4-0-4).

Prerequisite: EEC 510. Multi-input and multi-output control problems; robustness of control systems; singular value analysis; H-infinity estimation and control; controller order reduction.

EEC 642 System Identification (4-0-4).

Prerequisite: EEC 510. Development of dynamic system models from basic laws of physics and identification of model parameters from system input-output measurements. Frequency and time-domain models. Design of persistently exciting input signals.

EEC 643 Nonlinear Systems (4-0-4).

Prerequisite: EEC 510. State-space and frequency-domain analysis and design of nonlinear feedback systems. Methods include Liapunov's stability analysis, singular perturbations, describing functions, Popov's criteria, and circle criteria. Feedback linearization, variable structure, and sliding-mode control.

EEC 644 Optimal Control Systems (4-0-4).

Prerequisite: EEC 510. Introduction to the principles and methods of the optimal control approach: performance measures; dynamic programming; calculus of variations; Pontryagin's Principle; optimal linear regulators; minimum-time and minimum-fuel problems; steepest descent; and quasi-linearization methods for determining optimal trajectories.

EEC 645 Intelligent Control Systems (4-0-4).

Prerequisite: EEC 510. Artificial intelligence techniques applied to control system design. Topics include fuzzy sets, artificial neural networks, methods for designing fuzzy-logic controllers and neural network controllers; application of computer-aided design techniques for designing fuzzy-logic and neural-network controllers.

EEC 646 Dynamics and Control of Mems

(addenda new 12/2006) (revised 11/07)

EEC 650 Signal Detection and Estimation (4-0-4).

Prerequisite: EEC 512. The classical theory of detection and estimation of signals in noise. Bayesian hypothesis testing, minimax hypothesis testing, Neyman-Pearson hypothesis testing, composite hypothesis testing, signal detection in discrete time, sequential detection. Nonparametric and robust detection parameter estimation, Bayesian estimation, maximum likelihood estimation, Kalman-Bucy filtering, linear estimation, Wiener-Kolmogorov filtering, applications to communications.

EEC 651 Digital Communications (4-0-4).

Prerequisite: EEC 512. Basic digital communication techniques, including formatting and baseband transmission, bandpass modulation and demodulation, and synchronization. Advanced modulation techniques, such as power-efficient modulation, spectrally efficient modulation, coded modulation, and spread-spectrum modulation. Introduction to communication link analysis and block codes.

EEC 652 Error Control Coding (4-0-4).

Prerequisite: EEC 651. Introduces the theory of error control coding for digital transmission in communications. Topics include groups, fields, GF(2), linear-block codes, cyclic codes, BCH codes, Reed-Solomon codes, convolutional codes, maximum likelihood decoding of convolutional codes, Viterbi algorithm, sequential decoding of convolutional codes, continuous-phase modulation codes, trellis-coded modulation, and turbo codes.

EEC 653 Information Theory (4-0-4).

Prerequisite: EEC 512. Presents a coherent and unifying view of the concept of information, conveying a unique understanding of how it can be quantified and measured. Within this context, concepts and principles of information theory, as they relate to applications in communication theory, statistics, probability theory, and the theory of investment, are introduced.

EEC 654 Mobile Communications (4-0-4).

Prerequisite: EEC 651. Cellular-mobile communication concepts and system-design fundamentals, mobile-radio propagation models, large-scale path loss, small-scale fading, multipath, modulation techniques for mobile radio, equalization, diversity, channel coding, speech coding, multiple access, wireless networking, wireless systems, and standards.

EEC 655 Satellite Communications (4-0-4).

Prerequisite: EEC 651. Satellite channel, satellite-link analysis, satellite electronics, frequency division multiple access (FDMA), time division multiple access (TDMA), code division multiple access (CDMA), frequency-hopped communications, on-board processing, satellite cross-links, VSAT networks, mobile satellite networks.

EEC 670/EEC 770 Power Systems Operation

(4-0-4). Prerequisite: EEC 571. Steady-state control of power flow. Optimal generating unit

commitment. Frequency/ active-power control, voltage/reactive power control. Automation generation of interconnected power systems.

EEC 671/EEC 771 Power Systems Control

(4-0-4). Prerequisite: EEC 571. Nonlinear dynamic modeling and control of interconnected power systems in a deregulated environment. Voltage collapse, transient phenomena. Power-system stability enhancements, flexible FACTS devices.

EEC 673 Power Electronics and Electric

Machines (4-0-4). Prerequisite: EEC 474 or EEC 574. Power electronic converters in combination with electric machines. Field-oriented induction-machine control; stability of induction machines under sine-wave supply; voltage-source inverter drives and current-source inverter drives.

EEC 680 High Performance Computer

Architecture (4-0-4). Prerequisite: EEC 581. Architecture analysis and design from a systems perspective. Topics include memory system design, pipeline design techniques, vector computers, multiple processor systems, and multiprocessor algorithms.

EEC 681 Distributed Computing Systems (4-0-4).

Prerequisite: EEC 584. Overview of distributed computing systems. Topics include networking, interprocess communication, remote-procedure calling, name services, distributed time management, and file services. Some new technologies, including ATM networking, internet works, multicast protocols, microkernel-based distributed operating systems, and distributed-shared memory, are discussed.

EEC 683 Computer Networks II (4-0-4).

Prerequisites: EEC 581 and EEC 584. Broadband networks, traffic characterization, admission and access control, switch architectures, congestion control. Emphasis on quantitative analysis and performance modeling.

EEC 684 Parallel Processing Systems (4-0-4).

Prerequisite: EEC 581. Overview of parallel system organizations and parallel algorithms. Topics include memory structures for parallel systems, interconnection networks, SIMD/MIMD processing, parallel programming languages, mapping and scheduling, parallel algorithms, and case studies.

EEC 685 Modeling and Performance Evaluation of Computer Systems (4-0-4).

Prerequisites: EEC 581 and EEC 512. Evaluation of the performance of various computer systems through measurement, analytic modeling, and simulation techniques. Topics include performance metrics, workload characterization, statistical modeling, hybrid techniques, and case studies.

EEC 686 Advanced Digital Design (4-0-4).

Prerequisite: EEC 581. Covers advanced topics in digital systems, including verification and simulation, test-vector generation, logic synthesis, behavioral synthesis, and design and development of data path and control path.

EEC 687 Mobile Computing (4-0-4).

Prerequisites: EEC 581 and EEC 584. Provides a comprehensive overview of mobile computing, which is likely to become a pervasive part of future computing infrastructures with technical advancements in wireless communication, mobility, and portability. Topics include mobile

TCP/IP protocols, mobile ad hoc networks, mobile application architectures, system issues for mobile devices, and some pervasive and ubiquitous computing examples.

EEC 688 Secure and Dependable Computing
(addenda new 12/2006)**EEC 692 Special Topics in Software**

Engineering (4-0-4). Prerequisite: Permission of instructor. Advanced selected topics in software engineering. Offered upon sufficient demand.

EEC 693 Special Topics in Electrical

Engineering (4-0-4). Prerequisite: Permission of instructor. Advanced selected topics in electrical engineering. Offered on sufficient demand.

EEC 695 Individual Problems in Software

Engineering (1-4 credits). Prerequisite: Permission of instructor. Directed study on an individual problem, under the supervision of a faculty member. Limited to eight credits. Graded S/F.

EEC 696 Individual Problems in Electrical

Engineering (1-4 credits). Prerequisite: Permission of instructor. Directed study on an individual problem, under the supervision of a faculty member. Limited to eight credits. Graded S/F.

EEC 699 Master's Thesis (1-9 credits).**EEC 701 Graduate Seminar (1-0-1).**

Prerequisite: Graduate standing. Experts from industry and academia present and discuss current issues and trends in research and the professional practice of electrical and computer engineering. Registration may be repeated for credit. Seminar credit does not count toward degree requirements. Graded S/F.

EEC 721 Internet Software Systems (4-0-4).

Prerequisite: EEC 521. Analyzing, designing, constructing, testing, and maintaining Internet-based software systems; hypertext markup language, Java servlet, Java server pages, Javascript, extensible markup language (XML), extensible stylesheet language (XSL), XML schema, document object model.

EEC 723 Software Quality Assurance and

Testing (4-0-4). Prerequisite: EEC 521. Software quality, software process, quality metrics, quality models, defects, test-case design, unit testing, integration testing, white-box testing, black-box testing, regression testing, Capability Maturity Model (CMM), and process improvement.

EEC 740 Advanced Control System Design (4-0-4).

Prerequisites: EEC 440 and EEC 510. Systematic approach of applying modern control design methods, such as digital control, adaptive control, and heuristic methods, to practical design problems. Students learn how to deal with typical industrial problems, such as nonlinearity, control saturation, parasitic effects, and chattering. Useful stability analysis techniques, such as the Circle Criterion and the Popov's Criterion. Polynomial matrix interpolation and its applications in control and system identification. Design examples and assignments.

EEC 741 Multivariable Control (4-0-4).

Prerequisites: EEC 440 or equivalent, and EEC 510. Multi-input and multi-output control

problems: robustness of control systems, singular value analysis, eigenvalue and eigenvector assignment, Kalman filter, LQ and H ∞ design methods. Limitations on achievable performance of feedback systems.

EEC 742 System Identification (4-0-4).

Prerequisite: EEC 510. Development of dynamical system models from the basic laws of physics and identification of model parameters from system input-output measurements. Frequency and time-domain models.

EEC 743 Nonlinear Systems (4-0-4).

Prerequisite: EEC 510. State-space and frequency-domain analysis and design of nonlinear feedback systems. Methods include Liapunov's stability analysis, singular perturbations, and describing functions. Feedback linearization, variable structure, and sliding-mode control.

EEC 744 Optimal Control Systems (4-0-4).

Prerequisite: EEC 510. Introduction to the principles and methods of the optimal control approach; performance measures; dynamic programming; calculus of variations; Pontryagin's Principle; optimal linear regulators; minimum-time and minimum-fuel problems; steepest descent; and quasilinearization methods for determining optimal trajectories.

EEC 745 Intelligent Control Systems (4-0-4).

Prerequisite: EEC 510. Artificial intelligence techniques applied to control system design. Topics include fuzzy sets, artificial neural networks, methods for designing fuzzy-logic controllers and neural network controllers; application of computer-aided design techniques for designing fuzzy-logic and neural-network controllers.

EEC 746 Dynamics and Control of Mems (addenda new 12/2006) (Revised 11/07)

EEC 750 Signal Detection and Estimation (4-0-4).

Prerequisite: EEC 512. The classical theory of detection and estimation of signals in noise. Bayesian hypothesis testing, minimax hypothesis testing, Neyman-Pearson hypothesis testing, composite hypothesis testing, signal detection in discrete time, sequential detection. Nonparametric and robust detection, parameter estimation, Bayesian estimation, maximum likelihood estimation, Kalman-Bucy filtering, linear estimation, Wiener-Kolmogorov filtering, applications to communications.

EEC 751 Digital Communications (4-0-4).

Prerequisite: EEC 512. Basic digital communication techniques, including formatting and baseband transmission, bandpass modulation and demodulation, and synchronization. Advanced modulation techniques, such as power-efficient modulation, spectrally-efficient modulation, coded modulation, and spread-spectrum modulation. Introduction to communication-link analysis and block codes.

EEC 752 Error Control Coding (4-0-4).

Prerequisite: EEC 751. Groups, fields, GF(2^m), linear block codes, cyclic code, convolutional codes, maximum likelihood decoding of convolutional codes, Viterbi algorithm, sequential decoding of convolutional codes, continuous phase modulation codes, trellis-coded modulation.

EEC 753 Information Theory (4-0-4).

Prerequisite: EEC 512 or equivalent. Presents a coherent and unifying view of the concept of information, conveying a unique understanding as to how it can be quantified and measured. Within this context,

concepts and principles of information theory as they relate to applications in communication theory, statistics, probability theory, and the theory of investment are introduced.

EEC 754 Mobile Communications (4-0-4).

Prerequisite: EEC 751. Cellular-mobile communication concept and system-design fundamentals, mobile-radio propagation models, large-scale path loss, small-scale fading and multipath, modulation techniques for mobile radio, equalization, diversity, channel coding, speech coding, multiple access, wireless networking, wireless systems, and standards.

EEC 755 Satellite Communications (4-0-4).

Prerequisite: EEC 751. Satellite channel, satellite-link analysis, satellite electronics, frequency division multiple access (FDMA), time division multiple access (TDMA), code division multiple access (CDMA), frequency-hopped communications, on-board processing, satellite cross links, VSAT networks, mobile-satellite networks.

EEC 770 Power Systems Operations (4-0-4).

Prerequisite: EEC 571. Steady-state control of power flow. Optimal generating unit commitment. Frequency/active-power control, voltage/reactive power control. Automation generation of interconnected power systems.

EEC 771 Power Systems Control (4-0-4).

Prerequisite: EEC 571. Nonlinear dynamic modeling and control of interconnected power systems in a deregulated environment. Voltage collapse, transient phenomena. Power-system stability enhancements, flexible FACTS devices.

EEC 773 Power Electronics and Electric Machines (4-0-4).

Prerequisite: EEC 474 or EEC 574. Power electronics converters in combination with electric machines. Field-oriented induction machine control; stability of induction machines under sine-wave supply; voltage-source inverter drives and current-source inverter drives.

EEC 780 High Performance Computer Architecture (4-0-4).

Prerequisite: EEC 581. Architecture analysis and design from a systems perspective are described in this course. Topics include memory-system design, pipeline design techniques, vector computers, multiprocessor systems, and multiprocessor algorithms.

EEC 781 Distributed Computing Systems (4-0-4).

Prerequisite: EEC 584. Overview of distributed computing systems. Topics include networking, interprocess communication, remote-procedure calling, name services, distributed time management, and file services. Some new technologies, including ATM networking, Internet works, multicast protocols, micro, kernel-based distributed operating systems, and distributed shared memory, are discussed.

EEC 782 Computer Networks I (4-0-4).

Prerequisite: EEC 581. Network architectures, communication protocols; data-link control, medium access control, LANS and MANS; network layer, TCP/IP.

EEC 783 Computer Networks II (4-0-4).

Prerequisites: EEC 581 and EEC 584. Broadband networks, traffic characterization, admission and access control, switch architectures, congestion control. Emphasis on quantitative analysis and performance modeling.

EEC 784 Parallel Processing Systems (4-0-4).

Prerequisite: EEC 581. Overview of parallel-system organizations and parallel algorithms. Topics include memory structures for parallel systems, interconnection networks, SIMD/MIMD processing, parallel programming languages, mapping and scheduling, parallel algorithms, and case studies.

EEC 785 Modeling and Performance Evaluation of Computer Systems (4-0-4).

Prerequisites: EEC 581 and EEC 710. Evaluation of the performance of various computer systems through measurement, analytic modeling, and simulation techniques. Topics include performance metrics, workload characterization, statistical modeling, hybrid techniques, and case studies.

EEC 786 Advanced Digital Design (4-0-4).

Prerequisite: EEC 581. Covers advanced topics in digital systems, including verification and simulation, test-vector generation, logic synthesis, behavioral synthesis, and design and development of data path and control path.

EEC 787 Mobile Computing (4-0-4).

Prerequisites: EEC 581 and EEC 584. Provides a comprehensive overview of the mobile computing that is likely to become a pervasive part of future computing infrastructures with technical advancements in wireless communication, embedded processors, and portability technologies. Topics include mobile TCP/IP protocols, mobile ad hoc networks, mobile application architectures, system issues for mobile devices, and some pervasive and sensor-computing examples.

EEC 788 Secure and Dependable Computing (addenda new 12/2006)

EEC 793 Special Topics in Electrical Engineering (4-0-4). Prerequisite: Permission of instructor. Advanced selected topics in electrical engineering. Offered on sufficient demand.

EEC 796 Independent Study in Electrical Engineering (1-4 credits). Prerequisite: Chair approval. Detailed, individual study on a special topic, under the guidance of a faculty member. Total credits for this course are limited to eight. Graded S/F.

EEC 802 Electrical Engineering Internship (addenda new 12/2006)

EEC 895 Doctoral Research (1-16 credits). Up to 10 credits may be applied to the dissertation credit requirement.

EEC 899 Doctoral Dissertation (1-16 credits). Prerequisites: Successful completion of candidacy examination and Dissertation Proposal Approval Form on file with the College of Graduate Studies.

Gifted Education

EGT 512 Nature and Developmental Needs of Learners with Gifts and Talents (4 credits).

Study of the multi-dimensionality of giftedness—history, identification, assessment, affective and cognitive characteristics—with an emphasis on the diversity of learners. Topics include gender, ethnicity, race, language, underachievement,

socio-economic status, and gifted learners with handicapping conditions.

EGT 513 Curriculum, Teaching Strategies, and Evaluation for Learners with Gifts and Talents (4 credits).

Prerequisites: EGT 512 and EDB 612, or permission of instructor. Exploration of classroom organization and curriculum modifications to meet the needs of a diverse group of learners with gifts and talents. Programming structures, varied teaching strategies, differentiated instruction, and multiple evaluation methods are developed.

EGT 517 Creativity, Inquiry, and Productive Thinking (4 credits).

An advanced course for teachers of students with gifts and talents. Examination of the construct of creativity and of curriculum materials and teaching strategies that promote creative thinking and problem solving. An inquiry approach is modeled and examined for classroom implementation.

EGT 518 Working with Students with Gifts and Talents, Their Families, and Other Professionals (3 credits).

Prerequisites: EGT 512 and EGT 513. Intensive exploration of recent research literature regarding guidance needs and effective practices with students and their families. Also examines collaborative teaching techniques and models for working with other professionals. Special attention is given to the acquisition of heightened interpersonal, collaboration, and political skills necessary for success in the field of gifted education and its complex stakeholders. The special needs of students due to gender, ethnicity, race, language, underachievement, socio-economic status, and handicapping conditions are explored.

EGT 519 Using Computers with Students with Gifts and Talents (3 credits).

Prerequisites: EGT 512 and EGT 513, or permission of instructor. Exploration of a variety of technology-based activities with particular emphasis on their applicability to curriculum for the gifted/talented audience. Topics include common curriculum paradigms in gifted education, as well as explicit, hands-on instruction with computer tools, including digital audio and video.

EGT 580 Practicum in Gifted and Talented Education (4 credits).

Prerequisites: EGT 512, EGT 513, and permission of instructor. Specialized field experience in an approved classroom setting for gifted and talented learners, under the supervision of a qualified teacher. Incorporates observation of classes with the planning and implementation of instruction for gifted and talented pupils.

English

ENG 506 Composition Theory (4-0-4).

Advanced study in expository writing: writing processes, reading and writing, rhetoric, evaluation, and pedagogy. Offered fall semester. Required of beginning teaching assistants, except for those who took ENG 308 Composition Theory as undergraduates.

ENG 507 Workshop in Teaching (1-5-1).

Relation of composition theory to the practice of tutoring and teaching. Required for teaching assistants, except for those who took ENG 309 Writing Center Practicum as undergraduates. Meets once a week during fall and spring semesters. May be taken S/F. ENG 507 credits do not count towards the 12 credits of electives in the degree requirements.

ENG 508 Writing Institute For Teachers (2-4 credits).

Workshop and practicum in the teaching of writing, exploring current trends such as whole language approaches, writing across the curriculum, or writing about the arts. When offered in summer as SWIFT, this course is presented in collaboration with the Great Lakes Theater Festival.

ENG 509 Technical Writing (2-3 credits).

Preparation of reports, scientific papers, and other genres of technical writing, with emphasis on audience, voice, the proper formatting of data, and the integration of text with graphic and visual material. When offered for three credits, the course includes a major writing project, as well as shorter assignments.

ENG 510 Literary Analysis (4-0-4).

Introduction to literary analysis at the graduate level. Such analysis will combine close reading of literary texts with discussion of critical articles demonstrating a range of critical and theoretical approaches. Texts will represent a range of genres and literary periods. Usually offered fall semester.

ENG 511 Critical Approaches to

Literature (4-0-4). Critical approaches to literature and the theories that underlie them, including formalist, reader response, deconstructionist, new historicist, feminist, and other post-structuralist approaches. Core course required for MA candidates in the literature concentration. Usually offered spring semester.

ENG 512 Craft of Literature (4-0-4).

Study of a single literary genre (poetry, fiction, play-writing, or non-fiction) with an emphasis on theory and craft for the practitioner. Literary texts are used to demonstrate the formal range of the genre studied. Craft exercises are used to explicate the operations and assumptions underlying literary techniques. Required for MA candidates in the creative writing concentration; fulfills a "craft course" requirement for NEOMFA students.

ENG 513 Language of Literature (4-0-4).

Literary discourse; topics center on the structure and form of literary expressiveness; option and choice; linguistic form as the expression of meaning. Counts as an introductory linguistics course in the TESOL endorsement program.

ENG 514 Studies in Linguistics (4-0-4).

Topics include historical linguistics, history of the English language, grammar, sociolinguistics, or analysis of an uncommonly taught language such as Sanskrit or Armenian. May be repeated with change of topic. Courses count as TESOL endorsement electives. Note: when the topic is Modern English Grammar, ENG 514 counts as an introductory linguistics course in the TESOL endorsement program.

ENG 515 Studies in Rhetoric (4-0-4).

Authors, themes, genres, or periods in the theory and practice of rhetoric.

ENG 516 Style, Voice, and Persona

(4-0-4). Experiments in the deliberate creation of authorial voice and persona through the manipulation of linguistic tools such as diction, syntax, and punctuation.

ENG 531 Studies in Medieval Literature

(4-0-4). Topics include Arthurian tradition, women and writing in the Middle Ages, Chaucer, Malory, or courses in medieval genres or themes. May be repeated with change of topic.

ENG 532 Studies in Renaissance

Literature (4-0-4). 16th- and 17th-century authors, genres, themes, or movements including humanism, the Reformation, metaphysical and cavalier poetry, scientific empiricism, and neo-classicism. May be repeated with change of topic.

ENG 533 Studies in Restoration and

18th-Century Literature (4-0-4). Authors, genres, themes, or movements in 18th-century poetry, fiction, and drama. Topics include the Enlightenment, satire, rise of the novel, and neo-classical and pre-Romantic poetry. May be repeated with change of topic.

ENG 534 Studies in 19th-Century British

Literature (4-0-4). Authors, genres, themes, or movements in 19th-century poetry, fiction, and drama. Possible topics include Romantic-era women writers, the literature of British imperialism, and the fiction of Jane Austen. May be taken up to three times with change of topic.

ENG 535 Studies in 20th-Century

Literature (4-0-4). Modern and contemporary authors, genres, themes, or movements. May be repeated with change of topic.

ENG 545 Studies in American Literature

(4-0-4). Authors, genres, themes, or movements of significance in American literature. May be repeated with change of topic.

ENG 547 Studies in African-American

Literature (4-0-4). Authors, themes, or movements of significance in African-American literature. Topics include slave narratives, Harlem renaissance, literature of the 1950s, and African-American women authors. May be repeated with change of topic.

ENG 548 Studies in Multicultural

Literature (4-0-4). Authors, genres, themes, or movements representing the ethnic diversity of modern American literature. May be repeated with change of topic.

ENG 553 Studies in Themes, Genres, or

Individual Works of Literature (2-4 credits). Literary themes, genres, or works significant in British, American, European, or world literature. Topics in the past have included European Romanticism, the Faust theme, and Literature and Science. May be repeated with change of topic.

ENG 563 Gender Issues in Literature

(4-0-4). Studies in gender theory and gender issues in literature. Topics may include contemporary feminist themes; the intersection of gender, race, and class; the relationship of gender to voice; technique and genre; and

how questions of language are linked to these issues. May be repeated with change of topic.

ENG 575 Major Author (4-0-4). Intensive study of a single major author. May be repeated with change of topic.

ENG 580 Imagination Conference (4-0-4). Prerequisite: Permission of instructor, based on manuscript submission. Intensive five-day summer workshop with visiting writers (fiction, poetry, and creative non-fiction); "craft" analyses of creative writing. Students complete a workshop, and by the end of the semester revise a manuscript and write an essay about technical or craft elements. In addition to tuition, students are charged a workshop and materials fee. Additional information is available at the Imagination Conference Web site at www.csuohio.edu/poetrycenter/imagination. May be repeated with change of topic.

ENG 596 Independent Study (1-4 credits). Prerequisite: Prior written approval from Graduate Committee. Study of a topic not offered as a regular course, under the supervision of a graduate faculty member. The total of ENG 596 course work may not exceed eight credits.

ENG 602 Creative Writing (4-0-4). Prerequisite: Admission to the creative writing concentration or permission of instructor. Graduate-level work in the writing of poetry, fiction, non-fiction, and drama. May be repeated with change of topic.

ENG 610 - 614 See Addendum

ENG 615 - 616 See Addendum

ENG 695 Graduate Seminar (4-0-4). Study of an important topic in literary or cultural history, criticism, or rhetoric, with special emphasis on methods of analysis and research. May be repeated with change of topic.

ENG 690 (Addenda new 5/2006)

ENG 699 Thesis (1-4 credits, repeated for a minimum total of 5 credits). Writing of a Master's Project under the direction of a faculty member. Required for all MA degree candidates.

Environmental Studies

Many of the core, track, and elective courses offered in the Levin College are cross-listed in the MAES, MSUS, MPA, and MUPDD programs. Please note that courses with the same title may not be repeated for credit. The exceptions to this rule are ENV/PAD/PDD/UST 693, PDD/UST 696, PAD/PDD/UST 697, and PAD 698.

ENV 550 Environment and Human Affairs (4-0-4). Challenges to decision makers in environmental policy making; strategies appropriate to various decision situations; analysis of decision making; negotiation and mediation techniques. Cross-listed with PDD 550 and UST 550.

ENV 553 Environmental Planning I (4-0-4). Introduction to planning for environmentally sustainable cities and regions. Topics include the values embodied in, and development of, environmental planning as a field of planning; processes that generate the physical landscape (focusing on land processes, water resources, and vegetation); and the impacts of human settlements on the landscape. Local, state, and federal laws and regulations relevant to land use and resource protection are featured. Students become familiar
ENV 551 See Addendum

with planning methods and their use. Cross-listed with PDD 553 and UST 553.

ENV 595 Environmental Seminar (1-0-1). Prerequisite: Permission of instructor. An interdisciplinary seminar addressing the scientific, technological, and policy aspects of environmental issues. Cross-listed with BIO 595, CVE 595, and UST 595.

ENV 642/742 Introduction to Geographic Information Systems (4-0-4). Prerequisite: UST 501 or permission of instructor. Principles of Geographic Information Systems (GIS) as a computer tool to provide spatial information analysis. Laboratory instruction in the use of GIS software to aid in the analysis of workplace problem situations. Cross-listed with PAD 642, PDD 642, and UST 642.

ENV 643/743 Advanced GIS (4-0-4). Prerequisites: UST 434, and ENV 642 or equivalent. Students learn to develop and implement various GIS applications such as network analysis, polygon overlay, and surface modeling. Students use advanced GIS software tools in completing computer-based analytical exercises. Cross-listed with PAD 643, PDD 643, and UST 643.

ENV 644 GIS Capstone Seminar (4-0-4). Provides an overview of current issues in GIS. Students review and discuss their GIS projects/research in the context of these issues. Students review both the technical/practical issues encountered as well as the conceptual implications of their projects. Offers graduate students the opportunity to reflect on the skills learned during their GIS projects and provides an overview of ongoing development in the field. Cross-listed with PAD 644, PDD 644, and UST 644.

ENV 651/751 Environmental Finance and Capital Budgeting (4-0-4). Introductory course in natural-resource economics theory, financial decision-making processes, and public policy relevant to environmental protection, urban sustainability, and natural-resource development and management. Examination of issues and methods of financing environmental projects. Focus on the application of theory to practice in state and local governments. Cross-listed with PDD 551 and UST 651.

ENV 652/752 Environmental Policy (4-0-4). An introduction to details of U.S. environmental policy and politics. Policies addressing issues such as clean air and water, solid and toxic waste, energy, land use, biodiversity, sustainability, ecosystems, and global climate change are discussed. The values, preferences, and economic issues that underlie environmental policy are addressed. Local, regional, state, national, and global issues are examined and characterized. The environmental policy-making process is described.

ENV 653/753 Environmental Planning II (4-0-4). Prerequisite: ENV 553 or permission of instructor. An advanced course designed for students with knowledge of ecological processes or relevant environmental fields. Features regional ecological infrastructure and landscape scale. Typical topics include watershed management, land-use change and ecological impacts, and regional open-space and habitat

preservation. Provides an opportunity to apply planning processes and techniques such as suitability analysis, GIS mapping, risk assessment or environmental impact assessment through a project exercise. Cross-listed with PDD 653 and UST 653.

ENV 654/754 Environmental Institutions and Administration (4-0-4). An interdisciplinary introduction to the institutions and processes of public policy implementation for environmental issues. Discusses the major government groups and organizations central to environmental policy making and administration, including Congress, congressional environmental committees, the executive branch, and the judiciary. The roles of bureaus critical to the implementation of environmental policy including the Environmental Protection Agency, the Forest Service, the Bureau of Land Management, and the Department of Energy are explored. Rulemaking, intergovernmental relations, and trans-border issues are emphasized.

ENV655/755 Environmental Risk and Decision Making (4-0-4). Surveys the fundamental concepts involved in environmental risk evaluation and risk-based decision-making. Topics include risk assessment, risk management strategies, modeling, catastrophes, uncertainty, and risk perception. Issues arising from differences in expert and lay cognitive frameworks in the use of science for decision making are highlighted. Also covers the psychological, economic, political, ethical, and legal ramifications of risk-based policy and administrative decision-making.

ENV 693/793 Special Topics in Environmental Studies (1-4 credits).

Engineering Science

ESC 694/794 Selected Topics in Engineering Science (see Addenda New 05/2007) 10/2007

ESC 702 Applied Engineering Analysis I (4-0-4). Methods of optimization for engineering systems; classical optimization, Taylor's theorem, Lagrange Multipliers, and Kuhn-Tucker theorem; direct methods, Newton and quasi-Newton methods, penalty and Barrier methods, linear and nonlinear programming.

ESC 704 Applied Engineering Analysis II (4-0-4). Prerequisite: Engineering Statistics. Optimization in engineering economics; application of renewal theory; inventory and Markov decision models; Bayesian decision analysis.

ESC 706 Applied Engineering Analysis III (4-0-4). Engineering applications and solution techniques for partial differential equations; variational derivation of differential equations and boundary conditions; Hamilton's principle and Lagrange's equation; numerical methods and computer solutions for differential equations.

Special Education

Courses numbered from 500 to 503 are core-course offerings within specializations. Whenever possible, they should be

completed prior to enrollment in higher-level courses and may actually serve as prerequisites for same.

ESE 500 Introduction to Special Education (4 credits). An introduction to information regarding the characteristics of individuals with the various disabilities included in IDEA. Historical and legal issues regarding special education are addressed. Students identify, plan, and implement a variety of instructional strategies. Introduction to the concepts of Praxis II and to the profession.

ESE 501 Nature and Needs of Young Children with Disabilities and Those at Risk (4 credits). *Prerequisite:* ESE 500. Exploration of characteristics of young children from birth through age eight who are at risk or disabled, along with their varying needs for early intervention and educational services. Examines historical and current issues and trends in the field of early childhood special education. Required for licensure as an Early Childhood Intervention Specialist.

ESE 502 Introduction to Individuals with Mild/Moderate Disabilities (4 credits). *Prerequisite:* ESE 500. History, theoretical foundations, and practices related to the social, emotional, and learning characteristics of individuals with mild/moderate disabilities. Includes presentations of diagnostic approaches and educational and social policies relative to these exceptions. Required for licensure as a Mild/Moderate Intervention Specialist.

ESE 503 Introduction to Individuals with Moderate and Severe Disabilities (4 credits). *Prerequisite:* ESE 500. Examination of the learning and behavioral characteristics of individuals with moderate and severe disabilities from birth through adulthood; exploration of implications for a comprehensive service-delivery system and trends in the best practices, both current and historical. Required for licensure as a Moderate/Intensive Intervention Specialist.

ESE 504 Teaching Students of Varying Abilities (3 credits). Survey of educational issues related to serving individuals with disabilities, as well as those considered to be gifted and talented. Includes an introduction to the characteristics, etiology, classification, incidence, and learning potential of students with special needs, as well as the legal aspects involved in teaching these students. Addresses methods for accommodating learners of varied ability within the regular classroom through alteration of the environment, curriculum, and instruction.

ESE 510 Diagnostic Assessment and Multifactorial Evaluation for Students with Moderate and Severe Disabilities (2 credits). *Prerequisite:* ESE 503. Students acquire competencies associated with norm and criterion-referenced assessment and understand the conditions under which assessments should be planned and conducted. Students gain competency with the interpretation and analysis of assessment information. Required for licensure as a Moderate/Intensive Intervention Specialist.

ESE 511 Classroom Management and Intervention for Severe Behavior

Problems (4 credits). *Prerequisites or co-requisites:* ESE 501, ESE 502, or ESE 503. Includes approaches to classroom management that foster productive social interactions and are most compatible with instructional goals. Also examines the characteristics and causes of various severe behavioral problems and research-based techniques for intervention. Required for Intervention Specialist licenses in special education.

ESE 512 Collaboration and Partnerships among Parents and Professionals in Special Education (4 credits). *Prerequisites or co-requisites:* ESE 501, ESE 502, or ESE 503. Highlights research and productive strategies for establishing successful collaborative relationships with parents of children with disabilities, paraprofessionals, and other professionals. Fosters sensitivity to the needs of culturally and linguistically diverse families. Emphasis on collaboration and partnerships with other professionals, paraprofessionals, and parents as team members designing, implementing, and evaluating appropriate educational experiences for individuals with disabilities. Required for all Intervention Specialist licenses in special education.

ESE 513 Supporting Medical and Intensive Educational Needs (4 credits). *Prerequisite:* ESE 501 or ESE 503. Overview of medical disabilities and the educational implications for children with medical and/or health care needs. Analysis of strategies for cross-disciplinary assessment, planning, technology use, and program implementation, including such disciplines as physical, occupational, and speech therapy; psychology; and other health-related fields. Required for Intervention Specialist licenses in Early Childhood and Moderate/Intensive.

ESE 514 Curriculum and Interventions for Infants and Young Children with Special Needs (4 credits). *Prerequisite:* ESE 501. Examination of developmentally and exceptionality appropriate approaches to early intervention services, as well as pre-school and primary grade special education. Content includes general and individualized (e.g., IFSPs and IEPs) curricular issues, intervention strategies, and instructional approaches. Required for licensure as an Early Childhood Intervention Specialist.

ESE 515 Assessing Young Children (4 credits). *Prerequisite:* ECE 503 or ESE 501. Provides a basic understanding of the components of developmental screening, child assessment, child identification, and program evaluation for children at-risk and those with disabilities from birth through age eight. Assessment and evaluation focus on child and family variables. Construction of Individualized Education Programs (IEPs) and Individualized Family Service Plans (IFSPs) are stressed. Required for licensure as an Early Childhood Intervention Specialist.

ESE 516 Life Skills and Career Planning in Special Education (2 credits). *Prerequisite:* ESE 502. Study of appropriate curriculum, instructional techniques, methods, and materials for the development of vocational, career, and functional living skills in students with mild/moderate disabilities. Addresses planning for the transition from

secondary education to work, post-secondary education, and community involvement. Required for licensure as a Mild/Moderate Intervention Specialist.

ESE 517 Assessment of Mild/Moderate Disabilities (4 credits). *Prerequisite:* ESE 502. Examination of principles, procedures, and instruments of assessment used in the diagnosis of individuals with mild/moderate disabilities. Emphasizes the administration and interpretation of formal and informal assessment tools to identify academic and social difficulties. Students work with an individual client in a clinical setting. Required for licensure as a Mild/Moderate Intervention Specialist; for students who possess a certification or license in another teaching area.

ESE 518 Curriculum and Instruction for Students with Mild/Moderate Disabilities (4 credits). *Prerequisites:* ESE 502 and ESE 517. Study of appropriate curriculum, materials, instructional techniques, and use of technology with emphasis on academics, social development, and functional skills in educational planning. Explores instructional accommodations for students with mild/moderate disabilities in the regular education setting. Required for licensure as a Mild/Moderate Intervention Specialist; for students who possess a certification or license in another teaching area.

ESE 519 Life Skills Assessment, Curriculum, and Instruction (4 credits). *Prerequisite:* ESE 503. Exploration of issues related to assessment, functional curriculum theory, Individualized Education Program development, choice of teaching objectives, use of technology, and procedures for implementation of quality educational programs for individuals with severe disabilities. Topics include task analysis, prompting procedures, classroom structure, and monitoring of ongoing progress. Required for licensure as a Moderate/Intensive Intervention Specialist.

ESE 520 Assessment, Curriculum, and Instruction to Meet the Academic and Behavioral Needs of Students with Moderate and Intensive Disabilities (4 credits). *Prerequisite:* ESE 503. Exploration of issues related to assessment, curriculum theory, IEP development, use of technology, and educational approaches for individuals with severe disabilities. Emphasis on teaching academic skills, social and emotional behaviors, and career and life skills. Required for licensure as a Moderate/Intensive Intervention Specialist.

ESE 521 Assessment for Instructional Needs (4 credits). *Prerequisite:* ESE 502. Focus is on the administration and interpretation of formal and informal assessment tools for students with mild/moderate disabilities. Emphasizes the direct link between assessment and the design of appropriate instruction. Assignments require students to make decisions in selecting and administering assessments, as well as developing appropriate educational plans for children with disabilities based on assessment outcomes. Clinical or field experience required. Required for first licensure as a Mild/Moderate Intervention Specialist.

ESE 522 Assessment-Based Curriculum and Instruction for Students with Mild/Moderate Disabilities (4 credits). Prerequisites: ESE 502 and ESE 521. Focus is on the development and utilization of appropriate assessment-based curriculum and instruction for individuals with mild/moderate disabilities. Participants develop an understanding of the relationships among assessment issues, learning environments and instructional practices employed in learning environments for students with disabilities. Clinical or field experience required. Required for first licensure as a Mild/Moderate Intervention Specialist.

ESE 695 Seminar in Special Education (1-4 credits). Prerequisite: 24 hours of graduate course work in special education or permission of instructor. In-depth exploration of selected topics in special education and application of knowledge to professional settings. May be repeated for a maximum of nine credit hours.

English as a Second Language

ESL 502 ESL Graduate Writing Course (2-0-2). The course will continue to focus on the writing skills needed in graduate school. Instruction will address students' needs: grammar at the sentence level and organization and style at the paragraph and essay level. Students will have individualized grammar assignments and in-class writing, as well as writing for homework. Assignments will be such that students may use writing assignments from other academic courses or a topic provided. In addition to classroom practice, students will have out-of-class assignments for individualized writing practice and academic assignments. Some time will be given to each of the following: citing of sources, paraphrasing/summarizing, short-answer essay questions, lab reports, and longer research papers.

ESL 503 Intermediate English as a Second Language Speaking Skills (2-0-2). Spoken English for non-native, international graduate students. Practice in speaking and listening to American English. Recognition and production of sounds, rhythm, and intonation patterns at an intermediate level. Development of competence and confidence in listening and speaking skills in both academic and general conversation within supportive structured and non-structured situations. Open to all international graduate students. Placement by ESL Program Manager required. The course is graded S/U.

ESL 504 Communication Skills for International Teaching Assistants (2-0-2). The course will focus on pronunciation, intonation and stress, as well as presentation skills. Teaching strategies and cross-cultural communication are major topics of discussion and assignments. Students will give mini-lessons to practice the skills covered. Open to all international graduate students. Placement by ESL Program Manager required. The course is graded S/U.

Specialized Study and Field Experience

EST 503 – EST 699 [\(addenda new 10/2006\)](#)
[\(addenda revised 01/2007\)](#)

Education Technology

ETE 501 Technology Strand (2 credits). [\(addenda revised 06/2007\)](#) Introduces students to the basic concepts and skills of computer technologies useful for educational settings and graduate study. An overview of user interface and file handling on both Macintosh and Windows operating systems is presented. The use of the World Wide Web for information retrieval is discussed and practiced. Communication via electronic mail and attachments is introduced. Concepts and standard procedures in the use of common word processors and spreadsheets are addressed. Once mastery is achieved among the five topics of OS (Operating Systems), the Internet, e-mail, Word, and Excel, students are expected to combine their skills to produce a comprehensive final project demonstrating the use of their skills in an educational context. Credit by examination is available. For more information, visit wang.ed.csuohio.edu/ete501.

ETE 565 Technology in the Classroom (4 credits). Prerequisite: EDB 601. Course is aimed at classroom teachers in all subject areas and at all levels. Provides an overview of and hands-on experience with major instructional uses of technology in the classroom; familiarizes students with current research in the area; and builds a moderate level of competence and confidence in designing instructional applications of technology within a given setting.

ETE 566 Technological Change and Schools (4 credits). Prerequisite: EDB 601. Focuses on technological change in society and its impact on schools. Emphasizes the effective integration of technology into teaching and learning as change occurs. Students investigate major technologies and create the essential components of a school technology plan.

ETE 567 Telecommunications in Education (4 credits). Prerequisite: EDB 601. Topics include procedures for searching and retrieving information from the Internet; publishing educational materials via the World Wide Web; and Internet-based communications methodologies, such as blogs and wikis.

ETE 568 Programming the Computer (4 credits). Prerequisite: EDB 601. Course prepares students to plan, design, and develop educational Web content. Students review and apply instructional design theories and user interface research in the Web development process. Programming languages such as HTML, Javascript, and Web authoring software are employed in the development process.

ETE 595 Seminar in Computer Uses in Education (3 credits). Prerequisites: ETE 565, ETE 566, ETE 567, and ETE 568. Course extends the content of the specialization courses into a fifteen-hour practicum experience in the integration of technology into instruction. Students develop digital video production skills, learn the basics of educational technology grant writing, and as a culminating experience create a retrospective professional educational technology portfolio.

Environmental Engineering

EVE 533 Pollution Prevention and Sustainability (4-0-4). Prerequisite: Graduate standing in chemical, civil, environmental, or mechanical engineering, or permission of instructor. Application of engineering principles to chemical, manufacturing, and other industries. Life-cycle analyses used to identify sustainable technologies and development alternatives.

EVE 534 Environmental Transport Phenomena (4-0-4). Prerequisites: Working knowledge of partial differential equations and applied numerical analysis, and graduate standing in civil, environmental, mechanical, or chemical engineering, or permission of instructor. Modeling fate and transport of pollutants in the subsurface environment. Multicomponent, multiphase transport in porous media. Analysis of fate-determining mechanisms.

EVE 540 Soil Stabilization and Decontamination (3-1-4). Engineering classification of soils, clay mineralogy, properties of different types of soils, such as strength, permeability, volume-density characteristics; soil contaminant interaction; methods of soil stabilization and decontamination; process selection; and site remediation. Soil decontamination design project.

EVE 564 Groundwater Hydrology (3-0-3). Analysis of the physical properties and the resultant groundwater flow in porous media. Application of the principles of the conservation of mass, energy, and momentum to groundwater flow systems. Includes well hydraulics, well design, aquifer analysis, infiltration, flow in the unsaturated zone, and introduction to groundwater contamination.

EVE 566 Groundwater Modeling (3-0-3). Prerequisite: CVE 564. Numerical and statistical methods employed in computer models that simulate the movement of groundwater through the hydrologic cycle. Emphasizes the utilization of computer programs to evaluate the groundwater-flow system.

EVE 570 Environmental Chemistry (4-0-4). Prerequisite: Graduate standing in chemical, civil, environmental, or mechanical engineering, or permission of instructor. Fundamental concepts from inorganic, organic, physical, and equilibrium chemistry applied to atmospheric, subsurface, and aquatic environments.

EVE 571 Aquatic Ecosystems Laboratory
[\(Addenda New 04/2007\)](#)

EVE 572 Biological Principles of Environmental Engineering (4-0-4). Application of the principles of biochemistry and microbiology, including microbial metabolic cycles, enzyme systems, inhibitors, and electron transport mechanisms important to the water- and wastewater-treatment processes.

EVE 574 Industrial Wastewater Treatment (4-0-4). Prerequisite: EVE 570. Study of sources of industrial wastewater and their treatability by physical, chemical, and biological processes; problems and solutions involved in combining municipal and industrial waste treatment and treatment of wastewater from selected industries.

EVE 575 Solid and Hazardous Waste Engineering (4-0-4). Generation, storage, collection, transfer, treatment, and disposal of solid and hazardous waste. Addresses engineering and management issues, including waste minimization and recycling.

EVE 576 Environmental and Occupational Health Engineering (4-0-4). The application of engineering principles to the analysis and control of problems in occupational and environmental health. Emphasis on problems in small water- and wastewater-treatment systems, industrial hygiene, air pollution, noise, hazardous materials control, public health, and physical and chemical hazards in the workplace, including ventilation design, noise control, radiation controls, and ergonomics.

EVE 578 Water Treatment Plant Design (4-0-4). Design of water-treatment and distribution systems; engineering principles in design, selection of alternative process schemes, and cost estimates.

EVE 579 Wastewater Treatment Plant Design (4-0-4). Design of wastewater-treatment-and-collection systems; engineering principles in design, selection of alternative process schemes, advanced treatment processes, and cost estimates.

EVE 581 Air Pollution and Abatement (4-0-4). Prerequisite: EVE 570. Types of air pollutants; their sources, characteristics, environmental effects, control, and environmental fate. Dispersion modeling. Design of air-pollution-control systems for mobile and stationary sources of pollutants.

EVE 585 Hazardous Waste Site Remediation (4-0-4). Prerequisite: Graduate standing in chemical, civil, environmental, or mechanical engineering, or permission of instructor. Traditional and developmental methods for removal or destruction of hazardous wastes at contaminated sites. Soil/groundwater remediation.

EVE 593 Special Topics in Environmental Engineering (1-4 credits). Topics of current interest to the environmental engineering profession. Offered on sufficient demand.

EVE 595 Environmental Seminar (1-0-1). Provides students with experience and instruction on presentation methods and oral communication of scientific information focused on interdisciplinary environmental issues. The course includes guest speakers from various environmental fields and focuses on career opportunities, as well as the skills and tools needed to succeed as an environmental professional. Students present their research plans during this course.

EVE 602 Environmental Engineering Internship [\(Addenda new 5/2006\)](#)

EVE 671 Physical and Chemical Principles of Environmental Engineering (4-0-4). Prerequisite: EVE 534 or EVE 570 or permission of instructor. Study of environmental engineering unit operations, based on physical, chemical, and physicochemical principles.

EVE 697 Master's Research (1-8 credits per semester). Prerequisite: Graduate standing in civil engineering. Up to eight credits may be considered toward thesis credit requirements.

EVE 699 Thesis (1-8 credits). A design project or a research problem under the guidance of a

faculty member, culminating in the writing of a thesis.

Environmental Science

EVS 506 Ecosystem Science (3-0-3). Introduction to the science of ecosystems. Substantive materials from geology, biology, and chemistry are used to create a picture of the complex systems underlying the natural world and human society, and how society can manage these systems.

EVS 510 Environmental Geology for Teachers (3-0-3). Detailed examination of geologic hazards and the constraints placed by regional geology and geography on the problems facing modern, urban, industrial societies. Intended for working teachers in area school systems. Involves development of curricular materials for use in participants' own classes. Credit does not count toward the MS in Environmental Science degree.

EVS 512 Geological History of the Cleveland Area for Teachers (3-0-3). Illustrates the relation of regional geology to the physical, economic, and social development of the Cleveland area. Emphasis on laboratory experimentation and field trips. Intended for working teachers in area school systems. Involves development of curricular materials for use in participants' own classes. Credit does not count toward the MS in Environmental Science degree.

EVS 514 Ecosystem Science for Teachers (3-0-3). Introduces the science of ecosystems. Draws on geology, biology, chemistry, and other sciences to examine the function of complex systems underpinning the natural world and human society, and considers how society manages these systems. Intended for working teachers in area school systems. Involves the development of curricular materials for use in participants' own classes. Credit does not count toward the MS in Environmental Science degree.

EVS 520 Rivers and Watersheds of Northeast Ohio (2-0-2). Prerequisite: EVS 523 or permission of instructor. Theoretical introduction to the study of watersheds.

EVS 521 Rivers and Watersheds Laboratory (0-4-2). Prerequisite: EVS 523 or permission of instructor. Introduction to the practical study of watersheds. Students examine chemical, biological, and habitat aspects of area streams; study the watersheds of those streams; and carry out limited watershed-modeling exercises designed to help them understand the dynamics of watersheds and the streams that drain them.

EVS 523 Map Interpretation and the Visualization of Space (1-4-3). Practicum on using topographic, geologic, and specialized maps, aerial photographs, and satellite imagery to interpret and communicate information on landscape details, geologic and geographic hazards, and land-use planning. Review of physical geology to enable students to read the literature in applied geology for environmental applications.

EVS 525 Introduction to Geographic Information Systems and Remote Sensing (2-4-4). Prerequisite: EVS 523 or equivalent. Introduction to remote sensing, Geographic Information Systems (GIS), and the use of computerized techniques for assessing geographically distributed data, including analysis and presentation of data, and the use of satellite imagery and aerial photography, and commercial and Internet data sets. Lectures are scheduled within lab hours.

EVS 527 Advanced Topics in Remote Sensing and Geographic Information Systems (1-6-4). Prerequisite: EVS 525. Intensive investigation of the techniques and problems associated with using remotely sensed data for GIS-based analyses in geology, biology, and environmental science.

EVS 550 Applied Ecology (3-0-3). Prerequisite: BIO 300 or, BIO 302, or BIO 304, or permission of instructor. Our lives have been increasingly touched by questions pertaining to environmental degradation at local, regional, and global scales. Students examine ways in which ecological principles can be applied to solving some of these crucial environmental problems. Topics include global climate change, sustainability, agroforestry, biodiversity and conservation, invasive species, ecotoxicology, biomonitoring and bioremediation, and restoration ecology.

EVS 560 Geomorphology (3-2-4). Prerequisite: EVS 523 or equivalent. Study of the surface forms of the earth, with emphasis on erosional or depositional processes in different climates, the landforms they produce, and their environmental implications. Includes self-paced laboratory exercises outside of scheduled lectures.

EVS 570 Aquatic Ecosystems (3-0-3). Prerequisites: BIO 200, BIO 202, and CHM 261, or equivalents. A study of aquatic ecosystems, including lakes, streams, rivers, and wetlands. Commonalities and differences between the physical-chemical and biological components of these ecosystems are discussed. The impacts of human activities on these ecosystems are covered, as well as water quality assessment techniques, pollution control, and regulation. This course includes three required Saturday field trips.

EVS 580 Earth System Science for Middle School Teachers (3-4-5). Prerequisite: GEO 100/101 or permission of the instructor. Enrollment is restricted to in-service middle school teachers without science specialty and students enrolled in the MEd Middle School Science program. Concepts of earth system science relevant to teaching middle-school-level earth science are discussed and related to timely issues. Lectures coordinate with laboratory exercises and inquiry-based activities. Credit does not count toward the MS in Environmental Science degree.

EVS 581 OhioView Prerequisite Remote Sensing (1-4 credits). Prerequisite: Consent of the instructor at the university offering the course. Placeholder course designed to enable CSU students to take Remote Sensing prerequisite courses offered at other OhioView universities over the Polycom network. Details on material, schedules, and syllabi for courses to be offered will be

provided roughly two months before the beginning of the semester.

EVS 582 OhioView Introductory Remote Sensing (1-4 credits). *Prerequisite:* Consent of the instructor at the university offering the course, including any prerequisites normally required for the course in question. Placeholder course designed to enable CSU students to take introductory courses in Remote Sensing offered at other OhioView universities over the Polycom network. Details on material, schedules, and syllabi for courses to be offered will be provided roughly two months before the beginning of the semester.

EVS 585 OhioView Advanced Remote Sensing (1-4 credits). *Prerequisites:* Consent of the instructor at the university offering the course, including any prerequisites normally required for the course in question. Placeholder course designed to enable CSU students to take advanced courses in Remote Sensing offered at other OhioView universities over the Polycom network. Details on material, schedules, and syllabi for courses to be offered will be provided roughly two months before the beginning of the semester.

EVS 588 OhioView Research in Remote Sensing (1-4 credits). *Prerequisite:* Consent of the instructor at the university offering the research opportunity. Placeholder course designed to enable CSU students to undertake research in Remote Sensing with faculty at other OhioView universities over the Polycom network. Details on research opportunities will be provided roughly two months before the beginning of the semester.

EVS 593 Special Topics in Environmental Science (3-0-3). *Prerequisite:* Permission of instructor. Study of a particular topic in environmental science. Topics to be announced in the online semester course schedule. May be repeated for credit with change of topic.

EVS 594 Special Topics in Environmental Science (4-0-4). *Prerequisite:* Permission of instructor. Study of a particular topic in environmental science. Topics to be announced in the online semester course schedule. May be repeated for credit with change of topic.

EVS 596 Independent Study in Environmental Science (0-4-2). *Prerequisite:* Permission of BGES Graduate Program Director. Special research problem or independent study course. May be repeated for credit with change of topic. Students should make arrangements with an instructor concerning topic, format, and grading criteria before registering for this course.

EVS 597 Independent Study in Environmental Science (0-8-4). *Prerequisite:* Permission of BGES Graduate Program Director. Special research problem or independent study course. May be repeated for credit with change of topic. Students should make arrangements with an instructor concerning topic, format, and grading criteria before registering for this course.

EVS 680 Issues in Environmental Science (3-0-3). In-depth study of significant, conceptual, or methodological issues in environmental science from geological and biological perspectives. Topic varies with

instructor. May be repeated for credit with change of topic.

EVS 691 MS Research in Environmental Science (1-12 credits). *Prerequisite:* Approval of the BGES Graduate Program Director. Research prior to submission of the CSU Thesis Research Proposal Approval Form for students seeking the MS in Environmental Science degree. Graded S, NS, F, T.

EVS 695 MS Thesis Research in Environmental Science (1-12 credits). *Prerequisite:* Approval of the BGES Graduate Program Director. Research following submission of the CSU Thesis Research Proposal Approval Form for students seeking the MS in Environmental Science degree. Graded S, NS, F, T.

FIN 673 See Addendum Finance

Students enrolled in the 700-level section of cross-listed 600/700-level courses are required to complete additional work.

FIN 501 Financial Management (3-0-3). *Prerequisites:* ACT 501, ECN 503, and OMS 503. Study of the basic tools and concepts of financial management. The topics include ratio analysis, risk concepts and valuation principles, capital budgeting, cost of capital, leverage, dividend policy, financial instruments, financial planning, working capital management, and short-term and long-term financing. Cannot be used for elective credit.

FIN 601 Financial Policies (3-0-3). *Prerequisites:* FIN 501 and OMS 503. Survey of financial policies and problems. Covers such topics as working capital management, cost of capital, capital budgeting, capital structure, dividend policy, valuation, mergers and acquisitions, and long-range financial planning. Includes one or more of the following: cases, readings, and term project.

FIN 603/703 Capital Budgeting Decisions (4-0-4). *Prerequisite:* FIN 601. Intensive study of the theory and practice of capital budgeting under conditions of certainty and uncertainty. Topics include evaluation of alternative capital budgeting proposals, inflation, risk and uncertainty, cost of capital and long-term financial decisions, project abandonment, leasing, mergers, acquisitions, LBOs, plant-location decisions, executive compensation, and agency problems and costs.

FIN 604/704 Management of Financial Institutions (4-0-4). *Prerequisite:* FIN 601. Focuses on the application of financial management policies and analytical techniques to commercial banks and other financial institutions. Discussion of strategic financial issues, such as the regulatory environment, optimal asset allocation, mergers and acquisitions, and cost of capital. Examination of modern management techniques, such as duration-based asset-liability models, the benefits and risks associated with off-balance sheet activity, and a variety of risk-hedging instruments and techniques commonly employed by financial institutions.

FIN 605/705 Financial Markets (4-0-4). *Prerequisite:* FIN 601. Analysis and interpretation of current money and capital market

trends. Topics include the instruments and primary institutions prevalent in both the domestic and international financial markets, the level and term structure of interest rates, globalization of the financial markets, asset securitization and the growth of mortgage-backed securities, financial innovation, and techniques to hedge interest-rate and foreign-currency risk.

FIN 606/706 Investment Analysis (4-0-4). *Prerequisite:* FIN 601. An intensive study of investment alternatives. Covers the nature and operation of stock and bond markets; comprehensive treatment of investment as it relates to valuation of stocks and bonds; investment strategies involving stock options and financial futures; an intensive analysis of risk-return tradeoffs and their application to investment analysis; a review of technical analysis and asset-pricing anomalies; and taxes and their application to investment strategies.

FIN 607/707 Portfolio Theory and Management (4-0-4). *Prerequisite:* FIN 601. The development and application of modern portfolio theory. Topics include, but are not limited to, portfolio and asset-pricing theory, empirical tests of asset-pricing models, market efficiency, portfolio construction and revision, performance evaluation, international diversification, management of equity portfolios, management of fixed-income portfolios, evaluating the impact of security analysis, and the use of options and futures in portfolio management.

FIN 608/708 Risk Management (4-0-4). *Prerequisite:* FIN 601. Survey of the basic principles, concepts, and practices underlying the management, protection, and conservation of real property, personal property, and resources of an organization. Risk-management techniques studied include assumption, transfer, insurance, loss prevention, and hedging. Also includes study of health insurance, life insurance, property and liability insurance, annuities, and social insurance.

FIN 610/710 Real Estate Finance (4-0-4). *Prerequisite:* FIN 601. Study of mortgage markets, institutions, and instruments, governmental involvement and tax environment relating to real estate finance, and techniques for evaluating real estate investment and financing proposals. Emphasis is on current events and recent trends in the real estate field. Application areas include cash management, capital budgeting, security analysis and portfolio theory, and the interaction between investment and financing decisions.

FIN 612/712 Real Estate Investment (4-0-4). *Prerequisite:* FIN 601. Analysis of factors that determine the investment returns and value of real estate versus other alternatives. Examines decision making from the perspective of institutional, as well as individual, investors, and the estimation of risk and return in an individual property and portfolio context. Review of current research in these areas, the implications of the results, and further directions for study.

FIN 615/715 Derivative Securities (4-0-4). *Prerequisite:* FIN 606/706 or FIN 607/707. The study of derivative securities, such as futures, options, options on futures, and swaps. Topics include, but are not limited to,

characteristics of derivative markets, pricing models, trading mechanisms, contract specifications, hedging and speculation, market efficiency, corporate risk management using derivatives, and financial engineering.

FIN 621/721 International Financial Management (4-0-4). Prerequisite: FIN 601. An overview of the international financial system and the application of principles of business finance in an international context. Considers foreign exchange markets, balance of payments and exchange-rate policies, financial functions in the multinational firm, including capital budgeting, cost of capital and capital structure, intra-company payments and taxation of multinational firms and export companies, motivations for direct foreign investment, international accounting, and the international banking and financial system.

FIN 690 Professional Finance Internship (1-4 credits). Prerequisite: Permission to register must be obtained from the Finance Department Chair early in the semester prior to enrollment in the course. Requires professional finance work in an organizational environment that extends the curriculum and provides meaningful experience related to the student's area of interest. Term report required.

FIN 696 Current Problems in Finance (1-4 credits). Prerequisite: FIN 601. Selected problems in the field of finance. With permission of instructor, may be repeated if topics vary. Offered at departmental discretion.

FIN 698 Independent Study (1-4 credits). Prerequisites: Two elective FIN courses, at least one of which must be at the 600 level; prior approval of a written proposal by FIN faculty advisor and permission of Department Chair. Study of a significant problem or area in finance, conducted under the supervision of the faculty advisor. Term report required.

FIN 801 Theory Seminar (3-0-3). Prerequisite: Completion of Advanced Analytical and Operational Core. An in-depth treatment of finance theory in perfect markets. Topics include fundamentals of choice under risk, portfolio theory, asset-pricing theory, and option-pricing theory. Required for finance majors in the DBA program.

FIN 802 Seminar in Corporate Finance (3-0-3). Prerequisite: Completion of Advanced Analytical and Operational Core. An extensive reading of the current literature in the field of corporate finance. Concentrates on capital structure and dividend policy, but also investigates selected topics in corporate finance such as mergers and acquisitions. Recent developments in these fields are emphasized, including agency theory, the impact of asymmetric information and signaling, and the role of contingent-claims analysis. Required for finance majors in the DBA program.

FIN 803 Seminar in Investment and Portfolio Models (3-0-3). Prerequisite: Completion of Advanced Analytical and Operational Core. Covers the major areas in investments: portfolio theory, asset pricing, speculative markets, market efficiency, and performance evaluation. Required for finance majors in the DBA program.

FIN 804 Seminar in Financial Institutions and Markets (3-0-3). Prerequisite: Completion of Advanced Analytical and Operational Core. Study of

the structure and functions of financial markets. Topics include theories on financial intermediation and the banking firm, asset allocation/liability choice models, loan contracts/credit rationing, depository and non-depository financial institutions, deposit insurance, bank regulation, and financial innovation.

FIN 805 Seminar in International Financial Management (3-0-3). Prerequisite: Completion of Advanced Analytical and Operational Core. Study of the international financial system and the application of principles of business finance in an international context. Topics include the finance function in the multinational firm, foreign exchange markets, cost of capital, and capital expenditure analysis in the multinational firm. International accounting and reporting procedures are reviewed.

FIN 806 Seminar in Real Estate (3-0-3). Prerequisite: Completion of Advanced Analytical and Operational Core. Covers the major areas in real estate: equity ownership (investment), debt financing (mortgage lending), and appraisal. Specific topics include asset pricing, market efficiency, innovation, and data availability. Emphasis on empirical analysis, extensive readings, hands-on data analysis, and applied research. Students are required to design a significant research project during the class.

FIN 807 Applied Research Methods and Design in Finance (3-0-3). Prerequisites: Completion of the Advanced Analytical and Operational Core and two master's- level courses in mathematical economics and econometrics. Covers selected topics in stochastic processes and time-series analysis; includes applications of probability theory and statistical techniques in financial research.

FIN 891 Doctoral Research in Finance (1-12 credits). Prerequisites: Completion of two 800-level finance electives. Up to 12 credits may be considered toward dissertation credit requirements.

FIN 895 Dissertation Research Seminar (3-0-3). The focus is on research in finance involving faculty, outside speakers, and dissertation-stage doctoral students.

FIN 896 Current Problems in Finance (1-4 credits). Prerequisite: FIN 801. Investigation of selected problems in the field of finance. May be repeated with change of topic.

FIN 899 Dissertation (1-12 credits). Prerequisite: Successful completion of comprehensive examinations.

First Ring Leadership

All courses restricted to students in the First Ring Leadership Academy.

FRL 600 Charting Your Course for Leadership (2 credits). Participants will generate learning plans based on skill gaps and professional interests.

FRL 603 Leading with Mission, Vision, and Strategy (2 credits). Participants will look to the future and conduct an environmental scan to generate their school visions, taking into account

the current environment of their school, as well as future forces.

FRL 606 Leading Instructional Technology (2 credits). Participants will discuss ways to implement instructional technology in their First Ring Schools.

FRL 609 Leading the Continuous Improvement Progress (2 credits). Participants will create workflow process maps to examine faulty systems in their schools.

FRL 612 Data Driven Decision-Making (2 credits). Participants will generate metrics that will measure the impact of change.

FRL 615 Leading Curriculum and Instruction (2 credits). Participants will prepare themselves to play the role of educational leader by creating and delivering an opening day convocation to their staff.

FRL 618 Leading Communication Interactions (2 credits). Participants will examine the variety of ways in which people communicate and practice giving presentations and negotiations.

FRL 621 Influencing Public Policy (2 credits). Participants will journey to Boston to experience the atmosphere of the Founding Fathers and will generate their own educational philosophies and policy agendas.

FRL 624 Leading the Learning Organization (2 credits). Participants will use case studies to examine performance problems in their organization.

FRL 627 Representing Your School in the Community and Self Development Strategies (2 credits). Participants will examine the way their school communicates with the community, and they will devise continued self development strategies for themselves.

FRL 630 Capstone Conference (2 credits). [\(Addenda Deleted 05/2007\)](#)

FRL 633 Organizational Leadership Survey [\(Addenda New 05/2007\)](#)

FRL 636 Organizational Leadership Capstone [\(Addenda New 05/2007\)](#)

French

FRN 534 Studies in Language and Linguistics (3-0-3). Prerequisite: Permission of instructor. Topics to be announced in the online course schedule; may be repeated for credit with change of topic. Linguistics Studies course.

FRN 540 Field Experience Abroad (1-8 credits). Prerequisites: Permission of instructor and departmental approval. Specially arranged field experience abroad, providing intensive exposure to students' target countries and languages; may be preceded by a special preparatory course. Examples include supervised individual or group work-study experience in the target country followed by a period of travel and supervised two- to six-week group travel for

students interested in a language or culture-oriented project. See the online course schedule and contact the department office for further information.

FRN 592 Special Topics: Study Abroad (1-6 credits). Prerequisite: Graduate Standing. Study of a particular topic in French language, literature or civilization as part of the University's Study Abroad Program. May be repeated with change of topic.

FRN 593 Special Topics in Culture and Civilization (4-0-4). Prerequisite: Permission of instructor. Topics to be announced in the on-line course schedule. May be repeated for credit with change of topic.

FRN 594 Special Topics in Literature (1-6 credits). Prerequisite: Permission of instructor. Intensive study of a particular period, theme, or author. Topics to be announced in the online course schedule. May be repeated for credit with change of topic.

FRN 596 Independent Study (1-8 credits). Prerequisites: Permission of instructor and departmental approval. Student-initiated, supervised projects involving French language or literature; examples include in-depth study of a particular writer or specialized readings in linguistics. May be used to cover the materials of a listed course not offered in a given year. Projects arranged between individual students and instructor; title of project appears on the student's transcript.

General Administration

GAD 501 Business English (4-0-4). Prerequisite: GMAT or GRE test score below the 16th percentile. Intensive work on mastering basic English skills needed for graduate study in business. Emphasis on building vocabulary and verbal fluency and on improving grammar, sentence structure, and listening and reading comprehension. Lab required. Must pass the final examination with a grade of "B" or better before registering for GAD 502. Students required to take GAD 501 must consult their program advisors to determine which other courses may be taken concurrently.

GAD 502 Intermediate Business English (3-0-3). Prerequisite: GMAT or GRE test score between the 16th and 19th percentile or GAD 501. Intensive work on mastering intermediate English communication skills for business. Emphasis on building content-specific vocabulary and more sophisticated grammatical skills, as well as on critical reading and analytical writing. Lab required. Must pass the final examination with a grade of "B" or better before registering for GAD 515.

GAD 515 Communications for Managers (3-0-3). Introduces fundamental and advanced techniques of effective written and oral communications for a business/professional environment. Topics include oral presentations and writing of common business documents, including letters, memos, and reports. Cannot be used for elective credit.

German

GER 534 Studies in Language and Linguistics (3-0-3). Topics to be announced in the online course schedule; may be repeated with change of topic. Linguistics Studies course.

GER 540 Field Experience Abroad (1-4 credits). Prerequisites: Permission of instructor and departmental approval. Specially arranged field experience abroad, providing intensive exposure to students' target countries and languages; may be preceded by a special preparatory course. Examples include supervised individual or group work-study experience in the target country followed by a period of travel, supervised two- to six-week group travel for students interested in a language, or culture-oriented project. See the online course schedule and contact the department office for further information.

GER 592 Special Topics: Study Abroad (1-6 credits). Prerequisite: Graduate Standing. Study of a particular topic in German language, literature, or civilization as part of the University's Study Abroad Program. May be repeated with change of topic.

GER 593 Studies in Culture and Civilization (4-0-4). Topics to be announced in the online course schedule. May be repeated for credit with change of topic.

GER 594 Studies in Literature (4-0-4). Topics to be announced in the online course schedule. May be repeated for credit with change of topic.

GER 596 Independent Study (1-4 credits). Prerequisites: Permission of instructor and departmental approval. Student-initiated, supervised projects involving German language or literature; examples include in-depth study of a particular writer or specialized readings in linguistics. May be used to cover the materials of a listed course not offered in a given year. Projects arranged between individual students and instructor; title of project appears on the student's transcript.

Health Care Administration

HCA 500 Tools for Health Care Managers (3-0-3). (Addenda revised 4/2006) Quantitative methods needed for the evaluation, planning, and implementation of health services. Statistical procedures, such as regression analysis and severity indices, are covered. Topics include service delivery problems in the health services industry, such as inventory stocking, operations scheduling, quality assurance, and cost performance. Case studies from the health services industry are used to illustrate the methods presented in class. Computer applications also are emphasized.

HCA 510 Administrative Uses of Epidemiology (3-0-3). The study of the distribution and determinants of health, disease, and disability in human populations. Specific topics include principles and methods of epidemiology; the concepts of health and illness and their operational measures; epidemiological

techniques used to identify health problems in a community; examination of lifestyle, the medical care system, and the social and physical environment as determinants of health; the multiple responsibilities of public health departments; the application of epidemiological principles to the study of health services use, program evaluation, and quality of care; and population-based approaches to determining health resource requirements.

HCA 515 Medical Care Organization (3-0-3). The analysis of the current arrangements for the organization, financing, and delivery of medical care services. Specific topics include access to care; health care costs and cost containment; the value system of the health care industry; health policy and politics; the supply, demand, and distribution of health care facilities and human resources; competition and regulation; health insurance (both public and private); newer options for the delivery of health services, including the HMO and PPO; and health care services from an international perspective.

HCA 516 Social Environment of Health Care (3-0-3). (Addenda revised 4/2006) Prerequisite: HCA 515. Topics include an examination of leading social/ psychological models of health services utilization; introduction to health survey-research design and methods; sociological aspects of the patient/physician relationship; social control in health care; and health care ethics and ethical decision-making systems as applied to administrative issues.

HCA 520 Behavior of Health Care Organizations (3-0-3). Prerequisite: HCA

515. Introduction to organizational behavior in health care institutions and programs including hospitals, long-term-care facilities, HMOs, and voluntary health agencies. Emphasis on the governance structure, medical staff relationships, and the general and departmental operation of the facility; the analysis of significant material from the field of organizational behavior and its application to the health care environment; and the general management and health care-specific roles of the health care administrator.

HCA 525 Information Systems in Health Care (2-0-2). Prerequisite: HCA 515 or equivalent. Examines ways in which an integrated information system can provide data to support the operations, management, and decision-making functions in a health care organization. Consideration of the applications of the computer in the hospital and other health care institutions. Collection, storage, processing, and presentation of information for internal and external use. Projects include use of major micro-computer spreadsheet, graphics, and database packages.

HCA 555 Analysis of Health Care Markets (3-0-3). Prerequisites: HCA 500 and HCA 515, or permission of instructor. Emphasizes the application of microeconomic models to health service issues and problems. Special emphasis is placed on current policy issues, such as consumer education and the cost of information, and to approaches that address problems or inadequacies in the health services delivery system. Additional emphasis is placed on market structure, industry configuration, and the consequences for

quality, cost, and service delivery. Prior course work in microeconomic (price) theory is not required.

HCA 601 Health Care Financial Management (3-0-3). Prerequisites: FIN 501 and permission of instructor. Covers working capital management, cost of capital, capital budgeting, mergers and acquisitions, reimbursement methodologies, risk management, managed care contracting, and long-range financial planning for the health services industry.

HCA 615 Quality of Care (3-0-3). Prerequisites: HCA 500 and HCA 515, or permission of instructor. Teaches specific methods useful in improving quality. Class participants learn to select, apply, and interpret quality tools and methods. Basic tools covered are assessment of organization culture, cause-and-effect diagrams, two-stage sampling, control charts for mortality, control charts for patient health status, and severity-adjusted control charts. The basic behavioral techniques discussed are nominal group technique, integrative group techniques, subjective data, and influences on a physician's practice patterns.

HCA 625 Health Care Informatics for Managers (3-0-3). Prerequisites: Completion of the HCA core and permission of instructor. Health care informatics can be defined as the management and transformation of various health data components into information and knowledge that is used by health care managers to improve the process of health care. Develops an understanding of the concepts relevant to health care informatics and the present status of information technology in health care organizations. The main focus is the use of computer-based applications to support clinical and administrative managers in health care today.

HCA 640 Health Care Law (3-0-3). [\(Addenda revised 4/2006\)](#) Prerequisite: HCA 515. Introduction to health care law. Considers the roles and rights of the major forces in the health care industry: patients, hospital administration, governing boards, health care practitioners, and state and federal governments. Topics include issues of government regulation, corporate organization and financing, medical staff privileges, death and dying, consent to treatment, legal aspects of nursing services, hospital liability, informed consent, collection and disclosure of patient information, legal considerations in financial management and health planning, labor law, and other special, complex issues of health care law.

HCA 645 Decision Analysis (3-0-3). Prerequisites: HCA 500 and HCA 515. Introduces students to methods of analyzing decisions and expert opinions, including probability and utility models. Emphasizes behavioral methods of consulting decision makers and groups of experts. Students learn how to organize, conduct, and report on meetings of groups of experts to produce consensus decision models. A hands-on workshop that introduces tools and applies them to realistic tasks. Because students learn by doing, most classroom time is devoted to practice runs instead of didactic lectures. Most examples used in lectures come from analyses of decisions made by managers in the service industry.

HCA 650 Long-Term Care (3-0-3). Prerequisite: HCA 515. The unique needs of long-term-care facilities provide a new challenge for health administrators. Covers the history of long-term-care facilities, economic and financial aspects of care,

different models of service delivery, and alternative care systems. The current federal programs in the U.S. and other Western countries are studied.

HCA 660 Integrative Business Strategy for Health Care Administrators (4-0-4). [\(Addenda revised 4/2006\)](#) Prerequisites: Completion of all MPA/HCA courses (may be taken concurrently with HCA 601) and permission of the instructor. Presents the integrative and cross-functional nature of strategy and decision-making in the health services industry. Principles, concepts, and theories from strategic planning, marketing, finance, human resources management, accounting, and operations management are applied to administrative decisions and the formulation of strategic business plans for the health services industry.

HCA 661 Managed Care Arrangements (3-0-3). Prerequisites: HCA 500 or equivalent, and HCA 515, or permission of instructor. Provides class participants with the ability to operationalize workable strategies consistent with a managed care environment. Emphasis is placed on developing an understanding of managed care as a concept and then acquiring the requisite tools, such as capitation and contract negotiation needed for implementation, maintenance, and evaluation of services in a managed care environment in both the public and the private sectors.

HCA 680 Current Issues in Health Care Seminar (3-0-3). Exploration of current or future problems, issues, and developments in the health care field; conducted in a seminar/class setting.

HCA 685 Health Care Internship (3 credits). Supervised internship designed to provide work experience in the health care field and administrator-in-training experience for graduate students preparing for careers in nursing home administration; 220 to 520 clock hours of experience may be arranged with the permission of the executive-in-residence and designated internship preceptor. This course is only for MPA students and those MBA students who wish to pursue a career in nursing home administration.

HCA 686 Health Care Internship (1 credit). Continuation of HCA 685. May be taken a maximum of two semesters.

HCA 690 Administrative Internship (5 credits). [\(Addenda revised 4/2006\)](#) Prerequisite: Permission of the HCAP Director and Executive-in-Residence. Administrative internship for MBA/HCA. students only. Normally taken as the last course in the curriculum after completion of all basic, core, and concentration course work. Includes credit for professional site visits, the shadowing experience, and the professional development seminar.

HCA 691 Administrative Internship/ Research Project (1 credit). Continuation of HCA 690. May be taken a maximum of two semesters.

HCA 695 Research Seminar (3 credits). Prerequisite: Permission to register must be obtained from the HCAP Director early in the semester prior to enrollment in the course. Study of a significant problem in health care

administration, with topic selected from candidate's area of interest; a written report, suitable for publication in a professional journal, is required.

HCA 696 Research Seminar (1 credit). Continuation of HCA 695. May be taken a maximum of two semesters.

HCA 698 Independent Study in Health Care Administration (1-4 credits). Prerequisite: Permission of instructor. Supervised study of a health services industry issue or problem. Offered every semester. May only be taken for a letter grade.

HCA 699 Independent Study in Health Care Administration (1-4 credits). Prerequisite: Permission of instructor. Supervised study of a health services industry issue or problem. Offered every semester. May only be taken on an S/U basis.

Health Education

HED 550 Theories in Health Education and Health Behavior (4 credits). Provides a broad theoretical base for the analysis of healthy/unhealthy behaviors. Research and theoretical literature are reviewed in areas such as sociocultural and environmental factors associated with health behaviors, communication, and behavior-change strategies in health education.

HED 551 Organization and Administration of Community Health Education Programs (4 credits). Provides basic knowledge of the principles, foundations, problems, and trends in the organization and administration of community health education. Explores trends and issues relevant to health education, such as roles, ethics, applications, settings, professional standards, credentialing, and accreditation of programs.

HED 552 Health Education Program Planning (3 credits). Stages in the design, implementation, and management of health education/health promotion programs for various populations and settings. Examines the components of a comprehensive health education program and special problems and issues related to health program development.

HED 553 Measurement and Evaluation of Health Education Programs (3 credits). Examines the rationale and procedures used to evaluate health education programs. Topics include planning evaluations, the politics and ethics of evaluation, measurement, sampling, logistics, data analysis, and the development of an ongoing evaluation project.

HED 559 Principles of Health Education [\(Addenda new 04/2007\)](#)

HED 560 Foundations of a Coordinated School Health Program (4 credits). Reviews the coordinated school health program (CSHP) model and identifies research that supports the eight components of the model. Presents knowledge and promotes skill development related to the administration of a coordinated approach to school

health promotion. Planning, implementation, evaluation, and administration aspects are addressed relative to all components of the model.

HED 561 Methods and Materials for Health Education (3 credits). Prerequisite: HED 551 or HED 560, or equivalent. Introduces students to productive, creative, and innovative methods needed to implement comprehensive school health education at the grade levels. Students become familiar with organizing and presenting health content, health materials, health curricula, community resources, and technology.

HED 565 Analyzing Health Data for Grant Writing (3 credits). Emphasis on terms and sources frequently used to design, analyze, and interpret existing health data with a focus on epidemiological investigative procedures and the development of grant proposals.

HED 570 Pathophysiology of Disease (4 credits). Provides essential concepts of pathogenesis and disease processes. Deals with etiology, progression, diagnosis, and treatment. Focuses on the body's immune defense mechanisms for both chronic and communicable diseases; applies basic principles to a variety of examples. Some anatomy and physiology course work recommended.

HED 571 Substance Abuse Education (3 credits). Provides basic knowledge of the physiological, psychological, and sociological effects of substance use, misuse, and abuse. Examines factors that influence substance use, misuse, and abuse, as well as their attitudes and behaviors. Drug prevention and intervention programs are examined and evaluated.

HED 572 Consumer Health (3 credits). Examines health products and services, advertising, marketing, quackery and government control, and guidelines for consumer action when deception, misrepresentation, or fraud is encountered. Students become more informed consumers of health products and services. Implications for health education are considered.

HED 573 Teaching Human Sexuality (3 credits). Provides concepts and information about comprehensive sexuality education. Specific activities include developing a comprehensive vocabulary in human sexuality education, establishing effective communication skills, and reviewing various educational techniques and materials relevant to teaching human sexuality.

HED 574 Stress Management (3 credits). Examines the role and function of stress in everyday life from physiological, psychological, and sociological perspectives. Personal, situational, and environmental sources of stress are explored along the continuum from distress to eustress. Stress management techniques are examined.

HED 575 Nutrition and Physical Activity (3 credits). Study of the relationship between nutrition, physical activity, and health. Topics include macronutrients, micronutrients, water, the role of proper nutrition for optimal physical performance, the role of nutrition and physical activity for weight control, and prevention and treatment of disease.

HED 576 Teaching Nutrition (3 credits). Explores various instructional materials and strategies available for teaching concepts of nutrition in school and community settings; provides experience in designing and implementing appropriate instructional strategies. Previous

knowledge of basic nutritional concepts is recommended.

HED 577 Social Issues and Needs in Nutrition (3 credits). Study of the relationship between nutrition and the sociocultural environment. Topics include nutrition and mass media; cancer and diet; nutrients as chemopreventive agents; drug/nutrient interactions; safety and adequacy of U.S. food supply; and world hunger.

HED 579 Pathophysiology of Diabetes (3-0-3). Provides a broad overview of diabetes, with an emphasis on the classification, diagnostic criteria, and current concepts on the pathophysiology of the disease. The diagnosis, signs and symptoms, monitoring, co-morbid conditions and complications of diabetes (cardiovascular disease, retinopathy, nephropathy, neuropathy and peripheral vascular disease) are discussed. General nutrition information, exercise recommendations, management of hypoglycemia and oral diabetic agents are also examined.

HED 580 Practicum in Health (2 credits). Prerequisite: Permission of department chair. A structured, supervised field experience designed to provide an extended, practical experience in a selected health setting; designed and executed by the student in consultation with a member of the faculty.

HED 581 Practicum in Health (3 credits). Prerequisite: Permission of department chair. A structured, supervised field experience designed to provide an extended, practical experience in a selected health setting; designed and executed by the student in consultation with a member of the faculty.

HED 582 Practicum in Health (4 credits). Prerequisite: Permission of department chair. A structured, supervised field experience designed to provide an extended, practical experience in a selected health setting; designed and executed by the student in consultation with a member of the faculty.

HED 583 Student Teaching – Health Education Multi-Age (10 credits). Prerequisites: Prior application to the Office of Field Services is required; course prerequisites are listed on the application. University-supervised student-teaching experience in two separate educational settings to provide both Pre K-8 and 9-12 classroom experience. Involves observation and teaching health education under a mentor teacher's direction, five full days per week for one semester. Required for multi-age teaching licensure in health education.

HED 587, HED 587 (Addenda new 04/2007)

HED 593 School Conflict Management (1-0-1). Special topics course.

HED 596 School Nurse Law (2-0-2). Special topics course.

HED 696 Individual Projects in Health Education (1 credit). Prerequisite: Permission of department chair. Independent project in a selected area of health education. Project must be approved by and arrangements made with permission of project supervisor and department

chair. May be repeated for a maximum of 4 credits.

HED 697 Individual Projects in Health Education (2 credits). Prerequisites: Permission of department chair. Independent project in a selected area of health education. Project must be approved by and arrangements made with permission of project supervisor and department chair. May be repeated for a maximum of four credits.

History

HIS 500 Local History Seminar (4-0-4). Explores the social, economic, political, and cultural history of Cleveland and northeastern Ohio from 1800 to the present. It uses primary materials to generate student research projects on a variety of selected topics. Specific topics vary from term to term.

HIS 501 American Cultural History, 1865 to the Present (4-0-4). Study of the social and cultural history of the United States, emphasizing the ways in which beliefs, values, and world views of the American people are related to prevailing social conditions.

HIS 502 History of American Political Parties (4-0-4). (Addenda Revised 05/2007) Survey of the development of the American party system from 1800 to the present. Examines distinctions between party and faction, Federalist party, Jacksonian Democrats, Whigs and Republicans, third parties, party organization at local and national levels, voting behavior, and election strategies.

HIS 503 Recent U.S. Social History (4-0-4). Traces social change in the United States from the Civil War to the present, with special emphasis on changing social class formation, family, neighborhood, community, race, ethnicity, gender, and work. Traces major structural changes in society, politics, and economy in relation to social transformations and the impact of technological change, urbanization, and bureaucracy, as well as the field's historiography.

HIS 504 U.S. Urban History (4-0-4). Analysis of American urban development. Focuses on spatial development of American cities and changing internal structure and institutions of cities from the colonial period through the mercantile, industrial, and postindustrial city. Traces the city's impact on migrants and others and their responses. Also considers urban historiography.

HIS 505 Social Thought of African Americans (4-0-4). Historical inquiry into the major social, cultural, and intellectual developments among African Americans, including such movements as antebellum abolitionism, African immigration, cultural and political accommodation, and Pan-Africanism and Negritude, as expressed in the writings of major authors.

HIS 506 History of Ohio (4-0-4). The early development of Ohio as a territory and a state. Topics include transportation problems and economic development, economic and social consequences of industrialization and urbanization, and ethnic composition.

HIS 507 History of Cleveland (4-0-4).

Origins and early development of Cleveland and the Western Reserve, and the emergence of Cleveland as a major industrial city. Emphasis on social, economic, technological, cultural, and political development, with special attention given to the role of ethnic and minority groups.

HIS 508 20th-Century American Labor History (4-0-4).

General survey of American labor history with particular emphasis on the impact that industrialization had on work itself. Topics include the varying strategies adopted by management to control labor, the history of labor unions, and the special role played by African Americans, women, and immigrants within the workforce.

HIS 509 American Immigrant History (4-0-4).

A survey of immigration to America from the 1830s to the present. Focuses on the religious, work, political, and cultural life of various immigrant groups, as well as the process of adaptation and Americanization. The rise of anti-immigrant movements and efforts to restrict immigration are also emphasized.

HIS 510 Indians in American History (4-0-4).

A study of Native American-White contact since the colonial period, emphasizing differences in cultural outlook, dispossession from Indian lands, changing political status of Native Americans, and the nature of missionary and governmental assimilation efforts. Attention is given to the dynamics of cultural conflict and Indian response to assimilation policies.

HIS 511 Introduction to Public History (4-0-4).

An introduction to the applied uses of history in such areas as museums, archives, labor, historical societies, community, corporate, and oral history. Considers ethical and professional issues, grant writing, evaluation of popular and professional history presentations, and careers in public history. Involves an on-site practicum in public history.

HIS 512 17th-Century America (4-0-4).

Examination of the conquest, colonization, and settlement of the North American continent, and an investigation of the people who lived in the region from early contacts between European colonists and Native Americans through control of the region from European rivals.

HIS 513 18th-Century America (4-0-4).

Study of American Enlightenment, causes of the American Revolution, aspects of the War for Independence, the Confederation, the Constitution of 1787, the Revolutionary Settlement, and the rise of Jacksonian Democracy.

HIS 514 Introduction to American Studies (4-0-4).

Scope, theory, and methods of American Studies. American culture seen as a comparative phenomenon. Analysis of the interactions of social, artistic, and political behaviors in the United States. Historical period and thematic focus may vary.

HIS 515 19th-Century America: Industrial Capitalism and its Dissenters (4-0-4) [\(addenda Revised 2/2007\)](#)

Examines the economic, social, and political transformation of the United States in the nineteenth century. Topics typically include the rise of industrial capitalism and social and political responses such as abolitionism, sectionalism, the

women's rights movement, labor activism, and Populism.

HIS 516 History of the American West (4-0-4).

Examines the significance of the Trans-Mississippi West in United States history from various interpretive perspectives. Topics include: 19th-century exploration and settlement; impact of environment on evolution of western economies; race and ethnic relations; gender roles; the cowboy legacy; frontier violence; the West as myth and symbol; federal land and wilderness policies; the urban West; tourism; and National Parks.

HIS 517 Civil War and Reconstruction, 1848 to 1877 (4-0-4).

Examines the causes, course, and consequences of the American Civil War and Reconstruction. Particular emphasis is given to slavery and sectional differences leading to the conflict; military and political events; the impact of the Civil War and Reconstruction on American society; the emancipation experiences of African Americans; and the struggle to redefine freedom, nationalism, and citizenship during Reconstruction.

HIS 518 History of the Family in America (4-0-4). [\(Addenda Delete 05/2007\)](#)

HIS 519 U.S. Tourism, Memory, and Identity (4-0-4). [\(Addenda revised 02/2007\)](#) Considers the role of tourism in American society and culture from the early 19th to the early 21st century. It emphasizes how historical memory shapes tourist attractions, and how tourism shapes local, regional, national, racial, and ethnic identity.

HIS 520 U.S. Foreign Policy since 1900 (4-0-4).

U.S. foreign policy from the Spanish-American-Cuban-Filipino War through the Vietnam War. Emphasis on U.S. relations with European and East Asian nations, though all parts of the world are covered. Considerable attention also is paid to the "realist" and "idealist" interpretations of U.S. foreign policy. All students are given an opportunity to conduct an independent research project.

HIS 521 United States, 1901 to 1939 (4-0-4).

Study of the rise and fall of the progressive spirit in the United States; the impact of World War I on the world and on the American people; economic, social, political, and literary survey of the jazz era; and the economic consolidation and social fragmentation of the 1920s and the Great Depression.

HIS 523 Recent American History (4-0-4).

Study of the interactions among the major social, political, economic, and cultural events in the United States since 1939. Major topics include World War II, the origins and impact of the Cold War, Vietnam, the civil rights movement, and other movements for social change in the 1960s.

HIS 524 Black Is/Black Ain't: Defining Black America (4-0-4).

Explores the ways in which Americans of African descent have been defined historically by themselves and by Whites. The social and political consequences of adopting these definitions are also examined. Topics include representations in law and popular/elite culture, racial thought and the rise/fall of slavery/Jim Crow, and self-definitions grounded in, among others, political and class differences.

HIS 525 Black America Since 1945 (4-0-4).

Covers the civil rights movement, sit-ins, the development of Black nationalism, the urban condition, and changes in Black political, social, and economic life during the last 45 years.

HIS 526 African-American History through Sacred Music (4-0-4).

Traces the history of African-American sacred music from its African roots, through the 19th-century spiritual to the 20th-century hymns, gospels, and contemporary Christian compositions. This musical heritage is analyzed within the larger context of African-American social and cultural history, with an emphasis on understanding African-American church culture as a buffer against racial and other forms of discrimination.

HIS 527 American Sexual Politics and Communities (4-0-4).

Explores attempts by various groups to (re)define, regulate, and/or form communities around sexuality. The course's central theme differs each year. Topics include gay/lesbian/bisexual histories and sexuality in the United States. See [Addendum](#)

HIS 528 History of Business (4-0-4).

Surveys the evolution of American business and the growth of capitalism in the United States, focusing on several themes, including the evolution of the firm, business-government relations, management-labor relations, business and society interactions, and general developments in economic thought.

HIS 529 Black Resistance in the Age of Jim Crow (4-0-4).

African Americans challenged White supremacy long before the emergence of the modern movement for civil rights. This course studies the politics of Black resistance during the era of legal segregation—from Plessy v. Ferguson (1896) to Brown v. Board of Education (1954). Topics include anti-lynching, the impact of rural-to-urban and southern-to-northern migration, unionization, Garveyism, communism, the roots of Black power, and the ways in which African Americans confronted the rise of a racist commercial culture.

HIS 530 History of Greece (4-0-4).

A study of the development of civilization in ancient Greece, from prehistoric beginnings until the death of Alexander the Great. Special emphasis is given to the rise of democracy and its expression in Athens during the Age of Pericles. The nature, extent, and interpretation of ancient evidence for historical research receives careful attention.

HIS 531 Rise of Rome (4-0-4).

A study of the development of civilization in ancient Italy, from prehistoric beginnings until the establishment of the Roman Empire by Augustus. Special emphasis is given to the foundation legends of the city, the civil disorder of the final century of the Republic, and the period of transition from Republic to Empire. The nature, extent, and interpretation of ancient evidence for historical research receives careful attention.

HIS 536 Tudor and Stuart England (4-0-4).

The legacy of late-medieval feudal and social disorder, the emergence of a sovereign state, the Reformation, the religious and constitutional settlements, the Wars of the Three Kingdoms, the Restoration, and the Glorious Revolution are studied in the context of social and economic change.

HIS 537 Britain, 1688 to 1832 (4-0-4). The Glorious Revolution, the military-fiscal state, the conquest of empire, the Industrial Revolution, and the age of democratic revolutions are studied in the context of political, social, and economic change.

HIS 539 Great Britain: Empire to Welfare State (4-0-4). History of the British people since 1867, including problems created by total war, dissolution of the empire, the coming of political democracy, the establishment of the Welfare State, industrial decline, and the search for international order.

HIS 540 The Roman Empire (4-0-4). The rise and decline of the Roman Empire from the age of Augustus to the end of the fifth century, including the development of Roman government, culture, and society. Examines the growth of Christianity and the interaction of the later Empire with the “barbarian” nations, and their effects on the transformation of the western Empire into the late antique world and the early Middle Ages.

HIS 541 Early Middle Ages (4-0-4). Political, social, economic, and intellectual life of Europe from the Fall of Rome to A.D. 1000. Emphasis on Germanic invasion, the rise of Christianity, feudalism, and manorialism.

HIS 542 Late Middle Ages (4-0-4). European society and culture from A.D. 1000 to 1450. Particular attention is given to patterns of thought, the founding of universities, and the rise of cities and feudal monarchies.

HIS 543 Social History of the Black Death (4-0-4). Examination of the changes created by the introduction and spread of the bubonic plague in large populations. Begins with an examination of how diseases are socially, culturally, and historically constructed, then charts the impact of the plague in the first three centuries of its spread and analyzes the social history of the period and how responses to the disease intersected with other European-wide developments.

HIS 544 The Renaissance (4-0-4). Examination of the period in its historical settings. Emphasis on Petrarch, Machiavelli, Galileo, and Erasmus through a study of their works. Special concentration on Italy.

HIS 545 Church, State, and Society in Reformation Europe (4-0-4). Examines lay piety and institutions of the Catholic Church during the late Middle Ages, and the rise of Protestant doctrines and faiths in 16th- and 17th-century Europe. Analyzes impacts among various social groups, cultural manifestations of religious upheaval, religious and political ambitions, and current movements of Christian humanism and Catholic and Counter-Reformations. Covers the period from the late 15th century through 1648.

HIS 546 17th- and 18th-Century Europe (4-0-4). Examination of absolutism and the European state system, the social and

economic system of preindustrial Europe, and the rise and decline of the principal powers, including Spain, the Low Countries, France, and Prussia.

HIS 549 France and the French Revolution (4-0-4). Introduction to the history of France in the 18th century and the Revolution of 1789. Examines social classes, the economy, intellectual changes, and various interpretations of the French Revolution and the debates surrounding them. Also surveys the Revolutionary and Napoleonic eras and their impact on Europe.

HIS 550 Golden Age Spain (4-0-4). Examines the history of Spain, from the late-medieval period through the 17th century, from social, cultural, political, economic, and religious perspectives. Addresses key developments in the Iberian Peninsula, including encounters with the Americas, the rise of absolutism, and the Catholic and Counter-Reformations. Evaluates implications of historical interpretations of both Spain’s “Golden Age” and its reputed “decline.”

HIS 551 Social and Economic History of 19th-Century Europe (4-0-4). A study of economic change and social upheaval precipitated by the French Revolution and the industrialization and urbanization of Europe. Emphasis on social class structure, urban life and problems, workers’ and middle-class responses to industrialization, and imperialism.

HIS 552 Political History of 19th-Century Europe (4-0-4). Survey of the political and diplomatic problems of post-Napoleonic Europe; the Revolutions of 1848; Napoleon III and the Second Empire; problems of national unification in Germany, Italy, and Austria-Hungary; the Third French Republic; Russia’s attempt to modernize; the Turkish Empire and Balkan nationalism; and the coming of World War I.

HIS 553 20th-Century Europe, 1914 to the Present (4-0-4). Lecture and group discussion approach to some of the major cultural, social, political, and economic developments in Europe since 1914; social and cultural impact of two world wars; and totalitarianism and the decline of empire. Emphasis is placed on the Cold War and events since 1945.

HIS 554 European Women’s History, 1300 to 1700 (4-0-4). Analysis of a variety of life experiences of European women from 1300 to 1700. Considers methodological issues that shaped recent practice of women’s history, and examines the variety of women’s roles in late medieval and early modern society, including religion, economy, culture, and politics.

HIS 555 War and Society, 1500 to 1815 (4-0-4). The impact of the military revolution and standing armies on the changing nature of land and naval warfare, studied in the context of the emergence of sovereign dynastic and national states, European expansion overseas, the breakdown of traditional societies, and the emergence of mass societies in the age of democratic revolutions.

HIS 556 History of European Fascism (4-0-4). Examines social, cultural, economic, and racial aspects of radical Right Wing politics which made the fascist movements such pervasive phenomena in Europe between

the two world wars. The bulk of the course is devoted to the Nazi and Fascist movements in Germany and Italy and to the development of racial ideology culminating in the Holocaust.

HIS 557 WWI: The Western Front (4-0-4). Focuses on the social history of the Western Front during World War I (especially Belgium, France, and Britain). It aims to go beyond statistics and battle reports and allow students to become immersed in the war experience of the combatants and non-combatants by reading history, novels, poetry, viewing films and images, listening to music, and through class discussion.

HIS 558 Science and Society (4-0-4). Review of the evolution of scientific thought and method. Examines relationships between these developments and other aspects of the developing Western world view, particularly religious and philosophical components, to help students achieve science literacy.

HIS 559 Technology and Society (4-0-4). Review of the role of technology in the cultural evolution of humans and in contemporary society. Develop insight into the role tools played in the evolution of hominids. Students gain an appreciation of the distinction between science and technology.

HIS 560 History of Russia to 1900 (4-0-4). Survey of political, social, economic, and cultural developments in Russia from the ninth century through the 19th century. Topics include the growth of the Russian autocratic state, evolution of the institution of serfdom, the position of the nobility, the emancipation of the serfs, formation of the intelligentsia, and the beginnings of the revolutionary movement.

HIS 561 History of Modern Russia (4-0-4). History of modern Russia and the Soviet Union, including the development of capitalism and industrialization, the revolutions of 1905 and 1917, the formation and evolution of the Soviet Union, Stalinism, the collapse of the Soviet Union, and recent developments.

HIS 562 Modern Eastern Europe (4-0-4). Social, political, and economic history of the peoples of Eastern Europe, excluding the former Soviet Union, from the late 18th century to the present. Topics include nationalism, modernization, cultural diversity, significance in world history, Communism, and Eastern Europe after 1989.

HIS 563 Russian Literature and Society (4-0-4) Provides the opportunity to read some major works of Russian literature, with exploration of their social context. Focuses on the interaction between Russian history, society, and culture. Major themes include Russian society as depicted in literature (from the 1860s to the 1950s); the function of literature in Russian society; the authors, their roles, and experiences; and Russia and Russian literature before and after the revolution of 1917.

HIS 565 Comparative Slavery (4-0-4). Examines the slave system, which developed in the U.S. within the context of the Americas with particular attention to Brazil. Uses a comparative approach to enrich understanding of self and society. Topics

include slave trade; the nature of the slave community and family life; the relationship of slavery to race, religion, and human and physical geography; and escape and other forms of rebellion.

HIS 566 Colonial Latin America (4-0-4).

Examination of Latin American societies from pre-Columbian civilization to the wars for independence in the 19th century. Topics include the development of plural societies, economic organization, and culture.

HIS 567 Latin America Since 1825 (4-0-4).

Development of Latin American republics with emphasis on the 20th century. Topics include political and cultural nationalism, polarized societies, dependent economic systems, mechanisms of change, and relations with the United States.

HIS 569 Comparative Emancipation (4-0-4).

Examines the process of emancipation in the Western Hemisphere and the experiences of former slaves during the transition to free labor. Focus is on the struggle of ex-slaves and ex-slaveholders to define freedom and on the changing ideas about race, racism, and class. The United States emphasis within the broader hemispheric context compares such topics as self-emancipation, labor policies, and politics in the years after slavery.

HIS 570 World History (4-0-4). A general introduction to the study of global history focusing on the evolution of factors, such as immigration, disease, nationalism, religion, and economic and political systems, which have served to connect societies. The geographic and/or thematic focus varies from term to term. Primarily aimed at students interested in social studies teaching.

HIS 571 History of Japan (4-0-4). A survey of political, economic, social, cultural, religious, and intellectual life in Japan from the third century to the present day. Emphasis on the origin and development of traditional Japanese civilization before the impact of the modern West and the subsequent Japanese quest for international acceptance.

HIS 572 Early Modern Japan (4-0-4). A consideration of historical change during the Tokugawa Period (1600-1868) in Japanese history, an era considered both "late traditional" and "early modern." Examines the processes of urbanization and the growth of a monetary economy, changes in social organization, major cultural innovations, intellectual movements, and the emergence of a sense of national identity.

HIS 573 Contemporary Japan in Historical Perspective (4-0-4). Assesses aspects of contemporary Japanese civilization and culture from the perspective of historical influences on the philosophies, institutions, and values of modern society and culture.

HIS 574 Revolutionary Movements in Modern China (4-0-4). Chronologically arranged consideration of topics in the political, economic, social, cultural, religious, and intellectual life of China since the late 19th century; designed to provide an understanding of contemporary China in historical perspective.

HIS 575 Pre-Colonial Africa to 1880 (4-0-4).

Survey of sub-Saharan African civilizations and the origins of the African Diaspora. Geographic coverage includes the Nile Valley, eastern Africa

and the Horn of Africa, southern and West Africa, and the central African rain forest. Includes historical analysis of Nubia, Ethiopia, the Swahili, Zimbabwe, Ghana, Mali, Songhay, Ashanti, Benin, and the Kongo. The Atlantic slave trade is positioned within historical traditions of African and global history.

HIS 576 Modern Africa since 1880 (4-0-4).

Survey of sub-Saharan African civilizations from the demise of the Atlantic slave trade through the periods of European conquest and colonial rule, the nationalist struggle for independence, and post-colonial African states. Includes African perspectives on colonialism and neocolonialism, including social, economic, political, and cultural initiatives toward independence, modernity, and an emerging role in global affairs.

HIS 577 History of Islamic Civilizations (4-0-4).

A survey of the main themes of the development of religious, cultural, social, and political patterns in central Islamic areas from the 600s to the present. Particular emphasis on the development and spread of Islam, interactions with the West, and problems of modernization.

HIS 579 Collective Survival in the African Diaspora (addenda new 2/2007)

HIS 582 Origins and Consequences of Total War (4-0-4). Examination of the diplomatic history of the period from 1870 to 1945, within the larger framework of European international relations surrounding the First and Second World Wars. Special consideration is devoted to the role of domestic pressures in the formulation of foreign policy and the historical debates about the origins of both world wars.

HIS 586 History of the Middle East to 1798 (addenda new 6/2006)

HIS 587 Modern Middle East (4-0-4). Examines the most important factors that influenced the development of the modern Middle East between the 18th through the 21st centuries. Subjects include colonial empires in the Middle East, the impact of Westernization and modernity, the establishment of nation states, the Israeli-Palestinian conflict, the Iranian revolution, Cold War politics, influence of oil, political Islam and terrorism, America's involvement, and the Middle East post 9/11. Although this is an upper-division class, no previous background knowledge of Middle East History is necessary.

HIS 590 Introduction to Social Studies (4-0-4).

Introduces students to content issues in teaching social studies by exploring the theme of "migrations," culminating in discussion of the "Great Migration" of African Americans to Cleveland. The course does not examine issues of pedagogy, but of content.

HIS 593 Special Topics in History (4-0-4).

Analysis of crucial problems in history. Topic varies with instructor. May be taken for credit more than once, but no single topic may be repeated. Topics appear in the online Course Schedule.

HIS 594 Special Topics in History (1-4 credits).

Prerequisites: Permission of instructor and program director. Tutorial or seminar work in special areas and subjects Cleveland State University not part of the department's regular course offerings; arranged with an instructor on an individual or group basis for 1 to 4 credit hours.

May be repeated for credit in a different subject area.

HIS 595 Everyday Life in Early America, 1607 to 1865 (4-0-4). An exploration of how Americans lived and thought, from the earliest settlements through the Civil War. Emphasis varies from year to year, but considers such topics as religion, reform movements, transportation, education, architecture, western expansion, foods, fads, and fashions.

HIS 599 Administrative Internship (addenda new 2/2007)

HIS 601 Introduction to Graduate Study in History (4-0-4). Advanced study of history as a discipline and profession. Topics include philosophies of history, problems of historical study, and the techniques of historical research and writing. It is recommended that this course be completed prior to enrollment in a research seminar. Core course. Offered every fall semester.

HIS 611 Seminar in American Colonial History (4-0-4). Problems and interpretations in 17th- and 18th-century American history. Readings in secondary literature and an introduction to reference aids and sources in the field. Not offered every year.

HIS 613 Seminar in United States History, 1800 to 1877 (4-0-4). Advanced study of selected historical problems and interpretations. Introduction to reference aids and sources. Emphasis on the Jacksonian period or the Civil War. Not offered every year.

HIS 615 Seminar in United States History, 1897 to the Present (4-0-4). Advanced study of selected historical problems and interpretations. Introduction to reference aids and sources. Emphasis varies depending on instructor. Not offered every year.

HIS 621 Seminar in Black History (4-0-4).

Examination of selected problems in African-American history. Introduction to sources, reference aids, and major library holdings on African Americans in the United States. Not offered every year.

HIS 640 Issues in the History of Atlantic Societies (4-0-4). Advanced study in the history of Atlantic societies with analytical discussion of major interpretations and problems. Readings in secondary literature and introduction to reference aids and sources. Topic varies with instructor. Not offered every year.

HIS 644 Seminar in Medieval European History (4-0-4). Selected readings in the history of medieval Europe, with analytical discussion of major interpretations and problems. Introduction to the secondary literature and major sources. Topic varies from term to term. Not offered every year.

HIS 645 Seminar in Early Modern European History (4-0-4). Critical examination and discussion of problems and interpretations of British or European social, economic, and cultural history from the 16th century through the 18th century. Topic varies with instructor. Not offered every year.

HIS 647 Seminar in 19th- and 20th Century European History (4-0-4). Selected topics and problems of the period. Introduction to reference aids and printed sources.

Topic varies with instructor. Not offered every year.

HIS 648 Readings in Social and Cultural History (4-0-4). Provides graduate-level introduction to influential books, thinkers, approaches, and themes in the field of history today. Drawing on important works in 19th- and 20th-century history, this seminar will examine such topics as classics of social history, history and the construction of the self, post-colonial perspectives on the West, feminist history, national identity, and history and memory.

HIS 660 Social Studies in Context I (4-0-4). Specially tailored for teachers or students interested in teaching. It serves as an introduction to the intellectual framework that undergirds the social studies by focusing on the relationship of the specific disciplinary bases of this interdisciplinary approach. The focus is on specific content areas such as migration or the city, within a multidisciplinary context. These themes are approached from a historical perspective with anthropology, economics, geography, political science, and sociology woven in as appropriate. Students are expected to develop a research project tailored to their interests and needs as teachers.

HIS 661 Social Studies in Context II (4-0-4). *Prerequisite:* HIS 660. The primary objective is to explore the relationship of the social studies disciplines as a theoretical issue; in terms of specific content-based case studies; and as applied in specific research projects. At the heart of this course is the completion of the research project developed in HIS 660 demonstrating mastery of two or more social studies approaches and an awareness of two or more disciplines. Also explores the use of the Internet as a research tool and particularly as a means of disseminating the results of student research.

HIS 693 Seminar in Special Topics (4 credits). Advanced study of selected historical problems and interpretations. Topic varies with instructor. Topics appear in the online Course Schedule.

HIS 695 Research Seminar in American, European, or Social History (4-0-4). Directed research on selected areas of American and European history. Emphasis varies depending on instructor. Core course. Offered every spring.

HIS 697 Independent Study in History (1-4 credits). *Prerequisites:* Permission of instructor and Program Director. Individual readings and research on topics that are not a part of current course offerings.

HIS 699 Thesis (1-4 credits). May be repeated for a total of 10 credits.

Health, Physical Education, Recreation, and Dance

Program Core and Emphasis Courses

HPR 550 Computer Applications in Health and Physical Education (3 credits).

Designed to help health and physical education professionals learn efficient and effective use of computers in instruction, record keeping, planning, and analysis. Focus on the identification and use of appropriate, user-friendly software packages.

HPR 601 Research Methods in Health and Human Performance (4 credits). An introduction to research methods with a focus on the principles and application of the research process, critically evaluating published research, and appropriate selection, use, and interpretation of statistical tests. Students develop proficiency in using SPSS (Statistical Package for the Social Sciences) computer software for statistical analyses.

HPR 602 Statistics & Data Management (3-0-3). Designed to explore the basic principles and the fun parts of statistics (Fundamentals), this course strives to avoid the “acquiring knowledge through memorizing” aspect of the learning process. Students will have ample hands-on opportunities to examine the many alternatives in research studies and to become familiar with the appropriate way in screening, managing, analyzing, and presenting data. Intended for students who are working on their theses and those who are preparing for the research questions in the comprehensive examinations.

HPR 606 Human Development (3 credits). Study of physical, motor, cognitive, sex-role, social, and moral development with attention to life-span events; emphasis on practical application of theory relative to understanding human abilities and how theory affects programming across the life span.

HPR 679 Practicum for School Nurses (2 credits). Specialized field experience in an appropriate setting that provides extensive exposure to the field of school nursing. Includes a seminar and the development of a professional portfolio.

HPR 680 Practicum (3 credits). Specialized field experience in an appropriate setting that provides extensive exposure to one of the following professional fields: community health education, sports management, exercise science, or school nursing. Includes a seminar and the development of a professional portfolio.

HPR 681 Practicum (4 credits). Specialized field experience in an appropriate setting that provides extensive exposure to one of the following professional fields: community health education, sports management, exercise science, or school nursing. Includes a seminar and the development of a professional portfolio.

HPR 682 Practicum (5 credits). Specialized field experience in an appropriate setting that provides extensive exposure to one of the following professional fields: community health education, sports management, or exercise science. Includes a seminar and the development of a professional portfolio.

HPR 691 Individual Project: Comprehensive Examination Only (1 credit). Designed for MEd candidates in HPERD taking the comprehensive examination who have completed all course requirements and are not registered for any other course. MEd candidates must be registered for at least

1 credit hour to take the examination and to graduate. Offered on a no-credit basis for a grade of N/C.

HPR 696 Individual Projects (1 credits). *Prerequisite:* Permission of department chair. Independent project in a selected area of HPERD. Project must be approved by and arrangements made with permission of project supervisor and department chair. May be repeated for a maximum of four credit hours.

HPR 697 Individual Projects (2 credits). *Prerequisite:* Permission of department chair. Independent project in a selected area of HPERD. Project must be approved by and arrangements made with permission of project supervisor and department chair. May be repeated for a maximum of four credit hours.

HPR 698 Master's Project (1-2 credits). May be repeated for a total of 6 credits. Registration by permission of advisor and department chair.

HPR 699 Master's Thesis (1-2 credits). May be repeated for a total of 6 credits. Registration by permission of advisor and department chair.

Health Sciences

HSC 501 Issues in Health Sciences (3-0-3). *Prerequisite:* Enrollment in MSHS program or permission of instructor. Explores trends in health care delivery, related public policy, and funding issues, as well as theoretical and ethical considerations in delivering care.

HSC 502 Leadership Roles in Health Sciences (3-0-3). *Prerequisite:* Enrollment in MSHS program or permission of instructor. Examines the roles of the advanced practitioner in direct service delivery, management, consultation, education, and research.

HSC 503 Research and Analysis in Health Sciences (3-0-3). *Prerequisite:* Enrollment in MSHS program or permission of instructor. Provides an overview of qualitative and quantitative research methods, with an emphasis on program evaluation, quality assurance, and outcomes research. Also examines statistical and other methods for analyzing research and evaluating data.

HSC 504 Seminar in Health Sciences Professions (3-0-3). *Prerequisite:* Enrollment in MSHS program or permission of instructor. Integrates previous course work and explores mechanisms for pursuing independent research. Taken later in the course of study, prepares students for the capstone project or thesis.

HSC 505 Culture and Health Care (3-0-3). *Prerequisite:* Enrollment in MSHS program or permission of instructor. Examines the ways in which culture affects health and health care, including perceptions of health, disease, treatments, and the values associated with these factors. The need for cultural sensitivity in health care is stressed.

HSC 506 Medical Conditions and Occupational Function (3-0-3). *Prerequisite:* Enrollment in MOT Program or permission of instructor. Discusses the etiology, incidence and prevalence, signs and

symptoms, types, associated disorders, course, and prognosis, diagnosis, and management of a sample of major medical conditions. Their impact on occupational function is explored. The client-centered nature of occupational therapy is emphasized. The phenomenological perspective of occupational function is explored.

HSC 507 Basic Pharmacotherapeutics (2-3 credits). *Prerequisites: Pathology and Physiology or equivalent; Cell Biology, Organic Chemistry, and Biochemistry are recommended; or Permission of Instructor.* This course is an upper-level introduction to the basic principles of pharmacotherapeutics and pharmacologic intervention as applied to rehabilitative therapeutic management of clients/patients across the lifespan. The course will focus on the mechanisms of drug action and interaction, observable clinical signs and symptoms that may impact appropriate rehabilitative therapeutic management, and the proper role of pharmacotherapeutics in the overall plan of patient care.

HSC 508 Clinical Hematology (4-0-4). *Prerequisites: Microbiology, Histology, Cell Biology, or Permission of Instructor.* This course provides an in-depth study of the fundamental molecular, cellular, and systems-based human physiologic and pathophysiological concepts as they apply to the study of the elements of blood and blood producing tissues. Clinical principles applicable to testing, evaluation, and therapeutic intervention across the lifespan and in altered states of wellness are considered.

HSC 510 Principles of Evidence-Based Practice (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Examines the emergence of evidence-based practice (EBP) as a trend in health sciences and the advantages and disadvantages of this approach to intervention. Explores the process of implementing EBP in clinical settings.

HSC 512 Evolving Technologies in Health Sciences (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Reviews assistive technologies used in rehabilitation. Research evaluating program and equipment effectiveness, evolving technologies, program development, theoretical models, and reimbursement issues are addressed for various categories of assistive technology.

HSC 513 Outcomes Assessment (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Emphasizes integration of qualitative and quantitative research, along with discussion of research results, and their relationship to hypothesis testing and methodology. Application of findings to contemporary problems encountered in health sciences and guidelines for subsequent research is explored in detail.

HSC 514 Occupational and Physical Therapy in the Schools (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Examines factors influencing the efficacy of school-based occupational and physical therapy. Current literature is used to analyze issues related to evaluation and intervention within an educational context.

HSC 516 Occupational Therapy Foundations (4-0-4). *Prerequisite: Enrollment in MOT Program or permission of instructor.* An introductory course on the history, philosophy, core concepts, language, reasoning, basic tools, and practice arenas of occupational therapy. Articulates the nature of humans as occupational beings and the central role of occupation in the person's life. Emphasizes activity analysis as a core tool of occupational therapy. Standards of practice and the roles of the occupational therapist in a variety of service-delivery models are reviewed. Defines and describes evidence-based practice. Clinical reasoning is introduced and applied through case examples.

HSC 517 Occupational Therapy Theory and Process (3-0-3). *Prerequisite: Enrollment in MOT Program or permission of instructor.* Reviews current occupational therapy models of practice and applies them to the occupational therapy process. Evaluation, intervention planning, intervention, transition services, discontinuation of services, activity analysis, and documentation in occupational therapy are addressed. A service-learning component is included.

HSC 518 Occupational Development (4-0-4). *Prerequisite: Enrollment in MOT Program or permission of instructor.* Development across the lifespan, from conception to very old age, is explored. Content focuses on the development of occupation (activities of daily living, play/leisure, and work) and body structure and function (sensorimotor, cognitive, and psychosocial) throughout a person's life.

HSC 520 Physiology for the Clinical Sciences (4-0-4). *Prerequisite: A biology course with lab at or above the 200 level, or permission of instructor.* Four-hour lecture course with an optional virtual lab. An in-depth study of the fundamental molecular, cellular, and systems-based physiologic concepts as they apply to homeostasis; and as they relate to aspects of health, adaptation, and rehabilitation. Physiologic principles applicable to testing, evaluation, and therapeutic intervention across the lifespan and in altered states of wellness are considered.

HSC 521 Current Issues in Clinical Education (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* The role of the clinical educator, including the design of educational experiences, supervision of students, and performance evaluation.

HSC 522 Fundamentals of Curriculum in Health Sciences (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Academic education of health sciences practitioners, with emphasis on curriculum design consistent with accreditation standards, designing and implementing courses, and incorporation of clinical education and new technologies.

HSC 523 Educational Evaluation in Health Sciences (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Evaluation of course and curriculum, using a variety of outcome measures.

HSC 524 Functional Anatomy (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Integrates anatomical structure and function in relation to movement. Relationships among cellular, tissue, organ, and systemic function are utilized to explore the body's normal activities, response to injurious stimuli, and capacity for healing. Analysis of adaptive strategies.

HSC 525 Clinical Application of Current Theories of Motor Development (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Historical and contemporary theories of motor development are explored, including a critical analysis and application of contemporary theories of motor development to evaluation and treatment in pediatric practice.

HSC 526 Functional Performance of Older Adults (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Assessment and intervention designed to assist older adults in accomplishing daily activities, including individual, social, and environmental factors.

HSC 527 Neuromusculoskeletal Evaluation and Intervention (3-2-4). *Prerequisite: Enrollment in MOT Program or permission of instructor.* Examines the neuromusculoskeletal body structures and functions of a person at the knowledge, comprehension, and application levels. Introduces, applies, and analyzes theoretical frames of reference used by occupational therapists to address the evaluation and intervention of the neuromusculoskeletal areas of function. Lays the foundation for use of this information at higher levels of all three learning domains and in a more integrated way in later courses. Emphasis on documenting efficacy of intervention.

HSC 528 Psychosocial Evaluation and Intervention (2-2-3). *Prerequisite: Enrollment in MOT Program or permission of instructor.* Examines the psychosocial body structures and functions of a person, including group process, at the knowledge, comprehension, and application levels. Introduces, applies, and analyzes theoretical frames of reference used by occupational therapists to address evaluation and intervention of the psychosocial areas of function. Lays a foundation for use of this information at higher levels of all three learning domains and in a more integrated way in later courses.

HSC 529 Sensory and Cognitive Evaluation and Intervention (2-2-3). *Prerequisite: Enrollment in MOT Program or permission of instructor.* Examines the sensory and cognitive integration body structures and functions of a person at the knowledge, comprehension, and application levels. Introduces, applies, and analyzes theoretical frames of reference used by occupational therapists to address evaluation and intervention of the sensory and cognitive integration areas of function. Lays a foundation for use of these functions at higher levels of all three learning domains and in a more integrated way in later courses. Documentation of efficacy of occupational therapy intervention is emphasized.

HSC 531 Principles of Management for Health Sciences (3-0-3). *Prerequisite: Enrollment in MSHS program or permission*

of instructor. Funding of health sciences, and implications for service delivery, supervision of personnel, and the design and implementation of programs; fundamentals of organizational behavior and development.

HSC 532 Advocacy and Environmental Change (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Determination of factors in the social and physical environment that support or inhibit mobility and function; methods to change environments and policies that limit ability.

HSC 533 Program Development and Assessment (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Evaluation of needs, design, and implementation of health sciences programs, and assessment of outcomes.

HSC 535 Occupation and Participation I (2-4-4). *Prerequisite: Enrollment in MOT Program or permission of instructor.* Provides a preliminary (pre-entry-level) working knowledge of the concepts and principles of occupational therapy, using simulated and actual case materials. Focuses on occupational therapy evaluation and intervention for maintaining or enhancing the participation of children and adolescents in their occupations. A service-learning component is included.

HSC 536 Occupation and Participation II (3-2-4). *Prerequisite: Enrollment in MOT Program or permission of instructor.* Provides a preliminary (pre-entry-level) working knowledge of the concepts and principles of occupational therapy, using simulated and actual case materials. Focuses on occupational therapy evaluation and intervention for maintaining or enhancing the occupational performance of individuals in their early and middle adulthood. Documentation of efficacy of intervention is emphasized.

HSC 537 Occupation and Participation III (2-2-3). *Prerequisite: Enrollment in MOT Program or permission of instructor.* Provides a preliminary (pre-entry-level) working knowledge of the concepts and principles of occupational therapy, using simulated and actual case materials. Focuses on occupational therapy evaluation and intervention for maintaining or enhancing the participation of older adults in their occupations. Emphasis on documenting efficacy of intervention.

HSC 538 Life Span Development (4-0-4). Focuses on the physical, psychological, and sociological development of the individual, as they relate to health, from conception through older adulthood.

HSC 541 Environmental Health (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* An introduction to environmental health, with emphasis on toxic exposures, and hazard identification and management.

HSC 542 Functional Anatomy for Physical Therapists (1-4-3). Assists the physical therapy student in developing a logical approach to understanding human form and function; the fundamentals of movement through the application of biomechanic and physiologic principles.

HSC 543 Legal and Policy Issues in Health Sciences (3-0-3). *Prerequisite: Enrollment in MSHS program or permission*

of instructor. Explores legal and policy issues in health care delivery, related state and federal laws, governmental and legislative trends, public policy, and ethical considerations in patient care.

HSC 544 Social Issues and Health Sciences (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Examines social issues that influence health and illness through the study of disability and medical rehabilitation. Perspectives of health care practitioner, consumer, regulator, and investor are used to investigate control issues, mutual decision-making, and socioeconomic inequalities.

HSC 545 Work Physiology (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Provides a comprehensive examination of various factors affecting human physical performance in the workplace. Emphasis is on neural controls, cardiorespiratory capacity, and resultant musculoskeletal capabilities. Simple and sophisticated methods to assess work capacity are examined.

HSC 546 Occupational Biomechanics (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Integrates functional anatomy, biomechanics, and workplace tasks in providing a comprehensive understanding of factors that influence human occupational performance. Detailed analysis of instrumentation used to measure human mechanical capacity is provided.

HSC 547 Assistive Technology for Computer Access (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Reviews assistive technology that enhances accessibility to the computer for individuals with visual, auditory, motor, or learning disabilities.

HSC 548 Human Sexuality and Health Care (3-0-3). *Prerequisite: Enrollment in MSHS program or permission of instructor.* Provides an overview of sexual biology and sexuality in culture and society, before focusing on public health issues and specific professional concerns. Among the topics covered are sexuality education, STDs, HIV/AIDS, and sexuality and professional/patient relationships.

HSC 550 Physical Therapy Theory and Practice I (1-4-3). Basic examination procedures used to develop a physical therapy diagnosis/prognosis with emphasis on muscle testing, goniometry, and special testing.

HSC 552 Physical Therapy Theory and Practice II (1-4-3). A fundamentals-of-treatment course that introduces the student to the basic principles of therapeutic exercise.

HSC 554 Physical Therapy Theory and Practice III (1-4-3). A fundamentals-of-evaluation-and-treatment course that introduces the physical therapy student to physical agents, mechanical, and electrical modalities.

HSC 556 Physical Therapy Theory and Practice IV (1-4-3). Introduces the physical therapy student to more complex forms of evaluation and therapeutic exercise management. The theoretical paradigms for evaluation and treatment of patients with

neurologically based motor-control problems are presented.

HSC 557 Human Gross Anatomy Lab (0-4-2). *Co-requisite: HSC 575.* Laboratory sessions include dissection of human cadavers, examination of human skeletal material, and anatomical models.

HSC 558 Occupational Therapy Practicum I (3-0-3). *Prerequisite: Enrollment in MOT Program or permission of instructor.* A level I fieldwork experience in a medical setting. Students exhibit pre-entry-level skills and clinical reasoning necessary to evaluate sensorimotor, cognitive, and psychosocial factors influencing a person's occupation in work, play/leisure, and self-care; collaborate with the person, the team, and the family to develop and implement intervention strategies that promote occupational functioning; and understand and articulate occupational therapy's unique role within that setting. Provides an opportunity to gain experiential knowledge of and apply the theoretical approaches studied in the curriculum.

HSC 559 Occupational Therapy Practicum II (3-0-3). *Prerequisite: Enrollment in MOT Program or permission of instructor.* A level I fieldwork experience in a community setting. Students exhibit pre-entry-level skills and clinical reasoning necessary to evaluate sensory-motor, cognitive, and psychosocial factors influencing a person's occupation in work, play/leisure, and self-care; collaborate with the person, the team, and the family to develop and implement intervention strategies that promote occupational functioning; and understand and articulate occupational therapy's unique role within that setting. Provides an opportunity to gain experiential knowledge of and to apply the theoretical approaches studied in the curriculum.

HSC 560 Interdisciplinary Team Development (3-0-3). *Prerequisite: Enrollment in MOT or MPT Program or permission of instructor.* Introduces the occupational and physical therapy student to contemporary health issues, such as reimbursement, ethics, and outcome-based rehabilitation that influence the health care team during provision of therapeutic services. The multiple roles of the therapist, as well as the various health-service-delivery models, are explored.

HSC 562 Physical Therapy Interactions I (3-0-3). Introduces the student to contemporary health issues that influence the practice of physical therapy. Focus is on the development of communication and interaction skills with the individual and families.

HSC 564 Physical Therapy Interactions II (1-2-2). Provides learning experiences for developing written skills in all aspects of documentation, emphasizing the completion of comprehensive physical therapy notes.

HSC 566 Physical Therapy Interactions III (1-2-2). Provides the student with the opportunity to explore the role of the physical therapist as teacher-communicator, specifically the role related to therapeutic teaching of individuals/families and the role related to collegial teaching of physical therapy peers, other health professionals, and members of the community.

HSC 567 Practicum in Gerontology (1-0-1).

Prerequisites: Undergraduate course in introductory psychology; course to be taken concurrent with HSC 526 or permission of instructor. Shadowing and discussion of observations in community-based gerontology settings.

HSC 569 Occupational Environments

(2-2-3). *Prerequisite:* Enrollment in MOT Program or permission of instructor. Reviews the symbiotic interaction between an individual and the environment. Effects of architectural barriers, assistive technology, legislation, interpersonal and social issues, psychological aspects of a disability, and cultural differences are studied.

HSC 570 Special Topics in Health Sciences (1-4 credits).

Prerequisite: Enrollment in MSHS program or permission of instructor. May be repeated for credit with change of topic.

HSC 572 Physical Therapy Management of Complex Conditions I (3-4-5).

Synthesizes aspects of physical therapy related directly to patient care, using the Nagi Model of Health Status. The first of the three-course series concentrates on multi-system pathology, which may occur following general medical or surgical conditions, with emphasis on the cardiopulmonary system.

HSC 574 Physical Therapy Management of Complex Conditions II (3-4-5).

The second of a three-course sequence that synthesizes aspects of physical therapy related directly to patient care, using the Nagi Model of Health Status. Concentrates on multisystem pathology, which may occur following an insult, disabling injury, or illness to the musculoskeletal system.

HSC 575 Human Gross Anatomy (4-0-4).

Prerequisite: A biology course with lab at or above 200 level and graduate standing, or permission of instructor. Study of the structure and function of the human body, with emphasis on the musculoskeletal systems.

HSC 576 Physical Therapy Management of Complex Conditions III (3-4-5).

The third of a three-course sequence that synthesizes aspects of physical therapy related directly to patient care, using the Nagi Model of Health Status. Concentrates on multisystem pathology, which may occur with neurologic conditions.

HSC 577 Neuroscience Systems (4-0-4).

Prerequisites: A biology course with lab at or above 200-level and upper class standing or permission of instructor. A study of the structure and function of the human central and peripheral nervous system including vascular components and special senses.

HSC 578 Neuroscience Lab (0-1-1).

Co-requisite: HSC 577. Laboratory sessions include human nervous system material in the course atlas, human brain dissections, slides, overheads, and anatomical models.

HSC 579 Occupational Therapy Administration and Management (3-0-3).

Prerequisite: Enrollment in MOT Program or permission of instructor. Reviews entry-level management competencies needed to plan, organize, staff, coordinate, and control occupational therapy programs in a variety of systems. The roles of the occupational

therapist are explored, as are the social, economic, political, and geographic contexts within which occupational therapy services are provided. Addresses regulation and credentialing, resolution of ethical issues, career development, and marketing occupational therapy.

HSC 580 Physical Therapy Clinical Seminar I (0-2-1).

The first of a three-course series designed to help students integrate academic material presented during the concomitant term in which the seminar is scheduled. Students are required to participate in community-based service-learning activities, as well as selected clinical experiences that are designed to complement and reinforce the academic course work.

HSC 581 Pathology (4-0-4).

Prerequisite: A physiology course or permission of instructor. This course provides a survey of health conditions as well as the management of common disorders. The continuum from optimum to compromised health states will be discussed relative to specific conditions. Common models of conditions, which affect health, will be explored as related to medical management. A discussion of specific disorders and related management will be organized according to their etiology, epidemiology, pathophysiology, clinical manifestations, and management as applicable to patients with commonly occurring disorders.

HSC 582 Physical Therapy Clinical Seminar II (0-2-1).

The second in the three-course series described for HSC 580.

HSC 583 Physical Therapy Professional Issues In Clinical Education I (1-0-1).

Introduces a variety of issues relevant to professional education both on campus and in the transition to the clinical setting. MPT students are acquainted with the Cleveland State campus environment and to the expectations of the MPT program and clinical education requirements within the curriculum.

HSC 584 Physical Therapy Clinical Seminar III (0-2-1).

The third in the three-course series described for HSC 580.

HSC 585 Physical Therapy Professional Issues In Clinical Education II (1-0-1).

Prepares students for the transition from classroom to clinic through the exploration of a variety of topics ranging from the selection process to strategies for successful performance in the clinical setting.

HSC 586 Applied Physical Therapy I (10 credits).

The first full-time clinical course divided into two eight-week placements, during which students complete one undesignated rotation, plus one of the three required designated placement types: acute, out-patient, or chronic care.

HSC 587 Physical Therapy Professional Issues In Clinical Education III (1-0-1).

Provides students with a group seminar atmosphere to analyze the quality and adequacy of their initial clinical education experiences, while also serving to prepare them for the capstone clinical education course within the curriculum.

HSC 588 Applied Physical Therapy II—Capstone Clinical Education Experience (10 credits).

The second and final formal clinical education course divided into two

eight-week placements, during which students complete two of the three required designated rotation types.

HSC 589 Occupational Therapy Research I (3-0-3).

Prerequisite: Enrollment in MOT Program or permission of instructor. Prepares students to participate as researchers in the field of occupational therapy. Proposal writing, development of research questions, research designs, ethics in research, literature review, data collection and analysis, preparation of professional presentations, and writing for publication are included. Prepares students for independent or group projects required for completion of the MOT degree.

HSC 590 Physical Therapy Organization, Administration & Management I (2-0-2).

Prerequisites: Admission to the PT Program or permission of instructor. Introduces the physical therapy student to the management, organization, and practice functions of the American health care delivery system as they relate to the practice of physical therapy. The role of the physical therapist in health care is examined in relationship to socioeconomic, political, ethical, and cultural factors.

HSC 591 Occupational Therapy Research II (3-0-3).

Prerequisite: Enrollment in MOT Program or permission of instructor. Facilitates implementation of independent or group research. Students meet with their advisors and implement a research project proposed and approved in HSC 589. Students submit a manuscript describing their study and participate in a research symposium in which they present their projects and field questions from faculty, students, and community participants.

HSC 592 Physical Therapy Scientific Inquiry (3-0-3).

Introduces the physical therapy student to the process of scientific inquiry emphasizing analysis of research design. Also relates the use of probability and statistics to measures assessing quality assurance.

HSC 593 Physical Therapy Organization, Administration, & Management II (1-0-1).

Prerequisites: Admission to the PT Program and HSC 590. Investigation of managerial, organizational, and supervisory principles as related to physical therapy.

HSC 595 Occupational Therapy Level II Fieldwork I (6 credits).

Prerequisite: Enrollment in MOT Program or permission of instructor. The level II fieldwork courses are the capstones of the curriculum. Under the direct supervision of an Occupational Therapist Registered, the student acquires and implements the skills, roles, attitudes, and reasoning of an entry-level generalist therapist. This course is coordinated with HSC 596 Occupational Therapy Level II Fieldwork II to include a variety of ages, practice settings, and disabilities.

HSC 596 Occupational Therapy Level II Fieldwork II (6 credits).

Prerequisite: Enrollment in MOT Program or permission of instructor. The level II fieldwork courses are the capstones of the curriculum. Under the direct supervision of an Occupational Therapist Registered, the student acquires and implements the skills, roles, attitudes, and reasoning of an entry-level generalist

therapist. This course is coordinated with HSC 595 Occupational Therapy Level II Fieldwork I to include a variety of ages, practice settings, and disabilities.

HSC 597 Occupational Therapy Level II Elective Fieldwork (4-8 credits). Prerequisite: Enrollment in MOT Program or permission of instructor. The level II fieldwork courses are the capstone courses of the curriculum. A supervised elective course. The student acquires and implements the skills, roles, attitudes, and reasoning of an entry-level therapist in a specialized area.

HSC 598 Special Topics in Physical Therapy Research—Master's Capstone Project (1-0-1). Students use scientific inquiry to develop an original or replicated research project that integrates the individual's didactic and clinical course work. The focus of the project may be either applied or theoretically oriented research.

HSC 690 Independent Study (1-4 credits). Prerequisite: Approval of advisor. Individual exploration in the student's area of interest under the direction of the faculty advisor.

HSC 691 Thesis (3-6 credits). Prerequisite: Enrollment in MSHS program or permission of instructor. Capstone option resulting in a significant, original research project.

HSC 692 Master's Project (3-6 credits). Prerequisite: Enrollment in MSHS program or permission of instructor. Capstone option resulting in a significant, original research project.

Industrial Engineering

Undergraduate students taking 500-level courses must meet University requirements and obtain the permission of the course instructor. All non-degree students must obtain the instructor's permission before registering for any of the courses offered by the Department of Industrial and Manufacturing Engineering.

IME 505 Human Factors Engineering (3-0-3). The physical and mental capabilities and limitations of the worker are studied and applied to the design and analysis of equipment, occupational tasks, and the environment. Topics include research methods, cognition, visual and auditory systems, controls, displays, anthropometry, and workplace design.

IME 506 Industrial Safety and Health (3-0-3). Fundamental principles and techniques of industrial safety and hygiene are presented. Topics include federal regulations, hazard analysis, fire and explosion prevention, machine guarding, hazardous material control, industrial ventilation, survey and sampling techniques, and personal protection equipment.

IME 510 Advanced Engineering Statistics
(Addenda New 05/2007)

IME 520 Applied Engineering Design (3-0-3).
(Addenda Revised 04/2007) Prerequisites: Undergraduate course in statistics and probability (ESC 310), graduate standing, and permission of instructor. Statistical considerations for designing effective engineering experiments. Topics include: planning of comparative experiments; sampling

techniques; sequential tests; randomization and blocking, including incomplete blocking; Latin and Graeco Latin squares; factorial and fractional factorial designs; and response surface analysis.

IME 530 Operations Research I (3-0-3). Prerequisites: Undergraduate course in linear algebra, graduate standing, and permission of instructor. **Note:** This course is not a substitute for IME 330. Deterministic models in operations research, including linear programming and network formulations; the simplex, transportation, and assignment algorithms, with applications to engineering and management problems.

IME 540 Quality System Design (3-0-3). Prerequisites: IME 320 or equivalent and permission of instructor. Philosophies and structures of a generic quality system are introduced. Also examines the backgrounds of various industrial quality assurance systems, such as ISO 9000, CIS 9000, and Ford 01. A comprehensive examination of ISO 9000 is included, along with various implementation issues.

IME 545 Advanced Metal Cutting (3-0-3). Prerequisites: IME 250 or equivalent and permission of instructor. The physical models describing chip-formation phenomenon are described, analyzed, and applied to various machining operations. Machine performance and production economics are discussed and applied to automated and conventional machining systems.

IME 548 In-Process Sensing and Process Control (3-0-3). Study and analysis of the role of sensors and computers in manufacturing process control. Intrinsic and extrinsic properties of products and materials are explored with respect to in-line, on-line, and off-line methods of monitoring, adaptive control, and automated inspection systems.

IME 550 Industrial Automation (3-0-3). Broad introduction and analysis of the basic building blocks of modern automated manufacturing and quality inspection systems. Topics include sensors, actuators, machine vision, programmable logic controllers, and PC-based data acquisition and control.

IME 551 Industrial Automation Laboratory (0-3-1). Application of sensors and control interfaces for manufacturing systems. Design setup, implementation, data gathering, and analysis of collected data on real-process control.

IME 560 Manufacturing Systems Engineering (3-0-3). Analysis and design of automated production systems; quantitative models are introduced and applied to flow-balance characteristics of synchronous and asynchronous fabricating and assembly systems.

IME 562 Production and Inventory Control (3-0-3). Prerequisites: Graduate standing and permission of instructor. **Note:** This course is not a substitute for IME 470. This is an introduction to the analysis of various aspects of production planning and control. Topics include classical inventory models, MRP, DRP forecasting, production planning, scheduling, queuing, and line balancing. Emphasis is on integration of production and control activities.

IME 570 Continuous Quality Improvement (3-0-3). Prerequisites: IME 320 or equivalent and permission of instructor. The philosophy, techniques, and methods for continuous improvement of manufacturing, business, and service processes are studied. The Shewhart cycle, team-building and dynamics, quantitative and qualitative methods, Taguchi, and other quality-engineering methods also are covered.

IME 575 Systems Simulation (3-0-3).
(Addenda Revised 04/2007) Prerequisites: Undergraduate course in statistics and probability (ESC 310) and permission of instructor. Introduction to simulation, including development of simulation models, random number and random variable generation, model validation and testing, analysis of model output, and an overview of simulation languages. Emphasis is on the use of simulation modeling in decision-making, through a series of projects involving decision problems.

IME 580 Engineering Management (3-0-3). Studies of current methods for the effective control of projects in the private and public sectors are presented. Included are the analyses of qualitative and quantitative factors that affect the successful completion of projects. Emphasis is on the development of project criteria, analysis of project networks, and the effects of time, financial, and organizational changes on projects.

IME 600 Economic Evaluation of Industrial Projects (3-0-3). Prerequisite: Undergraduate course in engineering economics or permission of instructor. Advanced study in the time-value of money, project costing, evaluation of industrial projects, and economic decision models for investments in manufacturing and industrial projects. Topics include, but are not limited to, activity-based costing, venture capital, concepts and impact of risk, and corporate financial evaluation.

IME 610 Concurrent Engineering (3-0-3). An understanding of the principles of system-level design, product quality requirements, and design for manufacturability and assembly are presented. Addresses testability, reliability, and maintainability issues; explores rapid prototyping and design-review techniques. Additional topics include selection of materials, manufacturing processes and functional testing, and life-cycle engineering.

IME 623 Reliability Engineering (3-0-3). Concepts, models, and goals of reliability engineering for engineering systems, qualitative analysis of economic specifications, performance levels, maintenance levels, and redundancy systems.

IME 631 Operations Research II (3-0-3). Prerequisites: IME 530 or equivalent and an undergraduate course in statistics and probability. A study of stochastic models in operations research, including stochastic processes, queuing models, probabilistic inventory models, and probabilistic decision models, with applications to engineering and management problems.

IME 641 Manufacturing Expert Systems (3-0-3). Prerequisites: IME 530 and permission of instructor. The concepts and principles on which the Artificial Intelligence (AI)

models known as Expert Systems are constructed and how they are employed in modern manufacturing are studied. Fundamentals of the PROLOG language and applications to engineering design and manufacturing-systems control problems.

IME 652 Robotics and Machine Vision (3-0-3).

The basic principles underlying the analysis and application of robots used in manufacturing systems are introduced and analyzed. Stand-alone and robot-integrated machine-vision systems and their applications are discussed in detail.

IME 653 Robotics and Machine Vision

Laboratory (0-3-1). The student receives hands-on experiences in programming and applying robots, robotic arms, and machine-vision systems to material processing and handling problems.

IME 654 Advanced Industrial Automation and Control (3-0-3).

Design and analysis of integrated manufacturing cell-control systems for material handling, processing, and automated inspection systems. Topics include PLCs, machine vision, I/O communication, and manufacturing automation protocols.

IME 655 Advanced Industrial Automation and Control Laboratory (0-3-1).

Projects representing the advanced concepts developed in IME 654 are assembled and applied to automated processing and assembly cells in the industrial automation laboratory.

IME 656 Nondestructive Evaluation (3-0-3).

A comprehensive analysis of nondestructive-testing techniques for characterization and defect evaluation. Methods covered include radiography, ultrasonics, eddy currents, microwaves, magnetic flux, and penetrant inspection, with hands-on applications in a laboratory setting.

IME 660 Computer Integrated Design and Manufacturing (3-0-3).

Prerequisite: IME 560 or equivalent. Introduction of the concepts of solid modeling of parts, computer-aided design strategies, control of manufacturing processes through computers, integration of computer-controlled machine tools with design models, and understanding of CAD/CAM systems architectures through case studies and projects.

IME 663 Competitive Manufacturing

Management (3-0-3). (addenda revised 04/2006) Prerequisite: IME 562 or permission of instructor. A study of the management concepts and principles that will guide manufacturing into the future. Topics include approaches to waste elimination, teaming, continuous improvement, lean manufacturing, advanced production planning and control systems, supply-chain management, and activity-based costing. This is a Web-based course.

IME 664 Engineering Project Control (3-4-3).

Prerequisite: Undergraduate course in production and inventory control. Survey of methods and techniques used to plan, implement, manage, and control projects. Topics include team-building, resource allocation, control techniques, resource-leveling, and analysis of alternatives. Application of techniques to small and large projects is emphasized.

IME 666 Systems Engineering, Analysis, and Management (3-0-3).

Basic graduate course for introducing the concept of systems, systems

engineering process, definitions, planning, design, advancement, and control of complex human-made systems and organizations (enterprises). Major topics include system-engineering process, planning, system design, life cycle, reliability, maintainability, integrated logistics support, and costs issues. Includes several examples of new enterprise systems engineering products and processes.

IME 678 New Product Development, Marketing, and Management. (3-0-3).

Prerequisite: IME 666. A study of the latest practices, processes, methodology, marketing, and management of the development, introduction, and successful product life-cycle management of new, high-technology products. Topics include opportunity identification, new-products development process, alternative evaluation, product-test (marketing) strategies, introduction and roll-out strategies, and customer support.

IME 679 Technology Management for Engineers (3-0-3).

Technology management concepts, principles, and processes with engineering examples that govern the successful implementation of new technologies are studied. Also addresses the process strategies for managing technology (S-curve) changes in today's high-technology, engineering-driven world. Topics include the engineer's role in innovation and entrepreneurship, innovation and technology forecasting, product/technology life cycle, economic life cycles, S-curves, and technology change.

IME 696 Directed Studies in Industrial Engineering (1-4 credits).

Prerequisite: Permission of instructor. A directed or independent study of an individual problem or subject under the supervision of a graduate faculty member. Students must register for this course in the IME Department for assignment of a section number. Students must furnish a title for the directed or independent study, at the time of registration.

IME 697 Master's Project (3-0-3).

A student may include one semester of IME 697 as part of his or her plan of study. An IME Graduate Faculty member must agree to be the advisor. The student must prepare a formal proposal for approval, prior to registering for the course. This should be done during the semester prior to taking the course. The student must present a formal report on the project to his or her advisor and at least one additional faculty member, prior to the end of the semester.

IME 698 Master's Thesis Research (1-3 credits).

Intended for students planning to enroll in IME 699 who have not yet developed a topic or had a Thesis and Dissertation Proposal Form approved.

IME 699 Master's Thesis (1-3 credits).

Prerequisite: Completed Thesis and Dissertation Proposal Form, approved by the IME Department, on file with the College of Graduate Studies. Students must register for a minimum of 3 credits hours the first semester in which the student is enrolled in IME 699. This course may be repeated for 1-3 credit hours until the Thesis is successfully defended. Each student pursuing the thesis option must successfully defend his or her work in an oral examination. The oral examination is open to the

public, and a notice must be posted two weeks prior to the examination.

IME 741 Manufacturing Expert Systems (3-0-3).

Prerequisites: IME 530 and permission of instructor. Construction of artificial intelligence models known as expert systems (ESs). Fundamentals of the PROLOG language; applications of ESs to engineering design and manufacturing systems.

IME 752 Robotics and Machine Vision (3-0-3).

The basic principles underlying the analysis and application of robots used in manufacturing systems are introduced and analyzed. Stand-alone and robot-integrated machine vision systems and their applications are discussed in detail.

IME 753 Robotics and Machine Vision

Laboratory (0-3-1). Students receive hands-on experience in programming and applying robots, robotic arms, and machine vision systems to material processing and handling problems.

IME 754 Advanced Industrial Automation and Control (3-0-3).

Design and analysis of integrated manufacturing cell-control systems for material handling, processing, and automated inspection systems. Topics include PLCs, machine vision, I/O communication, and manufacturing automation protocols.

IME 755 Systems Design and Integration

Laboratory (0-3-1). Projects representing the advanced concepts developed in IME 754 are assembled and applied to automated processing and assembly cells in the industrial automation laboratory.

IME 762 Advanced Production and Inventory Control (3-0-3).

Prerequisites: IME 562 and permission of instructor. Emphasis on the integration of planning and control functions in a dynamic environment. Application of current philosophical, analytical, and empirical research dealing with alternative approaches for planning and control of manufacturing operations are studied.

IME 764 Advanced Engineering Project Control (3-0-3).

Prerequisites: IME 530 and permission of instructor. The theory, concepts, techniques, and process of project control are examined. Emphasis is on the scheduling of scarce resources and the impact of technology on project decisions.

IME 775 Advanced Simulation Design and Analysis (3-0-3).

Prerequisites: IME 575, ESC 310, and permission of instructor. Theoretical study of queuing models and random number generators, input analysis, output analysis, model verification and validation, model animation, and a review of simulation-modeling languages.

IME 796 Directed Studies (3-0-3).

IME 895 Seminar (no credit).

IME 897 Doctoral Research (1-3 credits). Up to ten credits may be applied to the dissertation credit requirement.

IME 899 Dissertation (3-12 credits).

Prerequisites: Successful completion of candidacy examination prior to enrollment and Thesis and Dissertation Proposal Form on file with the College of Graduate Studies.

International Business See Addenda 12/2007

Information Systems

Students enrolled in the 700-level section of cross-listed 600/700-level courses are required to complete additional work.

Information Systems (IST) courses may not be taken for credit toward the Master of Computer and Information Science degree.

IST 600 Fundamentals of Systems Development (4-0-4). Introduction to computer programming for business and information systems students. No previous experience and knowledge of programming is required. Visual Basic.NET is used to teach programming concepts and practices. The course is divided in two parts: (a) An introduction to foundations in programming and (b) Advanced development of business solutions using the OOP approach. The first part of the course teaches the elementary building blocks of programming; variables, arrays, user-defined types, flow-control, and decision-making. The goal of the second part is to provide students with a comprehensive understanding of object-oriented system development.

IST 601 IT for Competitive Advantage (3-0-3). Provides an understanding and appreciation of the role of information technology and how this technology is leading changes in an organization. Discusses the competitive role of IT and how it affects the strategy and operation of modern business organizations nationally and internationally. Enables students to lead technology-enabled organizational change involving collaboration technologies.

IST 602 Advanced Programming of Business Systems (4-0-4). *Prerequisite:* IST 600 or equivalent. Presents a large set of algorithms important to a variety of programming situations commonly needed to implement advanced business systems. Different types of data structures are presented in an attempt to find the model that best suits a given problem. Introduces the concepts of static and dynamic data types and includes in-depth discussion of Visual Basic.NET class libraries.

IST 603 Systems Analysis Methods (4-0-4). *Prerequisite:* IST 600 or equivalent. Introduces the student to the techniques of developing an information system. Students study the system life cycle, object oriented system-analysis, using UML. In addition, students are exposed to other related issues such as data-analysis techniques, system design, joint application design, and rapid application design. OO CASE tools such as Rational Software are used to complete class projects.

IST 604 Design and Implementation of DBMS (4-0-4). *Prerequisite:* IST 602. Design and implementation of databases. Data modeling and modeling tools. Models for databases: relational, network, object-oriented. Integrity, concurrency, normalization, and SQL. Data warehouses and mining. GUI interfaces to databases. System implementation, using database and graphical tools, testing, conversion, and post-implementation reviews.

IST 606 Management of Business Networks (3-2-4) *Prerequisite:* IST 602 or equivalent. Introduces the managerial and

technical aspects of business networks, including the hardware and software mechanisms that allow access from one computer to files and services provided on other computers. An overview of Local Area Networks (LAN) and Wide Area Networks (WAN) is provided, as well as overviews on software protocols, routers, bridges, and firewalls. On the practical side, the student learns about the network services provided by the operating system (Windows/NT), network analyzers, and the management of security and reliability. The student also learns to install, configure, and test network hardware/software, and use such facilities in practical applications, including e-mail, remote file access, client/server hookups, and dial-up networking.

IST 608 Business Database Systems (3-0-3). *Prerequisites:* Use of Microsoft Windows and Microsoft Office; use of the Internet. Database concepts; database modeling using the entity relationship model; the relational database model; database processing in a PC environment. A detailed study of a desktop database package, including data-organization capabilities, data-maintenance capabilities, query facilities, form and report capabilities, and programming capabilities. SQL and QBE.

IST 609 Business Systems Analysis and Design (3-0-3). *Prerequisites:* Use of Microsoft Windows and Microsoft Office; use of the Internet. Overview of the systems-development life cycle; cost/benefit analysis; information-requirements analysis, including data-flow diagrams; systems-proposal report; role of the systems analyst; system design, including user-interface design, file design, and input/output design; project management for managers interacting/participating in data-processing projects.

IST 610 Object-Oriented Programming for Information Systems (4-0-4). *Prerequisite:* IST 602 or equivalent. The concept of object-oriented methodologies and programming are presented through Java language. Language syntax, error handling, object creation/destruction, and memory-allocation strategies are explored. Java GUI components, event handling, and Web-based programming are introduced.

IST 614/714 Project Management and Scheduling (4-0-4). Designed to teach the students the nature and scope of Project Management (PM). The students will learn the planning process of a project, as well managerial challenges associated with the design, control, and scheduling of projects. Discusses techniques and decision tools used in solving project management issues, as well as strategies for successfully managing IT projects. Project management software will be used throughout the course.

IST 615 Decision Support and Expert Systems (3-0-3). *Prerequisite:* IST 608. Study of areas in which computers can be used as tools in management decision-making and evaluation of alternatives. Functional components of a Decision Support System (DSS). Decision models and end-user modeling. User-DSS interfaces. Planning and developing a DSS. Concepts of knowledge-based systems and expert systems. Components of expert systems. Knowledge

acquisition. Expert-systems development with a commercial shell. Manipulation of quantified uncertainty factors. Derivation of knowledge from data. Significance of groupware and document-management systems to decision-making.

IST 634/734 Enterprise Databases (4-0-4). *Prerequisite:* IST 604. Emphasizes the implementation of relational database management systems. Topics include database design algorithms, transaction processing, concurrency control, recovery, distributes query processing, and database security. Emerging technologies. One of the following advanced database topics will also be discussed: object-oriented databases, deductive databases, knowledge discovery/data mining, or data warehousing.

IST 635/735 Business Value of Information Technology (4-0-4). Exposes students to models and methods for aligning a business strategy with appropriate investment in information technology infrastructure and services. A variety of information and technical architectures will be explored together with how they relate to different business strategies. The focus will include architectures that will enable flexible collaboration with business partners so that the business value can be realized from the firm's IT investment.

IST 636/736 Managing Networks and Security Risks (4-0-4). *Prerequisite:* IST 606. Advanced knowledge of data communications and networking as they apply to computer security. Identifying and analyzing the various types of security risks. Investigating the tools used to counteract security risks. Developing security and business continuity plans based on the security risks and tools incorporated.

IST 641 Electronic Commerce (3-0-3). *Prerequisites:* IST 600 and IST 601. Provides an understanding of evolving Internet models and sustainability issues, including those for B-to-C and B-to-B. Specialized electronic commerce models for business functions, such as electronic shopping, collaboration, and auction are explored. The course also covers issues such as security, payment systems, and business infrastructure. In addition, students are introduced to building simple Web sites as a surrogate store front.

IST 642 Web Site Design and Development (3-0-3). *Prerequisite:* IST 604. Covers Web publishing and Web-based application development, with emphasis on accessing server based databases. Web site design concepts and tools are introduced, including HTML, JavaScript, Cascading Style Sheets, VBScript, XML, and ASP. Net. Introduces concepts of Web services. Prepares students with skills for designing, programming, and publishing Web sites, as well as developing applications on the Web.

IST 660/760 Business Analytics and Data Mining (4-0-4). *Prerequisite:* IST 634. Introduces the basic concepts of business analytics, data warehousing, and data mining. Topics discussed include the need for business analytics in today's dynamic business environments, data warehousing strategies, technologies, designs, and architectures (e.g., star schemas), data mining techniques, and algorithms (e.g., clustering,

classification, predictive modeling, decision trees, neural networks, and visualization). Sample applications of these technologies and techniques will be discussed.

IST 664/764 Business Geographics and GIS (4-0-4). *Prerequisite: IST 604.*

Introduction to Geographic Information Systems (GIS), spatial database, and specialized application of GIS concepts and tools for the analysis of business problems. Covers spatial data representation, modeling, handling, and manipulation. Emphasis on issues related to business service planning, spatial data mining, analysis, and decision support. Introduces GIS software to perform geographic query, analysis, visualization, and custom application development. Students also learn to evaluate GIS assets, constraints, risks, and strategies for implementation of GIS technology.

IST 665/765 Enterprise Resource Planning (4-0-4). *Prerequisite: IST 634.*

Addresses the increasing need to integrate a broad range of enterprise processes, information systems functions, and hardware and software technologies. Topics covered include the need, motivation, and business drivers for integration in any of its forms: processes, functions, or technologies; challenges and obstacles related to integration and implementation of comprehensive enterprise systems within and across organizations; planning, initiating, selecting, realizing, supporting, and maintaining an enterprise system. Change management issues and team dynamics relating to enterprise systems will also be discussed. Will also touch on specific integration models and technologies.

IST 690 Professional Internship (0-0-1).

Prerequisite: Permission of a CIS Department faculty advisor. Work experience in a professional environment. The work performed must enhance the academic experience, extend the academic curriculum, and provide a meaningful learning experience in the student's area of interest. Term paper required.

IST 693 Special Topics in Information Systems (3 credits). *Prerequisite: Varies with course content.* Special topics of current interest in information systems. Content varies with each offering.

IST 698 Independent Study (1-4 credits). *Prerequisites: Prior approval of written proposal by CIS faculty advisor and permission of Department Chair.* Project in any approved area of information systems. May be repeated with departmental approval. Term report required.

IST 800 Research Design and Measurements (4-0-4). *Prerequisite: Doctoral Standing.*

Provides an in-depth discussion of research design and measurement issues for IS researchers. Includes principles and logic of experimental and non-experimental research design and measurement theory, scaling methods, principles of qualitative research design, and comparison of various design techniques including reliability.

IST 801 Foundations of IS (4-0-4).

Prerequisite: Doctoral Standing. Intended to provide students with a deep understanding of the core principles and classical research

literature in the field of Information Systems. Intended to familiarize students with fundamental themes and key research areas and their methodologies.

IST 802 Seminar in IS Current Topics (4-0-4). *Prerequisite: Doctoral Standing.*

Intends to develop comprehensive understanding of the state of art in IS technologies, systems, issues, and policies. The content and topic varies according to the instructor. The student will be expected to develop a position paper in one of the evolving areas of IS.

IST 803 Knowledge Management (4-0-4).

Prerequisite: Doctoral Standing. Intended to provide students with a deep understanding of Knowledge Management and the strategies, techniques, tools, technologies, and systems that enable organizations to acquire, store, distribute, and process knowledge. In today's knowledge economy, an understanding of Knowledge Management Systems is definitely a vital area to have mastery of within the IS field.

IST 891 Doctoral Research in Information Systems (1-5 credits). *Prerequisites: Completion of the Analytical Core and IST 801 and IST 802.*

IST 895 Dissertation Research Seminar (3-0-3). *Co-requisite: IST 899 (Dissertation).* Focuses on research in Information Systems. Involves IS faculty, outside speakers, and dissertation-stage doctoral students.

IST 896 Current Problems in Information Systems (1-5 credits). *Prerequisites: IST 800, IST 801, and IST 802.*

Investigation of selected problem in Information Systems. May be repeated with change of topic.

IST 899 Dissertation (1-5 credits).

Prerequisite: Successful completion of comprehensive examination.

Masters of Business Administration

MBA 500 Environment of Business (3-0-3).

Explores and analyzes the ethical, legal, and managerial implications of significant environmental forces impacting business. Topics include corporate social responsibility, workplace and employment issues, multinational business operations, U.S. and international legal/regulatory issues, ecology issues, and models of ethical analysis for management decisions.

MBA 600 Team Dynamics (1-0-1).

Prerequisites: Completion of Level I and Level II or permission of MBA program advisor. A hands-on, exercise-oriented workshop, which explores issues in team building, group performance, team leadership, interpersonal interactions, and related topics.

MBA 602/702 International Business (3-0-3). *Prerequisites: Completion of Level I and Level II or permission of MBA program advisor.*

Explores the impact of global environmental forces on management strategies for entering or operating in international markets. Surveys theories and concepts in international marketing, human resources, operations, and strategic planning. Considers

managerial implications of global trends in politics, trade, culture, regulatory practices, and the role of international institutions.

MBA 603 Management of Innovation, Technology, and Quality (3-0-3).

Prerequisites: Completion of Level I and Level II or permission of MBA program advisor. Integrates technology and quality into the strategic management and operations of the firm. Discussion of methods for formulating technology, strategy, choosing core technologies, organizing research and development, managing research projects, and bringing to market new products that meet quality specifications and cost targets. Students learn the techniques of total quality management, how they can be introduced, and how they can be used to improve products, processes, and services of the firm.

MBA 660 Integrative Business Strategy (4-0-4). *Prerequisites: Completion of Level I, Level II, and group A of Level III or permission of MBA program advisor.*

Explores the integrative and cross-functional nature of corporate strategy and decision-making. Applies principles, concepts, and theories from business and marketing strategies, corporate finance, human resources management, managerial accounting, and operations management-to-management decisions and the formulation of strategic business plans.

MBA 693 Special Topics Seminar (3-0-3).

Prerequisites: Completion of Level I and Level II or permission of MBA program advisor. Topic varies from term to term. Special seminars are offered for lock-step programs. May be repeated with change of topic and with permission of instructor and MBA program advisor.

Mechanical Engineering

MCE 501 Mechanical Engineering Analysis (4-0-4).

Mathematical modeling/analysis of physical systems; boundary value problems. Fourier series and integrals; diffusion equation, Sturm-Liouville theory; Wave equation, D'Alembert's solution; Bessel and Legendre functions.

MCE 503 Modeling and Simulation of Mechatronic Systems (3-1-4). *Prerequisite: Permission of instructor.*

Obtain accurate dynamics models of mechanical, thermal, electrical and mixed systems using modern tools. The Bond Graph methodology will be used, together with the latest concepts in object-oriented modeling and automatic equation generation.

MCE 504 Continuum Mechanics (4-0-4).

General discussion of Cartesian tensors. Application to the mechanics of linear and nonlinear continua. Unified analysis of stress and deformations in solids and fluids.

MCE 509 Numerical Methods in Mechanical Engineering (4-0-4).

Advanced numerical methods for solving parabolic, elliptic, and hyperbolic partial differential equations; convergence and stability criteria; grid generation; special mesh systems and orthogonal coordinate systems; computer applications.

MCE 512 Advanced Vibrations I (4-0-4).

Study of multi-degree-of-freedom and continuous systems; modal analysis and modal summation methods; wave-equation solution for strings, rods, beams, and plates; approximate and energy-method solutions; introduction to finite-element-solution techniques.

MCE 521 Applied Thermodynamics (4-0-4).

Availability analysis (exergy); irreversibility; combustion; applications to internal and external combustion engine, vapor power, and refrigeration cycles.

MCE 524 (addenda new 09/2006)**MCE 544 Applied Combustion Processes (4-0-4).**

Review of chemical kinetics; conservation equation for multicomponent reacting systems; premixed laminar and turbulent flames.

MCE 545 Modern Controls (4-0-4).

Classical design of control systems; state-space analysis; state-space design of regulator systems; linear quadratic regulator problems; optimal observer design; computer simulation of control systems.

MCE 546 Principles of Turbomachinery and Applications (4-0-4).

Derivation of fluid and thermodynamic relations along with passage losses for turbomachinery. Applications include analysis and design of axial and radial flow turbines, compressors, and pumps.

MCE 550 Advanced Dynamics (4-0-4).

Lagrangian dynamics; Hamilton's and D'Alembert's principles; autonomous and non-autonomous systems; behavior of conservative and non-conservative systems; approximate solutions; perturbation methods of solution; study of damping.

MCE 565 Advanced Machine Analysis (4-0-4).

Finite-element analysis of stresses and deflections in complex mechanical systems under static and dynamic loading. Integrating modeling techniques with two- and three-dimensional CAD systems for inputting geometric data. Comparisons of finite-element results with theoretical and empirical results.

MCE 567 Lubrication and Bearing Design (4-0-4).

Study of the theoretical aspects of elastohydrodynamic, hydrodynamic, and hydrostatic lubrication regimes. Design and analysis of bearings for industrial and aerospace applications.

MCE 580 Finite Element Analysis I (4-0-4).

Introduction to calculus of variations, virtual work, complementary virtual work, potential energy, complementary energy, and Castigliano theorems; approximate methods; finite-element development and applications.

MCE 603/703 Interfacing and Control of Mechatronic Systems (2-2-4).

Prerequisites: MCE 403/503 and MCE 441. Permission of instructor required for graduate students without the MCE 441 prerequisite. Study of mechatronic sensors and actuators from the physical principles governing their behavior. Bond graph modeling of specific devices like piezoelectric and magnetostrictive transducers, capacitance sensors, electric motors, charge-coupled devices, operational amplifiers, Hall effect sensors, and others. Digital control applied to mechatronic systems. Electronic interfacing.

MCE 610 Computational Fluid Flow and Heat Transfer (4-0-4).

Prerequisite: MCE 501. Application

of advanced numerical methods to current problems in the fluid-flow and heat-transfer areas; internal and external incompressible and compressible flows; numerical methods for inviscid flow equations; multigrid procedure; computer applications.

MCE 618 Engineering Plasticity (4-0-4).

Prerequisite: MCE 504. Yield criteria and application to elastic-plastic and rigid-plastic deformation; flow stress; plastic deformation processes; tribology; thermal effects; analysis by slab method, upper- and lower- bound on power, and finite element methods.

MCE 622 Energy Conversion (4-0-4).

Prerequisite: MCE 521. Nuclear, solar, and chemical-energy conversion techniques. Thermodynamics of power cycles and systems; thermoelectric devices; thermionic generators; MHD systems; fuel cells; photovoltaic cells.

MCE 632 Gas Dynamics (4-0-4).

Pre-or co-requisite: MCE 501. Generalized one-, two-, and three-dimensional compressible flows; normal shocks; oblique shocks; flow with friction and heat transfer; method of characteristics; real gas effects.

MCE 638 Viscous Flow I (4-0-4).

Prerequisite: MCE 501. Derivation and exact solutions of Navier-Stokes equations governing incompressible, laminar viscous flow; applications include non-steady flow, low Reynolds numbers flows, parallel flows, and laminar boundary layer; classification of fluid behavior, rheometry; and viscoelastic and time-dependent properties.

MCE 639 Viscous Flow II (4-0-4).

Prerequisite: MCE 638. Derivation and formulation of compressible fluid-flow equations in both integral and differential forms; applications include exact solutions with and without pressure gradients; introduction to turbulence and modeling of turbulent boundary layers; laminar and turbulent flows of non-Newtonian fluids; internal and external flows; boundary layer equations for momentum and energy transport.

MCE 641 Convection Heat Transfer (4-0-4).

Prerequisite: MCE 501. Convective processes involving heat, momentum, and mass transfer, and their applications. Laminar and turbulent convection heat transfer; internal and external flows.

MCE 642 Advanced Conduction Heat Transfer (4-0-4).

Prerequisite: MCE 501. Heat transfer by conduction in steady, transient, and periodic states in solids for one-, two-, and three-dimensional problems; applications of various analytical and numerical methods.

MCE 643 Radiation Heat Transfer (4-0-4).

Prerequisite: MCE 501. Physics of the thermal radiation process; surface properties; exchange factors and networks for heat transfer between surfaces; characteristics of emission and absorption of flames, gases, and the atmosphere; solar radiation.

MCE 644 Heat Transfer with Phase Change (4-0-4).

Prerequisite: MCE 641. Heat transfer in phase change; nucleate and film boiling mechanisms; pool and forced-convection boiling; two-phase flow, flow regimes, and transitions; application to cryogenics and nuclear reactors.

MCE 652 Robotics and Machine Vision (4-0-4).

Prerequisite: MCE 501 or MCE 504. Analysis and design of robotic systems used in manufacturing; sensing technology; machine vision; digital image processing; image analysis; robot intelligence.

MCE 654 Computer-Aided Design and Optimization (4-0-4).

Prerequisite: MCE 501 or 504. Optimum design problem formulation, optimum design concepts, numerical methods for unconstrained and constrained optimum designs; three-dimensional graphics techniques, non-traditional computing techniques, such as artificial neural networks and fuzzy logic, which provide a different approach in engineering design and analysis.

MCE 655 Acoustics (4-0-4).

Prerequisite: MCE 501. Elements of theoretical acoustics: plane and spherical acoustic waves; transmission and absorption of acoustic waves; theory of resonators and filters; application of theory to noise problems in mechanical and air-moving equipment.

MCE 660 Lubrication (4-0-4).

Prerequisite: MCE 501. Hydrodynamic lubrication, self-excited instability of hydrodynamic bearings, design optimization. Hydrostatic lubrication with design optimization. Elastohydrodynamic lubrication, calculation of Hertzian contact stresses, and deformation in rolling-contact bearings.

MCE 666 Advanced Control of Mechanical Systems (4-0-4).

Prerequisite: MCE 503. Design and analysis of multivariable systems using state-variable techniques; introduction to system modeling, observability, controllability, stability, Z transforms, and controller design.

MCE 670 Turbomachinery Rotordynamics (4-0-4).

Prerequisite: MCE 512. Introduces students to a collection of phenomena and related analysis techniques associated with the dynamics of rotating machinery, such as turbines, compressors, pumps, power transmission shafting. Development of adequate computationally oriented component and system models for the analysis of rotors.

MCE 680 Finite-Element Analysis II (4-0-4).

Prerequisite: MCE 580. Study of two- and three-dimensional continua; application of finite-element methods to mechanical engineering analysis and design problems.

MCE 691 Special Topics in Manufacturing Engineering (1-3 credits).

Prerequisite: Permission of the World-Class Manufacturing Consortium Coordinator in the Mechanical Engineering Department. Offered via the Internet as part of the Ohio World-Class Manufacturing Consortium. Each course is assigned a different section number and title.

MCE 693 Selected Topics in Mechanical Engineering (4-0-4).

Topics of current interest in the mechanical engineering profession. Total credits in MCE 693 should not exceed eight.

MCE 696 Directed Study (1-4 credits).

Prerequisite: Permission of instructor. Directed study of an individual problem or

subject area under the supervision of a faculty member. Total credits for this course are limited to four.

MCE 698 Master's Project in Mechanical Engineering (1-5 credits). A project involving design and analysis or theoretical investigation of a topic in mechanical engineering, approved by the graduate advisor. A written report is required.

MCE 699 Master's Thesis (1-6 credits). Independent investigation by the student selected from an area of mechanical engineering that result in significant contributions to the field. This may be analytical, computational, or experimental and needs the approval of the graduate advisor and the thesis committee. A bound copy of the thesis must be submitted to the department.

MCE 710 Computational Fluid Flow and Heat Transfer (4-0-4). *Prerequisite:* MCE 501. Application of advanced numerical methods to current problems in the fluid flow and heat-transfer areas; internal and external incompressible and compressible flows; numerical methods for inviscid flow equations; multigrid procedure; computer applications.

MCE 718 Engineering Plasticity (4-0-4). *Prerequisite:* MCE 504. Yield criteria and application to elastic-plastic and rigid-plastic deformation; flow stress; plastic-deformation processes; tribology; thermal effects; analysis by slab method; upper and lower bound on power; and finite element methods.

MCE 722 Energy Conversion (4-0-4). *Prerequisite:* MCE 521. Nuclear, solar, and chemical energy-conversion techniques. Thermodynamics of power cycles and systems; thermoelectric devices; thermionic generators; MHD systems; fuel cells; photovoltaic cells.

MCE 732 Gas Dynamics (4-0-4). *Prerequisite:* MCE 501. Generalized one-, two-, and three-dimensional compressible flows, normal shocks, oblique shocks, flow with friction and heat transfer, method of characteristics, real gas effects.

MCE 738 Viscous Flow I (4-0-4). *Prerequisite:* MCE 501. Derivation and exact solutions of Navier-Stokes equations governing incompressible, laminar viscous flow. Applications include non-steady flow, low Reynolds numbers flows, parallel flows, and laminar boundary layer. Classification of fluid behavior, rheometry, and viscoelastic and time-dependent properties.

MCE 739 Viscous Flow II (4-0-4). *Prerequisite:* MCE 738. Derivation and formulation of compressible fluid-flow equations in both integral and differential forms; applications include exact solutions with and without pressure gradients; introduction to turbulence and modeling of turbulent boundary layers; laminar and turbulent flows of non-Newtonian fluids; internal and external flows; boundary layer equations for momentum and energy transport.

MCE 741 Convection Heat Transfer (4-0-4). *Prerequisite:* MCE 638. Convective processes involving heat, momentum, and mass transfer, and their applications. Laminar and turbulent convection heat transfer; internal and external flows.

MCE 742 Advanced Conduction Heat Transfer (4-0-4). *Prerequisite:* MCE 501. Heat transfer by conduction in steady, transient, and periodic states in solids for one-, two-, and three-dimensional problems; applications of various analytical and numerical methods.

MCE 743 Radiation Heat Transfer (4-0-4). *Prerequisite:* MCE 501. Physics of the thermal radiation process; surface properties; exchange factors and networks for heat transfer between surfaces; characteristics of emission and absorption of flames, gases, and the atmosphere; solar radiation.

MCE 744 Heat Transfer with Phase Change (4-0-4). *Prerequisite:* MCE 741. Heat transfer in phase change; nucleate and film-boiling mechanisms; pool and forced-convection boiling; two-phase flow, flow regimes, and transitions; application to cryogenics and nuclear reactors.

MCE 752 Robotics and Machine Vision (4-0-4). *Prerequisite:* MCE 501 or MCE 504. Analysis and design of robotic systems used in manufacturing; sensing technology; machine vision; digital image processing; image analysis; robot intelligence.

MCE 754 Computer-Aided Design and Optimization (4-0-4). *Prerequisite:* MCE 501 or MCE 504. Optimum design problem formulation, optimum design concepts, numerical methods for unconstrained and constrained optimum designs; 3-D graphics techniques, non-traditional computing techniques such as artificial neural networks and fuzzy logic, which provide a different approach in engineering design and analysis.

MCE 755 Acoustics (4-0-4). *Prerequisite:* MCE 501. Elements of theoretical acoustics: plane and spherical acoustic waves; transmission and absorption of acoustic waves; theory of resonators and filters; application of the theory to noise problems in mechanical and air-moving equipment.

MCE 760 Lubrication (4-0-4). *Prerequisite:* MCE 501. Hydrodynamic lubrication, self-excited instability of hydrodynamic bearings, design optimization. Hydrostatic lubrication with design optimization. Elastohydrodynamic lubrication, calculation of Hertzian contact stresses, and deformation in rolling contact bearings.

MCE 766 Advanced Control of Mechanical Systems (4-0-4). *Prerequisite:* MCE 503. Design and analysis of multivariable systems using state-variable techniques; introduction to system modeling, observability, controllability, stability, Z transforms, and controller design.

MCE 770 Turbomachinery Rotordynamics (4-0-4). *Prerequisite:* MCE 512. Introduction to a collection of phenomena and related analysis techniques associated with the dynamics of rotating machinery (e.g., turbines, compressors, pumps, power transmission shafting, and others). Development of adequate, computationally-oriented component and system models for the analysis of rotors. State-of-the-art computer codes to analyze modern rotating machinery are used during the second half of the course.

MCE 780 Finite Element Analysis II (4-0-4). *Prerequisite:* MCE 580. Study of two- and three-dimensional continua; application of finite-element methods to mechanical engineering analysis and design problems.

MCE 793 Selected Topics in Mechanical Engineering (4-0-4). Topics of current interest to the mechanical engineering profession. Total credits in MCE 793 should not exceed eight.

MCE 796 Directed Study (1-4 credits). *Prerequisite:* Permission of instructor. Directed study of an individual problem or subject area under the supervision of a faculty member. Total credits for this course are limited to four.

MCE 895 Seminar (no credit).

MCE 897 Doctoral Research (1, 2, 3, or 8 credits). *Prerequisite:* Standing in Engineering Doctoral program. Offered every semester. Up to 10 credits may be considered toward dissertation credit requirements.

MCE 899 Dissertation (1-12 credits). *Prerequisites:* Successful completion of candidacy examination and Dissertation Proposal Approval Form on file with the College of Graduate Studies prior to enrollment. Offered every semester.

Marketing

Students enrolled in the 700-level section of cross-listed 600/700-level courses are required to complete additional work.

MKT 501 Marketing Theory and Practice (3-0-3). Examines theoretical and practical considerations in strategic market planning. Explores managerial, ethical, societal, and global dimensions of marketing decision-making. Focuses on segmenting markets and making product, pricing, promotion, and distribution decisions.

MKT 511 Retail Management (4-0-4). *Prerequisite:* MKT 601 or permission of Department Chair. Provides retail management and merchandising framework for all types of businesses. Includes store location, layout, and design; merchandise offerings, assortments, pricing, and control; internal operations staffing, supervision, promotions, customer services, store operations, and expense control; opportunities for small retailers; and legal and ethical considerations.

MKT 550 Professional Selling and Sales Management (4-0-4). *Prerequisite:* MKT 601 or permission of Department Chair. Covers tasks and responsibilities of professional selling and the challenges of managing both the individual and team sales function. Stresses analytical and interpersonal skills, account management, proposal development, planning, organizing, directing, motivating, and controlling a sales organization. Examines legal and ethical issues.

MKT 552 Business-to-Business Marketing (4-0-4). *Prerequisite:* MKT 601 or permission of Department Chair. Explores concepts, analytic tools, management practices, and advances in marketing goods and services to industrial, commercial, institutional, and other business markets in

domestic and global environments. Includes lectures, case analyses, discussions, oral presentations, written reports, and implementation of a field project.

MKT 554 Internet Marketing (4-0-4). Prerequisite: MKT 601 or permission of Department Chair. Provides an introduction to Internet technology and the marketing opportunities this technology presents. A multi-dimensional approach is used to combine practical application with marketing principles.

MKT 556 Customer Relationship Management (4-0-4). Prerequisite: MKT 601 or permission of Department Chair. Introduces the basic theories and methodology of customer relationship management (CRM), including identifying profitable customers, understanding their needs and wants, and building a bond with them by developing customer-centric products and services directed toward providing customer value. Provides hands-on experience with popular analytical CRM and data-mining tools that are widely used in the industry. Topics will cover the issues in the customer life cycle, market segmentation, customer acquisition, basket analysis and cross-selling, customer retention and loyalty, and practical issues in the implementation of successful CRM programs.

MKT 601 Marketing Management (3-0-3). *(Addenda revised 4/2006)* Prerequisite: MKT 501 or equivalent. Explores advanced theories, concepts, and techniques for formulating strategic marketing plans for business and non-business organizations in U.S. and global environments. Topics include environmental analysis, market-opportunity analysis, segmentation and positioning, marketing-mix decisions, and formulating action plans.

MKT 602/702 Marketing Research (4-0-4). Prerequisite: MKT 601 or permission of Department Chair. Covers quantitative and qualitative research methods for analyzing marketing efforts and opportunities. Emphasizes primary techniques such as setting objectives, designing projects, collecting, processing, and analyzing data, reporting results to management, and integrating results into decision-making. Uses computers and the latest statistical software.

MKT 603/703 Buyer Behavior (4-0-4). Prerequisite: MKT 601 or permission of Department Chair. Examines social and psychological influences on individual, household, and organizational buyer behavior. Investigates models of buyer behavior and applies them to the marketing decision-making processes. Includes readings, lectures, discussions, and team projects.

MKT 604/704 Strategic and Tactical Marketing (4-0-4). Prerequisite: MKT 601 or permission of Department Chair. Provides an in-depth understanding of marketing planning, focusing on the tools necessary for analysis and decision-making in a planning context. Emphasizes marketing decision-support systems in the planning process.

MKT 605 Services Marketing (4-0-4). Prerequisite: MKT 601 or permission of Department Chair. Explores the marketing of services in consumer, business, nonprofit, and global settings. Investigates the nature of services and the theories, concepts, tactics, and strategies for solving

marketing problems, improving service quality, and building customer satisfaction.

MKT 606/706 Advertising and Promotion Management (4-0-4). Prerequisite: MKT 601 or permission of Department Chair. Examines the key managerial topics involved in the design, implementation, and evaluation of the marketing communications program. Focuses on objective setting, strategy formulation, and promotional research and evaluation.

MKT 607/707 Product Management (4-0-4). Prerequisite: MKT 601 or permission of Department Chair. Provides a managerial introduction to special problems encountered in the evaluation, introduction, and management of consumer and industrial products. Focuses on market analysis, new product development, and product planning.

MKT 608/708 Global Marketing (4-0-4). Prerequisite: MKT 601 or permission of Department Chair. Emphasizes the marketing mix product, promotion, distribution, and pricing—within the international context, particularly strategic marketing management. Uses cases, readings, films, and textbook. Learning materials are selected based on their pragmatic value to managers. Includes lectures, discussions, and individual/group presentations.

MKT 640 Field Experience Abroad (4-0-4). Prerequisites: MKT 501 or equivalent, and permission of Department Chair. Specially arranged field experience abroad, providing intensive business exposure to the target country. Provides students with hands-on research skills, travel, and contact with many sectors of the business community in the target country.

MKT 690 Professional Internship (2-4 credits). Prerequisite: Permission of Department Chair; based on student's written proposal approved by Marketing faculty coordinator chosen by the student. Forms should be obtained prior to start of semester from Marketing Department Office. Student must work (under the supervision of a marketing professional) a minimum number of hours during the semester, based on the number of credits desired: 150 (two credits), 225 (three credits), or 300 (four credits). Requires professional marketing work in an organizational environment that extends the curriculum and provides meaningful experience related to the student's area of interest. At the end of the semester, the student must submit a term report to the sponsoring organization and the faculty coordinator.

MKT 696 Current Problems in Marketing (1-4 credits). Prerequisites: MKT 601 and permission of Department Chair. Selected problems in the field of marketing.

MKT 698 Independent Study (1-4 credits). Prerequisites: MKT 601, prior approval of a written proposal by Marketing faculty advisor and permission of Department Chair. Study of a significant problem or area in marketing, conducted under the supervision of the faculty advisor. Term report required.

MKT 800 Research Design and Measurement (3-0-3). Provides an in-depth discussion of research design and measurement issues. Includes principles and logic of experimental and

nonexperimental design, measurement theory (validity, reliability, and multiple indicators), data theory and scaling methods (uni-dimensional and summated scales), and comparison, similarity, and preference data.

MKT 801 Marketing Theory (3-0-3). Investigates the development and evolution of marketing thought. Provides a historical perspective in marketing-theory development by reviewing and assessing selected scholarly works.

MKT 802 Global Business Strategy: Theory and Practice (3-0-3). Reviews international business theories and applications, such as absolute and comparative advantage, product life cycle, internalization, market imperfections, and eclectic approaches. Explores issues such as technology transfer, economic development, market integration, and privatization. Includes presentations, research papers, and/or trial dissertation proposal.

MKT 803 Strategic Marketing and Tactical Decisions (3-0-3). Explores theoretical concepts of marketing strategies, their development and implementation, and their success and failure in application. Major tactical areas, such as market entry, positioning, product quality, price, promotion, distribution, and evaluation of market performance, are examined. Investigates issues, methods, models, and findings in the literature.

MKT 804 Multivariate Techniques in Marketing (3-0-3). Emphasizes multivariate techniques, their assumptions, applications, and interpretation of output. Includes multiple classification analysis, canonical correlation analysis, multivariate analysis of variance, discriminant analysis, factor analysis, cluster analysis, MDS, conjoint analysis, logit and probit models, and other analysis techniques. Uses computer packages to analyze data.

MKT 805 Theory and Research in Buyer Behavior (3-0-3). Introduces current theoretical and methodological issues in consumer behavior. Emphasizes critical evaluation of the relevant literature and explores avenues for theory development and research.

MKT 891 Doctoral Research in Marketing (1-12 credits). Up to 12 credits may be considered toward dissertation credit requirements.

MKT 895 Dissertation Research Seminar (3-0-3). Focuses on research in marketing involving faculty, outside speakers, and dissertation-stage doctoral students. Students also must be enrolled in MKT 899 (Dissertation).

MKT 896 Current Problems in Marketing (1-4 credits). Investigation of selected problems in the field of marketing. May be repeated with change of topic.

MKT 899 Dissertation (1-12 credits). Prerequisite: Successful completion of comprehensive examinations.

Modern Languages

MLA 500 Practicum in Language (1-4 credits). Prerequisites: Permission of instructor and departmental approval.

Specially arranged projects or supervised experiences using non-native languages, conducted in the University and the community. Project arranged between individual instructors and students; title of the project appears on the student's transcript.

MLA 540 Field Experience Abroad (1-6 credits). *Prerequisites:* *Permission of instructor and departmental approval.* Specially arranged field experience abroad providing intensive exposure to students' target countries and languages. See semester online Course Schedule and contact the department for further information.

MLA 592 Special Topics: Study Abroad (1-6 credits). *Prerequisite:* *Graduate Standing.* Study of a particular topic in a foreign language, literature, or civilization as part of the University's Study Abroad Program. May be repeated with change of topic.

Management and Labor Relations

Students enrolled in the 700-level section of cross-listed 600/700-level courses are required to complete additional work.

MLR 501 Management and Organizational Behavior (3-0-3).

Prerequisite: *Non-degree students must obtain permission of Department Chair.* Focuses on the dynamic interactions of people working in organizations; applies various managerial concepts, models, theories, and tools for identifying, diagnosing, and solving organizational problems; topics include motivation, leadership, job design, decision making, and group and team dynamics.

MLR 504 Organizational Theory and Design (3-0-3). *Prerequisite:* *MLR 501 or permission of Department Chair.* Nature and importance of organizational structure and design; functions and dysfunctions of traditional designs; how and why organizational designs change; effects of the environment, technology, information and control systems, power structures, and political behavior on organizational performance.

MLR 511 Labor History (3-0-3).

Prerequisite: *MLR 601 or permission of Department Chair.* Examination of the organized labor movement in the United States and its influence on political and legal institutions; analysis of legislation relating to labor, management, and the public; laws and regulations concerning wages, hours, collective bargaining, labor contracts, and arbitration.

MLR 521 Comparative Labor Systems (3-0-3). *Prerequisite:* *MLR 601 or permission of Department Chair.* American and foreign labor movements; trade unionism and industrial relations systems in different areas of the world, showing their roles in economic, social, and political developments; comparison of structure and functions of labor movements at various stages of economic development.

MLR 522 Labor Law (3-0-3). *Prerequisite:* *MLR 601 or permission of Department Chair.* The law of industrial relations with emphasis on the Labor-Management Relations Act,

including unfair practices and representation cases.

MLR 523 Labor Relations in Public Employment (3-0-3). *Prerequisite:* *MLR 601 or permission of Department Chair.* Collective bargaining by federal, state, and local employees; differences between public and private employment; union security, impasse procedures, and implications of collective bargaining for public management; impact of collective bargaining on wages and other conditions of employment in the public sector.

MLR 531 Employment Practices Law (3-0-3). *Prerequisite:* *MLR 601 or permission of Department Chair.* Analyzes employment practices law and its impact on employment decision making; equal employment opportunity and discrimination; occupational safety and health; pension and benefit regulations and laws that pertain to the employment relationship; emphasis on the impact of regulations on an organization's personnel and human resource policy.

MLR 543 Entrepreneurship (3-0-3).

Prerequisite: *None for business students; permission of Department Chair for non-business students.* Exploration of the business-formation process, the management and operation of new/smaller enterprises both within and apart from existing ventures. Students are required to develop a written business-venture plan and may act as advisors to existing smaller enterprises.

MLR 547 Cross-Functional Management (4-0-4). *Prerequisite:* *MLR 501 or permission of Department Chair.* Analysis of issues involved in managing different functional departments; examination of the types of interactions and conflicts that typically occur between departments; methods of dealing with interdepartmental problems considered along with current management techniques for improving strategic and operational performance.

MLR 555 Labor-Management Cooperative Practices (3-0-3). *Prerequisite:* *MLR 601 or permission of Department Chair.* Examines employee involvement, primarily in the organized sector, including the factors influencing initiation, continuation, and demise of labor-management cooperative practices. Covers processes of discrete cooperative practices, including quality circles, gain sharing, labor-management committees, and interest-based bargaining, as well as their benefits, risks, and interaction with organizational structure and philosophy.

MLR 577 Managerial Skill Development (3-0-3). *Prerequisite:* *MLR 501 or permission of Department Chair.* Analysis of aspects of managing in which specific behavioral skills can be developed; focus on individual managers and skill development in such areas as goal setting, time management, conducting meetings, communication processes, delegation, training, and appraisal interviews.

MLR 587 International Management (3-0-3). *Prerequisite:* *MLR 501 or permission of Department Chair.* Strategic, managerial, and human resource issues in international business management; cultural differences and managerial practices in different countries; planning and control of small businesses and global enterprises; evaluating the

performance of overseas subsidiaries; coordinating operations in different countries; overseas decisions; career concerns with overseas assignments.

MLR 601/701 Human Resources Management and Labor Relations (3-0-3). *Prerequisites:* *MLR 501 and ECN 503 or equivalents, or permission of Department Chair.* A review of basic processes and significant issues in managing human resources in organizations. Topics include recruitment, employee selection, training, compensation and benefits, legal issues, the historical framework for organized labor, union behavior, and collective bargaining.

MLR 602/702 Advanced Wage and Employment Theory (3-0-3). *Prerequisites:* *MLR 601 and ECN 503 or equivalents, or permission of Department Chair.* Supply and demand for labor, search process, wage differentials, vacancies, and unemployment; union growth, models of the bargaining process, and the impact of unions on labor markets.

MLR 604/704 Interpersonal Relations and Group Dynamics (3-0-3). *Prerequisite:* *MLR 501 or permission of Department Chair.* Current topics affecting the management of individuals and groups; designed to stimulate new insights and behaviors to improve interpersonal effectiveness; exploration of issues such as network building, leadership, impact of positive expectations, agenda setting, power and influence, mentoring, team building, innovation, and group process.

MLR 605/705 Organizational Development (3-0-3). *Prerequisite:* *MLR 501 or permission of Department Chair.* Issues involving organizational change and methods for helping organizations adapt to rapidly changing environments; strategies and methods of organizational change; consultative methods and the role of the change agent; the nature of organizations in the future; methods of needs assessment; and indicators of organizational effectiveness.

MLR 606/706 Research and Development Management (3-0-3).

Prerequisite: *MLR 501 or permission of Department Chair.* Problems in research and development administration, emphasizing planning, organizing, directing, and controlling the research function; responsibilities of research administrators; coordination of outside research services with the rest of the organization; supervising research personnel; development of organizational designs conducive to research and development effectiveness.

MLR 607/707 Total Quality Management/Continuous Quality Improvement (4-0-4). *Prerequisite:* *MLR 501 or permission of Department Chair.* Overview of managerial considerations in implementing an enterprise-wide quality improvement program; includes discussion of senior management leadership, objectives, strategy, program design, implementation structure, customer-satisfaction measurement, process improvement, training, lower-level involvement, supporting management programs, and the assessment of financial results.

MLR 609/709 Individual Differences: Their Assessment and Managerial Implications (3-0-3).

Prerequisite: MLR 501 or permission of Department Chair. Analysis of individual differences and their influences on effective management; emphasis on the presentation of various assessment measures, their evaluation, and application of results toward the understanding of individual behavior; implications for effective self-management, career advancement, motivation, leadership, and decision making are discussed.

MLR 611/711 Team Problem-Solving Process (2-0-2).

Prerequisite: MLR 501 or permission of Department Chair. Analysis of problem-solving processes in small, cross-functional teams; emphasis on developing behavioral skills in problem analysis and solution selection; team-facilitation skills, including listening and feedback, conflict management, and conducting meetings; building coalitions with external groups and action plans necessary for successful project implementation.

MLR 621/721 Multinational Management (3-0-3).

Prerequisite: MLR 501 or permission of Department Chair. Advanced study of multinational corporations in diverse political, economic, and cultural environments; examination of concepts and theories relating to multinational business strategy and operations; broad coverage of issues affecting top management decision making, including business-government relations, headquarters-subsidiary relationships, and cross-functional coordination of operations across borders.

MLR 640/740 Performance Appraisal, Compensation, and Benefits (3-0-3).

Prerequisite: MLR 601 or permission of Department Chair. Detailed study of performance appraisal and compensation systems; includes job analysis, job evaluation, wage surveys, pay structure design, individual and group incentive systems, appraisal methods, and salary and benefits administration; also includes economic, legal, and union influences and role of reward systems as a source of work motivation and perceptions of fairness.

MLR 641/741 Employment Planning, Personnel Selection, and Training (3-0-3).

Prerequisite: MLR 601 or permission of Department Chair. Processes, concepts, and techniques relevant to the planning, recruitment, selection, and training functions of human resource management; evaluation of personnel techniques; focus on organizational and governmental constraints and influences.

MLR 645/745 Information Systems in Human Resource Management (4-0-4).

Prerequisite: MLR 601 or permission of Department Chair. Comprehensive analysis of the use of information systems in human resource management; involves extensive study of the design, selection, and implementation of HRIS software and hardware, including mainframe, client-server, and microcomputer technology; emphasis on the use of computer applications to perform such functions as human resource planning, selection, appraisal, compensation, and benefits administration; hands-on experience with advanced HRIS software is a major element of course instruction.

MLR 649/749 Small Business and the Law (3-0-3).

Prerequisite: Permission of Department Chair. Offered in conjunction with the Cleveland-Marshall

College of Law; focuses on matters of concern to entrepreneurs and their businesses and the interface of professionals who serve entrepreneurs and their businesses; topics include family business, ethics, boards of directors, understanding the legal implications of selected topics, and the roles of clients and professionals.

MLR 651/751 Collective Bargaining (3-0-3).

Prerequisite: MLR 601 or permission of Department Chair. Structure of organized labor; types, methods, and aims of unions; trade and labor contracts; arbitration and mediation methods and services; federal and state regulation of collective bargaining.

MLR 686/786 Current Problems in Management and Labor Relations (3-0-3).

Prerequisites: MLR 601 and permission of Department Chair. Seminar dealing with selected problems in the field of management or labor relations. May be repeated with change of topic.

MLR 690 Professional Internship (1-3 credits).

Prerequisites: Two MLR courses, at least one of which must be at the 600 level; permission of instructor and Department Chair. Provides students with an opportunity to gain practical experience in human resources, labor relations, and/or management. Must be arranged in advance of the semester at the initiative of the student or the faculty member. Students must work a minimum of fourteen hours per week during the semester under the supervision of a professional manager. A written report in a format agreed upon, in advance, is required. The course is graded on a Satisfactory/Fail basis.

MLR 696/796 Alternative Dispute Resolution (3-0-3).

Prerequisite: MLR 601 or permission of Department Chair. Survey of the various types of dispute-resolution processes available as alternatives to litigation; detailed study of the primary dispute-resolution processes such as negotiation, mediation, and arbitration, as well as some of their hybrid variants; description and analysis of several noteworthy applications, the context for which ranges from the personal to the global; consideration of the impediments to use of so-called alternative dispute-resolution processes, such as the alternatives to court adjudication, and suggestions on how those impediments might be overcome.

MLR 698 Independent Study (1-4 credits).

Prerequisites: Two MLR courses, at least one of which must be at the 600 level, and permission of instructor and Department Chair. Study of a significant problem or area in management and labor relations, conducted under the supervision of the faculty advisor. Term report required.

MLR 891 Doctoral Research in Management and Labor Relations (1-12 credits).

Prerequisites: Completion of two 800-level management and labor relations electives. Up to 12 credits may be considered toward dissertation credit requirements.

Engineering Mechanics

MME 500 Mathematical Methods in Engineering Mechanics (4-0-4). Partial differential equations, integral equations, complex variables, integral transforms, and variational calculus, as applied to the areas of elasticity,

plasticity, fracture mechanics, materials science, and structural engineering. Cross-listed with CVE 500.

MME 504 Continuum Mechanics (4-0-4).

General discussion of Cartesian tensors. Application to the mechanics of linear and nonlinear continua. Unified analysis of stress and deformations in solids and fluids. Cross-listed with MCE 504.

MME 509 Energy/Variational Methods in Engineering Mechanics (3-0-3).

Prerequisite: MME 604 or permission of instructor. Application of variational calculus techniques to the solution of solid mechanic problems. Cross-listed with CVE 509.

MME 510 Structure of Materials (4-0-4).

Basic principles, which determine the atomic and crystal structures of materials, are studied. Topics include instrumental and structural analysis techniques, evolution of microstructures (phases/phase diagram), processing (diffusive, solidification, and mechanical working) techniques, and the influence of processing on microstructure. Cross-listed with CHE 510.

MME 511 Matrix Methods of Structural Analysis (3-0-3).

Energy methods approach to matrix structural analysis, including the development of element material stiffness, geometric stiffness, and mass matrices of basic structural elements; emphasis on the displacement method with computer-program solutions of truss and frame problems. Cross-listed with CVE 511.

MME 512 Finite Element Analysis I (3-0-3).

[\(addenda revised 06/2007\)](#) Prerequisite: MME 511 or MCE 504 or permission of instructor. Theory and application of finite-element methods as analysis tools for problems in engineering. Cross-listed with CVE 512 and MCE 580.

MME 513 Advanced Strength of Materials (4-0-4).

Prerequisite: ESC 211. Fosters an understanding of a number of advanced concepts in the field of engineering mechanics. Topics include three-dimensional stress-strain relationships, including failure theories; bending of non-symmetrical members; curved-beam theory; beams on elastic foundations, torsion of non-circular shafts, using the thin membrane analogy; and plate theory. Cross-listed with CVE 513.

MME 514 Analysis and Design of Composite Materials (4-0-4).

Prerequisite: ESC 211. Behavior of unidirectional composites, rule of mixtures, short-fiber composites, analysis of orthotropic lamina, analysis of laminated composites, design of polymer-composite structures, and repair of reinforced concrete structures with composite materials. Cross-listed with CVE 514.

MME 515 Elastic Instability (3-0-3).

Prerequisite: MME 511. Euler buckling of bars, beam/columns, and plates using matrix methods; concepts of geometric nonlinearity, including bifurcation and limit-point analysis, using iterative numerical techniques;

applications to load eccentricity and system imperfection. Cross-listed with CVE 515.

MME 517 Structural Vibrations (4-0-4).

Prerequisites: ESC 202 and CVE 412. Dynamic response of single and multiple degree-of-freedom and continuous structural systems to general force inputs by integration and modal methods; approximate design methods of structural systems under dynamic loading. Cross-listed with CVE 517.

MME 521 Behavior and Properties of Concrete (3-0-3).

Prerequisite: CVE 422. Properties of hydraulic cements, aggregates, plastic, and hardened concrete; effect of admixtures and curing conditions; specifications and acceptance tests; placement, consolidation, finishing, and durability of concrete. Cross-listed with CVE 521.

MME 524 Nondestructive Evaluation (3-2-4).

Theory, methods, applications, and case studies of nondestructive evaluation for detecting and evaluating flaws and estimating the engineering properties of materials. Methods covered such as ultrasonics, acoustic emissions, impact-echo, seismic waves, ground penetrating radar, and thermal methods, with hands-on applications in a laboratory setting. Cross-listed with CVE 524.

MME 550 Advanced Dynamics (4-0-4).

Prerequisite: Graduate standing or approval of instructor. Fundamentals of analytical mechanics and Lagrangian dynamics. Study of Hamilton's and D'Alembert's principles. Behavior of autonomous and nonautonomous systems. Analytical solutions of dynamics problems, using perturbation techniques. Cross-listed with MCE 550.

MME 565 Advanced Machine Analysis (4-0-4).

Prerequisite: MCE 362 or MME 513. Finite-element analysis of stresses and deflections in complex mechanical systems under static and dynamic loading. Integrating modeling techniques with 2D and 3D CAD systems for inputting geometric data. Comparison of finite-element results with theoretical and empirical results.

MME 604 Elasticity (4-0-4).

Prerequisite: MME 513. Elasticity topics include tensor algebra, fundamentals of stress analysis, fundamentals of deformation theory, thermoelastic constitutive relationships, uniqueness of solution, Airy's stress function, and various solution techniques for two-dimensional problems. Cross-listed with CVE 604.

MME 612 Finite Element Analysis II (3-0-3).

[\(addenda revised 06/2007\)](#) Prerequisite: MME 512. Extension of the finite-element method to the solution of advanced linear and nonlinear engineering problems. Cross-listed with CVE 612 and MCE 680.

MME 613 Nonlinear Finite Element Analysis (3-0-3).

Prerequisites: MME 511 and MME 604. Iso-parametric finite-element discretization, incremental equations of motion. Total and updated Lagrangian formulations. Nonlinear geometry, nonlinear material problems in two and three dimensions. Computer solution of problems. Cross-listed with CVE 613.

MME 619 Advanced Plasticity with Applications (3-0-3).

Prerequisite: MME 620. Solution techniques of plasticity problems that are amenable to computer solutions.

Numerical treatment includes slab method, upper- and lower-bound on power, and finite-element methods.

MME 620 Fracture Mechanics and Plasticity Theory (4-0-4).

Prerequisite: MME 604. The stress and deformation field in the region of a crack are derived using linear elastic analysis. Topics include analyzing the change in potential energy due to crack propagation (Griffith's analysis), understanding the origin of critical fracture toughness parameters, and developing fundamental fracture criteria. In addition, the course focuses on time-dependent plastic deformation analysis. Relationships between stress and strain that agree with experimental observations beyond the yield stress are constructed. Application of these inelastic, constitutive relationships in predicting plastic deformations in simple components are presented. Drucker's stability postulates are discussed, and the principles of slip-line theory are presented. General theorems of limit analysis and their application in structural analysis are highlighted. The J-integral and fundamentals of elastic-plastic fracture analysis are presented. Cross-listed with CVE 620.

MME 622 Fatigue Analysis (2-0-2).

Prerequisite: MME 620. The fundamental concepts of crack growth in the presence of cyclic stress are considered. The fracture-mechanics approach is adopted. Similitude concepts, common-empirical and semi-empirical equations, variable amplitude loading, and rainfall analysis are discussed. Cross-listed with CVE 622.

MME 625 Viscoelasticity (2-0-2).

Prerequisite: MME 604. Modeling of continua as a viscoelastic material in which stress and strain fields in deformable bodies are time-and spatially-dependent. Viscoelastic models include Maxwell fluids and Kelvin solids. Creep phenomena, stress relaxation, hereditary integrals, viscoelastic beams, beams on continuous supports, vibration, and wave propagation in viscoelastic materials are studied. Cross-listed with CVE 625.

MME 638 Viscous Flow I (4-0-4).

Prerequisite: MME 504 or MCE 509. Derivation and exact solutions of Navier-Stokes equations governing laminar viscous flow, with emphasis on incompressible fluids. Applications include non-steady flow, low Reynolds numbers flows, parallel flows, and laminar boundary layers. Cross-listed with MCE 638.

MME 650 Nonlinear Dynamics (3-0-3).

Prerequisite: MCE 512 or MME 550. Dynamic behavior of nonlinear conservative and nonconservative systems. Response of nonlinear systems to force and parametrically-excited inputs. Approximate solutions of nonlinear systems and perturbation techniques. Study of damping mechanisms as nonlinear phenomena, Coulomb damping, hysteretic damping, and material damping. Limit cycle and jump phenomena observed in nonlinear systems.

MME 693 Special Problems in Engineering Mechanics (1-4 credits).

Detailed study of a special topic, under the guidance of a faculty member.

MME 696 Independent Study in Engineering Mechanics (1-4 credits).

Prerequisite: Chair

approval. Detailed individual study on a special topic, under the guidance of a faculty member.

MME 697 Master's Research (1-8 credits per semester).

Prerequisite: Graduate standing in engineering mechanics. Up to eight credits may be considered toward thesis credit requirements.

MME 698 Master's Project in Engineering Mechanics (1-3 credits).

Preparation of a paper involving design and analysis, or theoretical investigation of a topic in structural mechanics/materials, selected by mutual agreement between student and department. A written report and an oral presentation are required.

MME 699 Thesis (1-8 credits).

A research problem, under the guidance of a faculty member, culminating in the writing of a thesis.

Public Health

MPH 601 Public Health Concepts (3-0-3).

Prerequisite: Graduate standing in the MPH program. Organizational structure, history, law, ethics, essential services, global problems, and the future of public health. Lecture, discussion, projects, and presentations.

MPH 602 Social and Behavioral Sciences in Public Health (3-0-3).

Prerequisite: Graduate standing in the MPH program. Theories of health education and promotion. Intervention (communication, collaboration, and strategies), including socio-cultural, diversity, and regional issues as they pertain to public health.

MPH 603 Epidemiology in Public Health (3-0-3).

Prerequisite: Graduate standing in the MPH program. Epidemiological methods, including study design, legal/ethical aspects and Epi information, applications of methods, including screening, disease surveillance, outbreak investigation, and community needs assessment. Student presentations to focus on special topics, such as infectious diseases, chronic conditions, and others.

MPH 604 Biostatistics in Public Health (3-0-3).

Prerequisite: Graduate standing in the MPH program. Principles of biostatistics in the context of multiple public health applications, Epi information, SAS, and JMP statistical packages to be used.

MPH 605 Health Services Administration in Public Health (3-0-3).

Prerequisite: Graduate standing in the MPH program. Management principles, including personnel administration, budgeting, financing, and continuous quality improvement as they pertain to public health, planning and evaluation principles, grant writing, public health economics, public health policy, and data sources.

MPH 606 Environmental Health Sciences in Public Health (3-0-3).

Prerequisite: Graduate standing in the MPH program. Air quality, water quality, food hygiene, sanitation, solid waste management, hazardous materials management, vector-borne disease, other special topics, occupational

MPH 608 - see addenda 01/2008

health, legal issues, environmental hazard identification, and response.

MPH 615 Clinical Teaching and Communicating Skills (4-0-4).

Prerequisites: MPH 601 and MPH 602; graduate standing in the MPH program. Training in core skills relevant to teaching in clinical settings such as hospital wards, outpatient clinics, operating rooms, Grand Rounds conferences, and community-based clinics, including community health centers. Primarily designed for clinician-educators who wish to learn how to teach in a variety of settings. Participants are encouraged to share their expertise within the group, and contribute to core knowledge and skills pertinent to clinical and community health teaching.

MPH 620 Introduction to Clinical Research Skills and Scientific Writing (4-0-4). *Prerequisites: MPH 603 and MPH 604; graduate standing in the MPH program.*

First in a series of clinical research courses providing an in-depth overview of skills necessary to plan and conduct clinical research. Special emphasis is placed on identifying clinical research resources at the Cleveland Clinic and related sites, including research mentors; components of a written research proposal; study design and statistical considerations; specific methodologies, such as cost-benefit studies and meta-analyses; and ethical and legal considerations of clinical research.

MPH 625 Clinical Research Management (4-0-4). *Prerequisites: MPH 620; graduate standing in the MPH program.* Hands-on, experiential sessions that focus on techniques for developing, testing, implementing, monitoring, and using a database in clinical research. Students learn to analyze and understand the essential structure and interactions of a clinical research team in accomplishing a research project. The course is designed for physicians and research scientists working in a clinical environment.

MPH 691 Grant Writing in Public Health Practice (4-0-4). *Prerequisite: Graduate standing in the MPH program.* Directed elective for MPH students without grant-writing experience. Taught using a combination of classroom and Web-based instruction, this course provides methods and techniques for writing and managing grant proposals to support public health programs. Emphasis on development of grant proposals, including narrative, program plan, evaluation design, timeline, budget and budget justification, identification of grant sources, managing funded projects, and use and development of requests for proposals.

MPH 695 Special Topics in Public Health (1-6 credits). *Prerequisite: Graduate standing in the MPH program.* Selections focus on specific topics of current interest to public health workers. Fliers describing the course are distributed prior to registration each semester. May be repeated with change of topic.

MPH 696 Public Health Practicum (3-6 credits). *Prerequisite: Graduate standing in the MPH program.* 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.

MPH 697 Public Health Capstone Project (3-6 credits). *Prerequisites: MPH 601, MPH 602, MPH 603, MPH 604, MPH 605, and MPH 606.* Student is teamed with a faculty advisor and community preceptor(s) to work on a meaningful public health issue. This work facilitates the integration of material from the core MPH courses. A paper (e.g., grant, study, proposal, etc.) demonstrating the applications learned in previous courses is required.

MPH 699 Independent Study in Public Health (1-4 credits). *Prerequisites: Graduate standing in the MPH program.* Supervised study of a public health issue or problem. Offered every semester.

Mathematics

MTH 513 Linear Algebra with Geometry (4-0-4). Systems of linear equations, determinants and volumes, vector spaces, linear transformations, eigenvalues, and eigenvectors. An emphasis on the associated geometry in two- and three-dimensions.

MTH 514 Linear Algebra and Functions of Several Variables (4-0-4). Vector spaces, linear transformations, eigenvalues, eigenvectors, canonical forms of matrices, matrix decompositions, applications of linear algebra, calculus of functions of several variables, Jacobians, Taylor's formula, multiple integrals, surface integrals, and change of variables formula.

MTH 516 Complex Variables (4-0-4). Analytic functions, line integrals, Cauchy-Riemann equations, Cauchy's theorem and integral formula, Laurent series, residues, conformal mapping, harmonic functions, and applications to electrostatics, heat flow, and fluid flow.

MTH 518 Technology in Teaching (4-0-4). A variety of topics that emphasize the use of computers and graphing calculators in mathematics and education.

MTH 524 Applications of Probability (4-0-4). Modeling techniques for probabilistic systems and analysis of Monte Carlo simulations. Discrete time Markov chains, Poisson process, Birth-and-Death process, Renewal processes. Random walks and Brownian motion. Applications include queuing theory, financial models, populations, inventory theory, and optimization of stochastic systems.

MTH 525 Mathematical Methods in Engineering and Science I (4-0-4). Part one of a two-part sequence devoted to methods of applied mathematics, including various topics in ordinary and partial differential equations, integral equations, and calculus of variations, as well as specific applications to engineering and the sciences.

MTH 526 Numbers, Patterns, and Operations for Middle School Teachers (4-0-4). *Prerequisite: Teacher licensure or consent of Mathematics Department Chair.* An in-depth study of mathematical topics in middle school curricula in the area of numbers, patterns, and operations. Topics include numeration concepts, concepts of measurement, study of rational and irrational numbers,

proportionality, estimation, and operations. Credit does not count toward the MA or MS degree in Mathematics.

MTH 527 Algebra and Functions for Middle School Teachers (4-0-4).

Prerequisite: Teacher licensure or consent of Mathematics Department Chair. Emphasis on algebra as a powerful symbolic language for studying patterns, relations, and variation; for solving linear and quadratic equations and inequalities; and for modeling real-life situations. Emphasis is on variables and functions in symbolic and graphical forms, especially linear, quadratic, exponential, logarithmic, and inverse functions. Goals include developing a deep understanding of these topics as appropriate for middle school teachers. Credit does not count toward the MA or MS degree in Mathematics.

MTH 528 Geometry for Middle School Teachers (4-0-4). *Prerequisite: Teacher licensure or consent of Mathematics Department Chair.* This course is designed to increase the conceptual understanding of geometry for middle school teachers. Topics include dynamic geometry, integrating the use of computer software; basic geometry theorems and constructions; similarity, proportion, scaling, and geometric growth; tessellations; simple trigonometric relationships; van Hiele levels of geometric graphical representations; transformational geometry; and analytic geometry. Credit does not count toward the MA or MS degree in Mathematics.

MTH 529 Data Analysis and Probability for Middle School Teachers (4-0-4).

Prerequisite: Teacher licensure or consent of Mathematics Department Chair. Ratios, fractions, percentages, data collection, graphical experimentation, basic strategies of data analysis, some statistical methods to analyze data, and inference based on data and simulation. Credit does not count toward the MA or MS degree in Mathematics.

MTH 530 Conversational Calculus for Middle School Teachers (4-0-4).

Prerequisite: Teacher licensure or consent of Mathematics Department Chair. An introduction to the concepts of calculus. Pictures and hands-on experiments are used to develop an overview of the big ideas and an appreciation for how calculus helps us understand the real world. Includes differentiation, integration, and applications of calculus to the real world. Credit does not count toward the MA or MS degree in Mathematics.

MTH 531 Combinatorial Mathematics (4-0-4). A one-semester, four-hour course in combinatorial mathematics. The major topics are counting, recurrence relations, and graph theory; the emphasis is algorithmic.

MTH 532 Probabilistic Models (4-0-4). Modeling of real-world problems using methods of probability theory such as Markov chains, queuing theory, decision analysis, and simulation.

MTH 534 Differential Geometry (4-0-4). Geometry of curves and parametric surfaces, Gaussian and mean curvatures, geodesics, and other topics, as time permits, including minimal surfaces, non-Euclidean models, and aspects of relativity.

MTH 537 Operations Research I (4-0-4). Linear programming, including the simplex

method, sensitivity analysis, duality, and integer programming. Additional topics selected from LU decomposition, dual simplex algorithm, game theory, Karmarkar's algorithm, as well as topics from nonlinear programming, such as steepest descent and Kuhn-Tucker conditions. Part one of a two-part sequence.

MTH 539 Discrete Mathematics (4-0-4). Counting principles, basic combinatorics and graph theory, graph theory algorithms, and linear programming.

MTH 542 Continuous Mathematical Models (4-0-4). Modeling of real-world problems in science and economics using differential equations.

MTH 547 Calculus from an Advanced Viewpoint (4-0-4). A historical approach to calculus emphasizing the difficulties in formulating and controversies surrounding the fundamental ideas of the subject.

MTH 553 Algebra with Applications (4-0-4). Introduction to modern algebra with emphasis on topics relevant to the secondary mathematics curriculum, including congruence, fields, polynomials and roots, and applications.

MTH 564 Statistics and Data Analysis (4-0-4). Introduction to statistics, including descriptive statistics, sampling, expected value, estimation, hypothesis-testing, and statistical computing software.

MTH 567 Probability and Statistics I (4-0-4). An applied statistics course with an emphasis on the design of experiments and hypothesis-testing. Topics include Analysis of Variance (one-way, blocked, two-way, repeated measures) and the nonparametric counterparts. These techniques utilize the underlying probability distributions, including the Normal, t , F , and chi-square distributions. The course emphasizes the link between statistical graphics and formal statistical tests and involves the use of a statistical programming language. Part one of a two-part sequence.

MTH 577 Numerical Methods I (4-0-4). Introduction to the numerical methods of financial derivatives. Topics include an overview of the basic concepts of mathematical finance, computational tools such as binomial methods, finite-difference methods, and methods for evaluating American options and Monte Carlo simulation. Numerical experiments are conducted using software such as Matlab, Microsoft Excel, and Maple, but no previous familiarity with these programs is assumed. Part one of a two-part sequence.

MTH 580 Geometry from an Advanced Viewpoint (4-0-4). Transformational geometry in two- and three-dimensions; congruence and similarity; conics; tilings; and applications.

MTH 581 Chaos and Fractals (4-0-4). Topics in chaotic dynamical systems and fractals, such as one-dimensional discrete systems, Julia and Mandelbrot sets, chaotic differential equations, and iterated function systems.

MTH 587 Dynamical Systems (4-0-4). Systems of differential equations, local and global behavior of a vector field in the plane, discrete dynamical systems, structural

stability, the Poincare-Bendixon theorem, bifurcations, chaos, and strange attractors.

MTH 593/693 Special Topics in Mathematics (4-0-4). Detailed study of a selected topic in advanced mathematics. Topic varies with instructor. May be repeated for credit with change of topic. Consult the Mathematics Department for current offerings.

MTH 597/697 Readings in Mathematics (1-4 credits). Independent study under the supervision of a faculty member.

MTH 626 Mathematical Methods in Engineering and Science II (4-0-4). *Prerequisite:* MTH 525 or permission of instructor. Part two of a two-part sequence devoted to methods of applied mathematics, including various topics in ordinary and partial differential equations, integral equations, and calculus of variations, as well as specific applications to engineering and the sciences.

MTH 638 Operations Research II (4-0-4). *Prerequisite:* MTH 537 or permission of instructor. Stochastic models, Markov chains, queueing theory, reliability theory, forecasting, and decision processes. Part two of a two-part sequence.

MTH 668 Probability and Statistics II (4-0-4). *Prerequisite:* MTH 567 or permission of instructor. An applied statistics course with an emphasis on the topics related to regression (simple linear, multiple, logistic, and Poisson). Students predict probabilities with odds and relative risk ratios. Emphasis is on interpreting statistical graphics and their link to formal statistical tests. The course involves the use of a statistical programming language. Part two of a two-part sequence.

MTH 678 Numerical Methods II (4-0-4). *Prerequisite:* MTH 577 or permission of instructor. Applications of numerical methods to real-life problems in science and engineering. Topics may include the following: initial value problems, the radar problem, the calibration problem, building exploratory environments, refined graphics, numerical approximation of orbits in the planar three-body problem, effect of spin on trajectories, least squares problems, and boundary value problems. Numerical experiments are conducted using software such as Matlab and Maple, but no previous familiarity with these programs is assumed. Part two of a two-part sequence.

Applied Music

MUA 603 Recital Preparation (0-2-2). Selection, research, and preparation of the graduate recital. May be repeated for credit. Four credits are required for graduation for students specializing in performance.

MUA 605 Performance Pedagogy (2-0-2). Teaching techniques related to the student's major instrument. May be repeated for credit.

MUA 606 Repertoire (2-0-2). Study in the literature for the student's major instrument.

MUA 607 Practicum in Chamber Music (0-2-2). Preparation and research of a special project from vocal or instrumental chamber music literature, leading to an informal or

concert performance at the end of the semester. May be repeated for credit.

Private lessons

MUA 601 Conducting (1 credit)

MUA 602 Conducting (2 credits)

MUA 611
Piano (1 credit)
Harpsichord (1 credit)

MUA 612
Piano (2 credits)
Harpsichord (2 credits)

MUA 621 Voice (1 credit)

MUA 622 Voice (2 credits)

MUA 631 Organ (1 credit)

MUA 632 Organ (2 credits)

MUA 641
Strings (one credit)
Classical Guitar (one credit)
Electric Guitar (one credit)

MUA 642
Strings (2 credits)
Classical Guitar (2 credits)
Electric Guitar (2 credits)

MUA 651 Woodwinds (1 credit)

MUA 652 Woodwinds (2 credits)

MUA 661 Brass (1 credit)

MUA 662 Brass (2 credits)

MUA 671 Percussion (1 credit)

MUA 672 Percussion (2 credits)

MUA 681 Harp (1 credit)

MUA 682 Harp (2 credits)

Music

MUS 501 University Chorus (0-4-1). Open to all University students with permission of instructor. Previous music performance experience is recommended. Covers a wide variety of music by major composers. May be repeated and may be taken with or without credit.

MUS 502 Band/Wind Ensemble (0-4-1). Open to all University students, but registration and participation are permitted only after consulting with the director. The repertoire is selected according to the nature of each performance, with emphasis on music for wind band. May be repeated and may be taken with or without credit.

MUS 503 Collegium Musicum (0-4-1). Membership by audition. Small ensemble of singers and instrumentalists who study and perform chamber music of all eras, with emphasis on music written prior to 1750. May be repeated and may be taken with or without credit.

MUS 504 University Orchestra (0-4-1). Open to all University students, but registration and participation are permitted only after consulting with the director. May be repeated and may be taken with or without credit.

MUS 505 CSU Chorale (0-4-1). A selected ensemble of approximately 30 voices chosen by audition. Provides an advanced challenge and opportunity to those with singing experience. Music from all cultural epochs. May be repeated and may be taken with or without credit.

MUS 506 Chamber Ensemble (0-2-1). Small ensemble performance featuring one instrument or voice to a part. May be repeated for credit.

MUS 507 Jazz Ensemble (0-4-1). Entrance by audition. Provides experience in reading and performing big band arrangements and compositions. May be repeated and may be taken with or without credit.

MUS 508 Opera Workshop (0-4-1). Entrance by audition. Practical experience in opera performance and production. May be repeated for credit.

MUS 510 The Business of Music (3-0-3). An overview of business practices and how they affect musicians. Team taught. Topics include auditions, promotional materials, recording, concert production, contracts, copyrights, management, unions, taxes, and grant writing.

MUS 511 Music History I (3-0-3). Survey of musical development, life, and thought in individual periods, with particular emphasis on style characteristics and musical literature of individual composers from the Middle Ages through the baroque period. Intended as a remedial course.

MUS 512 Music History II (3-0-3). Survey of the musical development, life, and thought in individual periods, with particular emphasis on style characteristics and musical literature of individual composers from the Classic era through the present day. Intended as a remedial course.

MUS 514 Introduction to World Musics (3-0-3). Approaches to the study of non-Western art music. Emphasis on the musics of India, China, Japan, Indonesia, Sub-Saharan Africa, Native America, and the Australian Aborigine. Opportunity for field study in the ethnic music of Greater Cleveland.

MUS 515 World Music Studies (3-0-3). In-depth study of the music of particular non-Western musical cultures. Content rotates among the cultures listed under MUS 514.

MUS 516 Collaborative Piano and Accompanying (addenda new 5/2006)

MUS 521 Composition Forum (1-0-1). Weekly meeting of composition students that deals with issues pertaining to creative work. Guest composers, critiques of original work, analysis of styles and techniques, and other topics.

MUS 527 Computer Music and MIDI I (3-0-3). Prerequisite: Keyboard pitch and rhythm identification. MIDI Basics. An overview of Channel Voice and Mode Messages, System Common, Real Time, and Exclusive Messages. Standard MIDI files and MIDI Machine Control. General MIDI and MIDI Show Control. Introduction to Finale and the Digital Audio Workstation. Assigned studio time for individual and class composition projects.

MUS 528 Computer Music and MIDI II (3-0-3). Prerequisite: Keyboard pitch and

rhythm identification. Sampling Basics. An overview of the sampling process using the EMU II sampling keyboard. Mic or line-level sampling, input levels, sample length, rate, cross-fade and butt splices, loops, sustain and percussive envelopes, key splits, layered keyboards, and velocity sensing. Microphone pick-up patterns for the sampling session and interfacing the sampler with recorders. Assigned studio time for individual and class composition projects.

MUS 551 Orchestration (3-0-3). Study of individual instruments and problems of scoring in 20th-century music. Examination of a wide range of orchestral literature from the standpoint of orchestration. Correlated exercises in scoring for orchestra.

MUS 552 Career in Composition (addenda new 2/2007)

MUS 554 Foundations and Principles of Music Education (3-0-3). The philosophies, histories, and practices of learning in music education.

MUS 556 Lyric Diction (3-0-3). Diction for singers. Texts from vocal literature in German, French, Italian, and other languages. Use of international phonetic alphabet.

MUS 575 Workshop (1-4 credits). Presentations, including student participation, offering a wide range of topics for professional development.

MUS 576 Extended Workshop (1-4 credits). Special registration for those workshops that extend beyond the semester. Students receive a T grade until the completion of the workshop, at which time a course grade is assigned.

MUS 584 Seminar in Music Education (3-0-3). Treatment of topics particularly relevant in public schools at the current time.

MUS 589 Colloquium (1-4 credits). Interaction among faculty and students on a wide range of topics of mutual interest.

MUS 593 Special Topics (1-4 credits). Consideration of interdisciplinary issues, performance problems in various eras, ethnic music, theoretical investigations, and other topics. May be repeated for credit with change of topic.

MUS 595 Music History Seminar (3-0-3). Selected topics from the Middle Ages through the 20th century. Genre studies, broad topics in history, specific literature of single or groups of composers. May be repeated for credit with change of topic.

MUS 600 Musicology Topics (3-0-3). Contents change with each offering. Aspects of traditional historical, comparative, and systematic musicology and recent developments in the field, including interdisciplinary topics and an introduction to semiotics. Includes bibliographic procedures and research methods.

MUS 602 Analytical Techniques (3-0-3). An examination of contemporary analytic theory as presented in the writings of prominent 20th-century theorists and as applied to literature of various styles from all historical eras.

MUS 611 Research Techniques in Music Education (4-0-4). Survey of existing research in

music education. Research methodology and introduction to statistical techniques.

MUS 615 Teaching College Music (2-0-2). Prerequisites: Minimum eight graduate credit hours including one core course at a grade of B or above, and permission of instructor. Materials, techniques, and internship experience in planning, teaching, and evaluating college music courses.

MUS 620 Composition (3 credits). Co-requisite: MUS 521. Tutorial sessions with members of the composition faculty leading to the creation of original compositions for solo, chamber, vocal, choral, orchestral, and electronic media in various forms using a variety of contemporary materials. All graduate students enrolled in MUS 620 are required to attend the Composition Forum (a weekly meeting of all enrolled composition students).

MUS 632 Solo Recital (0-2-2). Presentation of a full-length concert performance. Registration for MUS 632 may or may not occur concurrently with MUA 603 Recital Preparation.

MUS 633 Ensemble Recital (0-2-2). For students focusing on conducting within the performance area. The ensemble recital may be a single public performance of an hour in length or several appearances, totaling an hour in length, spread over the course of two semesters.

MUS 635 Composition Recital (2 credits). A recital of original compositions from the composer's portfolio. The recital normally includes a performance of the master's thesis and must include a solo work, a chamber work of three or more players, and a work employing electronic media.

MUS 679 Research Projects in Music Education (1-6 credits). Prerequisite: MUS 611. Individual research projects, culminating in a paper comparable to a journal article. Students in music education elect this course if they are pursuing the "three paper option" in music education; in this case, a total of six credits is required for graduation. May be repeated for credit.

MUS 689 Composition Thesis (1-4 credits). The student must submit an original composition, normally a work in one of the major forms, appropriate as a final project. Also required is a portfolio of the composer's music. Suggested categories include: solo, chamber, vocal, choral, orchestral, or electronic/computer media. A required component for graduation is MUS 635 (Composition Recital). All graduate students enrolled in MUS 689 must register for MUS 521 Composition Forum (a weekly meeting of all enrolled composition students). This requirement may be waived by the thesis advisor if the thesis is being completed out of residence.

MUS 696 Independent Study (1-3 credits). Guided instruction in topics selected by students for in-depth study usually involving topics of particular interest not included in the regular course offerings.

MUS 698 Master's Project (1-6 credits). An approved project, such as a performance, together with a final paper, which is different from a thesis, composition thesis, solo recital, or ensemble recital, as the summation of the master's degree program. The

project should be cross-area in nature, chosen from the various areas of emphasis offered by the Music Department. Must be approved through consensus of the relevant faculty and culminate in a completed document and/or event suitable at the master's level. Available only to students seeking a degree with a cross-area emphasis or, by special arrangement, a cross-disciplinary emphasis. A total of six credits is required for graduation.

MUS 699 Thesis (1-6 credits). Subject selected must be supported by reading proficiency in languages principally involved in research sources. A total of six credits is required for graduation.

Nursing

NUR 500 Professional Role Development for Population Health Nursing I (1-0-1). Prerequisite: Graduate standing or permission of instructor. Focuses on giving voice to the role of a population health nurse expert beyond the parameters of current areas of advanced practice function. The emerging nursing role in population health is necessary for practice in today's health care delivery system in which social, cultural, political, and economic forces interact with complex client systems. Students are supported to construct a new paradigm for nursing practice in order to articulate the role to health professionals, policy makers, community groups, and consumers.

NUR 501 Introduction to Population Health Nursing (3-0-3). Prerequisite: Graduate standing or permission of instructor. Addresses the philosophy and framework for population health and the care of aggregates. Concepts of health, disease, health promotion, and health restoration are emphasized, along with knowledge of human and cultural diversity, factors influencing health and disease states, the ethics of care, and population as community. There is an emphasis on the need to collect explicit population data to progress systematically through the steps of health-promotion and program-planning processes. Introduces the Precede-Proceed Model; theories, concepts, and models of families; communication related to population health; epidemiology; public policy; and cost containment.

NUR 502 Theory Development in Nursing (3-0-3). Prerequisites: Graduate standing and BSN, or permission of instructor. Sets forth the expectation for using theory as a framework in graduate-level nursing practice. Nursing theories, models, and the stress framework are applied to population health.

NUR 503 Nursing Research Methods I (3-0-3). Prerequisites: Undergraduate or graduate-level statistics course and graduate standing, or permission of instructor. Focuses on critical analysis of scientific knowledge related to clinical problems. Study of the research process with emphasis on the logic and processes of inquiry, design, sampling, measurement, data collection, analysis, interpretation, and dissemination of findings. Use of information systems, standardized databases, and statistics needed for population analysis is presented.

NUR 505 Introduction to Epidemiology and Demography: A Nursing Perspective (3-0-3).

Prerequisite: NUR 503 or permission of instructor. Focuses on the assessment of population groups with emphasis on epidemiology and demography. Analysis of population-based data for use in practice, program planning, and consultation is emphasized. The course provides an opportunity to use epidemiologic and demographic data to plan interventions for populations.

NUR 511 Introduction to Forensic Nursing (2-0-2). Focuses on a variety of models drawn from population health, mental health, holistic nursing practice, and crisis intervention theory, including crisis response training as developed by the National Organization for Victim Assistance (NOVA) to develop a theoretical framework for guiding forensic nursing practice. The course provides an overview of the stress framework and individual functioning for both the victim and the perpetrator, including spiritual and cultural perspectives.

NUR 512 Strategies for Population Health Assessment in Forensic Nursing (3-0-3). Focuses on the physical, psychological, and legal examination performed to identify, collect, and preserve evidence, identify physical and psychological trauma, and document injuries. Includes an overview of the interview/history, physical exam, evidence collection, and discharge process of patients experiencing acts of violence or traumatic incidences. Special attention is given to victims of domestic violence, abuse, and sexual assault.

NUR 520 (addenda new 05/2006)

NUR 530 Health Assessment of the School-Aged Child and the Child with Special Needs (3-0-3). Prerequisite: Enrollment in the School Nurse Licensure Program; co-requisite: NUR 532. Introduces the techniques of physical assessment of the school-aged child. Designed to view the child from a developmental perspective. Interviewing skills will be introduced. Theories associated with the care of children and their families will be explored, with emphasis given to their health-seeking behaviors. Strategies for assessment of the medically fragile child will be discussed. The etiologies, characteristics, and treatment of medical disorders of children with moderate and severe disabilities will be addressed, as will their learning and behavioral needs, when participating in the development and implementation of individualized plans for education and health care.

NUR 532 Health Assessment of the School-Aged Child and the Child with Special Needs Laboratory (0-4-2). Prerequisite: Enrollment in the School Nurse Licensure Program; Co-requisite: NUR 530. Designed to encourage application of learned assessment techniques. The student will have the opportunity to practice skills in the laboratory environment and assist in physical assessment of school-aged children during medical exams. Focuses on providing nursing care to the child with special medical needs, including those with moderate and severe disabilities. Addresses the requirements of family, school, and other medical personnel when providing comprehensive health care and related educational services to children.

NUR 550 Legal Issues in School Nursing (2-0-2). Prerequisite: Enrollment in the School Nurse

Licensure Program or permission of instructor. Examines the legal implications of nursing practice in the school environment. The course assists students in developing basic skills in analyzing situations from a legal perspective and identifying strategies to safeguard the health of students while practicing within the scope of a registered nurse's license and the published standards and guidelines for school nursing.

NUR 593 Special Topics in Nursing (1-4 credits). Prerequisite: Admission into the MSN program or permission of the instructor. Study of specific health problems/ issues. May be repeated for credit with change of topic.

NUR 598 Independent Study (1-3 credits). Prerequisites: Approval of the Program Director or Advisor, and acceptance into the MSN program. Individual exploration in the student's area of interest under the direction of a graduate faculty member.

NUR 601 Nursing Research Methods II (3-0-3). Prerequisite: NUR 503 or permission of instructor. Promotes research-based nursing practice in the care of populations. Focuses on methods of implementing research findings to solve identified clinical problems, and in developing questions appropriate for population-based research. Students gain skills in developing and evaluating evidenced-based practice guidelines for populations and in using research methods to evaluate outcomes.

NUR 602 Health Care Policy (2-0-2). Prerequisite: Graduate standing or permission of instructor. Models of health care policy are presented, as well as principles for understanding behavior of complex health care, social organizations, community groups, and subcultures. Issues related to managed care, program planning, resource allocation, utilization and outcomes, and government and business influences on population health nursing practice are discussed. Application of ethical dimensions of health care policies to case studies and selected provider guidelines enables students to develop awareness, sensitivity, and a values framework to act ethically in policy decisions. An eight-week course.

NUR 603 Health Care Financing for Nursing Practices (2-0-2). Prerequisite: Graduate standing or permission of instructor. Focuses on strategic thinking for planning and managing in health care settings. Economics, reimbursement, budget planning, business planning, and marketing are explored in relation to nursing services. Issues such as health care financing practices, reimbursement for nursing care, cost-accounting of nursing services, billing codes, resource allocation, managed care, and insurance coverage are explored. Effects of such practices on nursing workforce/manpower issues are explored. Access to care is analyzed as a contributing factor to population health. Students develop analytical skills and examine the ethical impact of economic decisions. An eight-week course.

NUR 604 Nursing of Populations I (4-8-4).

Prerequisite: Completion of Phase I courses; co-requisite: NUR 601. Examines physiological, pharmacological, environmental, and demographic factors that frame nursing interventions at the population level. In the laboratory component, students design and implement research-based nursing interventions, and evaluate the outcomes of these interventions on aggregates. An eight-week course.

NUR 605 Nursing of Populations II (4-8-4).

Prerequisites: Completion of Phase I courses and NUR 604; co-requisite: NUR 601. Examines psychosocial, behavioral, educational, cultural, political, and ethical factors that frame nursing interventions at the population level. In the laboratory component, students design and implement research-based nursing interventions and evaluate the outcomes of these interventions on populations. An eight-week course. For students in the MSN/MBA track, application of content is directed toward workplace settings and organizational behaviors.

NUR 606 Practicum in Population Health Care (0-8-4).

Prerequisite: NUR 605; corequisite: NUR 607. NUR 602 and NUR 603 also may be taken as co-requisites. Provides students with the opportunity to synthesize and apply their understanding of population health concepts, as well as theories and nursing frameworks with a population of their choice along the continuum of care. In this culminating experience, students plan, execute, and evaluate nursing practice within the context of the practice setting(s) or among populations in communities. Within the practice situation, students enact leadership roles to expand, enhance, and optimize positive outcomes for the population. The practicum includes a clinical seminar in which students analyze patterns of health care delivery to populations, examine factors that influence decision making, and appraise the impact of inter-professional collaboration on outcomes and their own efficacy as population health nursing experts. For students in the MSN/MBA track. This course will be two semesters in length, meeting the terminal objectives of both the MSN and MBA programs.

NUR 607 Professional Role Development for Population Health Nursing II (0-2-1).

Prerequisites: NUR 604 and NUR 605; corequisite: NUR 606 or NUR 616. Culminating seminar that focuses on the emerging role of the population health nursing expert as it relates to nursing administration, direct practice, independent practice, consultation, public policy, community building, and nursing entrepreneurship. Graduates are prepared to provide leadership in the development, implementation, and evaluation of health care to populations, and to articulate the role to health professionals, policy makers, community groups, and consumers.

NUR 614 Nursing of Populations I (Forensics) (2-4-4).

Prerequisite: NUR 512. Examines physiological, pharmacological, environmental, demographic, and educational factors that frame nursing interventions at the population level. The laboratory component may include experiences in areas that allow the student to have contact with victims or perpetrators involved in acts of violence or traumatic incidences such as correctional facilities, emergency and trauma centers, or rape crisis centers. In the laboratory component, students

design research-based nursing interventions in relation to forensic nursing.

NUR 615 Nursing of Populations II

(Forensics) (2-4-4). Prerequisite: NUR 614. A continuation of NUR 614, but focuses on the application of principles, learned in NUR 614, related to the assessment and health care strategies for specific forensic subpopulations.

NUR 616 Practicum in Population Health Care (Forensics) (0-8-4).

Prerequisites: NUR 601, NUR 605, and NUR 615; co-requisite: NUR 607. Provides students with an opportunity to synthesize and apply their understanding of forensic and population health concepts and theories, as well as nursing frameworks with individuals and communities experiencing violence or traumatic incidences along a continuum of care. In this culminating experience, students plan, execute, and evaluate nursing practice within the context of the practice setting(s). Within the practice situation, students enact leadership roles to expand, enhance, and optimize positive outcomes for individuals or communities experiencing violence or traumatic incidences. Includes a clinical seminar in which students analyze patterns of health care delivery to individuals or communities experiencing violence or traumatic incidences, examine factors that influence decision making, appraise the impact of inter-professional collaboration on outcomes, and their own efficacy as forensic nurse experts.

NUR 617 The Legal System (4-0-4). Prepares nurses to interface with the legal system. Provides an overview of the legal process, lawyers, and the forensic specialist. Special emphasis is on the process of trial preparation and the roles of witness preparation, including the presentation of evidence and expert testimony.

NUR 626 (addenda new 5/2006)

NUR 627 (addenda new 5/2006)

NUR 698 Independent Study (1-3 credits).

Prerequisites: Approval of the Program Director or advisor, and acceptance into the MSN program. Individual exploration in the student's area of interest under the direction of a graduate faculty member.

NUR 699 Thesis (1-3 credits).

Prerequisites: NUR 604 and NUR 605. Independent investigation by the student selected from an area of population health that results in a significant contribution to the field. The graduate advisor and the thesis committee must approve the research proposal. The results of the study must be submitted to a refereed journal for publication. A bound copy of the thesis must be submitted to the department. This option is primarily for students who intend to pursue doctoral studies.

Operations Management and Business Statistics (OMS)

Students enrolled in the 700-level section of cross-listed 600/700-level courses are required to complete additional work.

OMS 500 Mathematical Models for Business (2-0-2). Prerequisite: Graduate standing. Covers basic algebraic functions, systems of linear equations, and matrix operations to solve systems of linear equations applied to business problems.

OMS 503 Statistical Methods for Business Decisions (3-0-3). Prerequisite: OMS 500. Includes probability distributions, sampling theory, statistical inference, hypothesis testing, chi-square applications, analysis of variance, regression, and correlation, and the role these techniques play in business decision-making. Computer applications and results are discussed and interpreted.

OMS 511 Operations Management (3-0-3).

Prerequisite: OMS 503. Presents a basic review of production-system design and performance requirements. Topics include operations strategy, total quality management, statistical process control, capacity management, supply chain management, layout decisions, master production scheduling, resource planning, MRP/ERP, lean production system (JIT), project management, and scheduling.

OMS 513 Production Planning and Control (3-0-3).

(Addenda revised 6/2006) Prerequisite: OMS 511 or equivalent. Planning, scheduling, and controlling of activities related to the production of goods are examined. Topics include manufacturing planning and control, short-term forecasting systems, demand management and order servicing, sales and operations planning (SOP), master production scheduling (MPS), enterprise resource planning (ERP), supply chain management (SCM), inventory, material requirements planning (MRP), bills of material (BOM), capacity requirements planning (CRP), distribution requirements planning (DRP), advanced concepts in material requirements planning.

OMS 515 Case Studies in Operations Management (4-0-4).

Prerequisite: OMS 511 or equivalent. Examines classic and current issues in operations management. Provides advanced fundamental and strategic methodologies for operations decision-making. Topics include supply chain management, e-commerce, just-in-time, enterprise resource planning, service operations management, customer service, purchasing, quality control, human resource management, and strategy. Includes readings, lectures, guest speakers, and plant tours.

OMS 517 Principles of Lean Operations (4-0-4).

Prerequisite: OMS 511 or permission of the Department Chair. The primary focus of this course is to present techniques that are intended to synchronize and streamline the production/operations process, including inventory management. Non-value added activities and waste are the targets of these techniques. Topics include value stream

mapping, 5S, set-up time reduction, six sigma, maintaining and improving equipment, small lot production, and level scheduling in pull production.

OMS 519 Operations Strategy (4-0-4).

Prerequisite: OMS 511 or equivalent. A study of the development and implementation of operations strategy in manufacturing and service settings, and the interface and integration of this strategy with other functional areas such as marketing, finance, etc. Topics include strategic perspectives on the design and introduction of new products and services, competitiveness, capacity, quality, choice of process and technology, productivity management and supply network relationships.

OMS 525 International Operations Management (3-0-3).

Introduces students to the advantages and pitfalls of managing productive systems outside the U.S. Study of multinational manufacturers and the effects of culture, language, politics, and trade agreements on global supply chain performance through case studies. Topics include history of international trade, operations in global business strategy, improving global supply chain performance, Japanese tier system for outsourcing, global quality standards, and global service operations.

OMS 531 Sampling and Experimental Design (4-0-4).

Prerequisite: OMS 503 or equivalent. Presents the principal application of sample surveys, survey design, criteria of a good sample design, and characteristics of simple random sampling, stratified random sampling, and cluster sampling. Case studies are used, where appropriate, to illustrate applications of survey sampling. Research design, data analysis, and the fundamentals of experimental design are examined. Topics include completely randomized design, randomized complete blocks, Latin square, factorial, and analysis of variance in regression models. Application of SAS software to actual data.

OMS 545 Quality Control and Management (4-0-4).

Prerequisite: OMS 511 or equivalent. Covers the core principles of the management of quality in the production of goods and services. Statistical quality-control techniques are used in the implementation of these principles. Topics include TQM, continuous improvement, control charts, sampling plans, process capability, and ISO 9000. Computer software is used where applicable.

OMS 548 Queuing and Simulation (4-0-4).

Prerequisite: OMS 511 or equivalent. Covers the application of discrete-event simulation to operations research problems. Topics include an introduction to a general-purpose simulation language, the study of queuing models, random number generation, and the analysis of simulation data, using statistical techniques.

OMS 601/701 Business Decision Methods (3-0-3).

Prerequisite: OMS 503 or equivalent. Introduction to widely used management science techniques. Topics include linear programming, transportation problems, network flows, and decision analysis. Introduces computer packages for these techniques. A variety of case studies involving operations research and production management are analyzed.

OMS 611/711 Forecasting (3-0-3).

Prerequisite: OMS 503 or equivalent. Intended for students with no previous course work in forecasting. Includes predictions of sales and inventory; examination of criteria for selection of forecasting models, including stage-in-life-cycle of the product; study of smoothing and decomposition methods, leading indicators, multiple regression, and introduction to ARIMA modeling through the use of computer packages.

OMS 621/721 Service Operations Management (3-0-3).

Prerequisite: OMS 511 or equivalent. Unique managerial problems associated with the design, control, planning, and evaluation of service systems. Tactical and strategic problems faced by service managers and how decisions are actually made in the real world.

OMS 622/722 Project Management (3-0-3).

Prerequisite: OMS 511. Discusses the complexities involved in project management, the use of networks in large-scale projects, and the development of networks. Presents network computations for time, CPM/ PERT, time-cost tradeoff, project scheduling, and other networks such as GERT. Includes the use of computer software.

OMS 623/723 Materials and Supply Chain Management (4-0-4).

Prerequisite: OMS 511. Discusses some fundamental and strategic issues in materials management and supply chain management. Presents decision rules and guidelines for various qualitative or quantitative materials-management problems. Topics include purchasing, inventory systems with deterministic and probabilistic demand, multi-item inventory systems, materials requirement planning, JIT, distribution inventory systems, coordinating supply chain design, supply chain management strategies, and customer value management. Cases from business and current issues are discussed.

OMS 624/724 Global Operations Management (3-0-3).

Prerequisite: OMS 511 or equivalent. Introduction to operations management for companies operating in the international setting. Topics include global operations strategy, supply chain management across multiple national boundaries, global operations projects, and performance issues.

OMS 625/725 Global Operations Management Field Study (0-4-2).

Students participate in a hands-on field study in operations of international firms (manufacturing and service) located in foreign countries. Data is collected through interviews with managers and executives of these firms, government officials of the host countries, and published materials, both printed and on the Internet. A term paper is required after returning to Cleveland. The instructor arranges the visit to companies and countries.

OMS 633/733 Multivariate Statistical Methods (3-0-3).

Prerequisite: OMS 503 or equivalent. Presents applications of multivariate statistical methods, such as multiple regression, analysis of covariance, discriminant analysis, multivariate analysis of variance, and factor analysis. Computer packages for the methods also are introduced and used extensively.

OMS 640 ISO 9000 and Quality Audit (3-2-4).

Prerequisite: OMS 511 or equivalent. Introduction to the international quality standard ISO 9000 and its application to the automotive industry (QS 9000). Techniques of conducting a quality audit are covered. Students form teams to complete live audits (first- or second-party audit) with local companies. Information systems.

OMS 645 Statistical Quality Control and Improvement (3-0-3).

Prerequisite: OMS 503 or equivalent. A development of the statistical tools for the implementation of statistical quality control and improvement programs. Includes the development of control charts and the fundamentals of experimental design. These techniques are applied in a variety of manufacturing and service situations.

OMS 690 Professional Internship (1-4 credits).

Prerequisite: Permission to register must be obtained from the Department Chair early in the semester prior to enrollment in the course. Requires professional OMS work in an organizational environment that extends the curriculum and provides meaningful experience related to the student's area of interest. Term report required.

OMS 696 Current Problems (1-4 credits).

Prerequisite: OMS 511. Selected problems in the field of operations management. With the permission of the instructor, may be repeated with change of topic.

OMS 698 Independent Study (1-4 credits).

Prerequisites: Two elective OMS courses, at least one of which must be at the 600 level; prior approval of a written proposal by OMS faculty advisor; and permission of Department Chair. Study of a significant problem or area in operations management or business statistics, conducted under the supervision of the faculty advisor. Term Report required.

OMS 801 Theory of Optimization in Production and Operations (3-0-3).

Prerequisites: OMS 601/701 or equivalent and completion of Advanced Analytical and Operational Core. Development of advanced optimization models for linear and non-linear systems. Topics include unconstrained optimization, dynamic programming, integer programming, and heuristic algorithms. Required for OMS majors in the DBA program.

OMS 802 Current Topics Professional Seminar (3-0-3).

Prerequisite: Minimum of one 600-level OMS course. A seminar course in which recent publications play a major role. The topic chosen in any term depends on the interests of the students and the instructor. The topic relates to the application of quantitative methods to any one of the following or related areas: control, logistics, project management, distribution systems, process selection and facility design, multiple-criteria decision making, maintenance management, or reliability. Required for OMS majors in the DBA program.

OMS 804 Production Planning and Inventory Control (3-0-3).

Prerequisite: OMS 511 or equivalent. Analysis of various decision areas in an integrated production planning and inventory system. Topics include advanced methodologies related to forecasting, inventory control, material

requirements planning, operations scheduling, project scheduling, line balancing, and production control.

OMS 805 Quality Control (3-0-3). Prerequisites: OMS 511 and OMS 545, or equivalents. A study of advanced statistical techniques relevant to the total-quality-control aspect in industrial organizations. Emphasis on methodology, such as control charts, inspection systems, acceptance sampling plans, and recent areas of quality-control development. Journal articles are used to cover areas of new methodology. 806 - See Addenda 01/2008

OMS 814 Flexible Manufacturing Systems (3-0-3). Prerequisite: OMS 511. Provides the tools for research in Flexible Manufacturing Systems (FMS) and Advanced Manufacturing Technology (AMT). Topics include recent developments and international comparisons of FMS, long-range strategic and economic decisions, intermediate-range FMS planning problems, short-range operation scheduling, real-time control and planning, and implementation of advanced manufacturing technology. Papers selected from major academic journals are discussed extensively to identify future research opportunities. Each student is expected to write a literature review paper under the instructor's guidance.

OMS 819 Operations Strategy (3-0-3). Prerequisite: OMS 511 or permission of instructor. Focuses on the emerging literature and research in operations strategy. Includes the conceptual basis of operations strategy by reviewing the works of authors such as W. Skinner, Hayes, Wheelwright, T. Hill, and C.A. Voss. A focus on current research appearing in journals and conference proceedings. Students develop a familiarity with the literature base and research paradigms in operations strategy. In addition, students develop a broader understanding of the research issues in POM in general and establish a POM research agenda.

OMS 822 Project Management and Scheduling (3-0-3). Prerequisites: OMS 511 and OMS 622/722, or permission of instructor. In-depth analysis of scheduling problems in project management. Survey of the three fundamental scheduling classes: Resource Constrained Project Scheduling Problems (RCPSP), Time/Cost Tradeoff Project Scheduling Problems (TCTP), and Payment Scheduling Problems (PSP). Investigation of newly introduced problems integrating two or more of the problem classes mentioned above. Survey of the three classes of problems and an introduction to the mathematical formulation of each with the help of several fundamental papers published in the early 1970s.

OMS 891 Doctoral Research in Production/Operations Management (1-12 credits). Prerequisite: Completion of two 800-level production/operations management electives. Up to 12 credits may be considered toward dissertation credit requirements.

OMS 895 Dissertation Research Seminar (3-0-3). Research in production/operations management involving faculty, outside speakers, and dissertation-stage doctoral students.

OMS 896 Current Problems in Production/Operations Management (1-4 credits). Prerequisites: OMS 801 and OMS 802. Investigation of selected problems in production/operations management. May be repeated with change in topic.

OMS 899 Dissertation (1-12 credits).

Prerequisite: Successful completion of comprehensive examinations.

Public Administration

Cross-listed Courses

Many of the core, track, and elective courses offered in the Maxine Goodman Levin College of Urban Affairs are cross-listed in the four master's degree programs (MSUS, MAES, MPA, and MUPDD). Please note that courses with the same title may not be repeated for credit. The exceptions to this rule are: ENV/PAD/PDD/UST 693, PDD/UST 696, PAD/PDD/UST 697, and PAD 698.

PAD 501 Fundamentals of Applied Reasoning (4-0-4). Prepares students to apply quantitative reasoning in work-setting decisions. The course takes a hands-on approach by using real-life examples to illustrate the use of quantitative tools from algebra, probability, and descriptive statistics in solving concrete problems. Students also acquire computer skills essential for the other quantitative research methods courses and for courses using computers through hands-on instruction of mathematical and statistical packages (such as MathCAD and SPSS) in the Urban Affairs Computer Lab. Highly recommended as preparation for PAD 601. Cross-listed with PDD 501 and UST 501.

PAD 503 Cartography and Graphics (4-0-4). The principles of map making and the use of presentation graphics in urban planning and research applications. The use of maps and graphics in the analysis of social, economic, and demographic patterns and associations. Hands-on experience with computers and graphic information systems technology. Cross-listed with PDD 503 and UST 503.

PAD 510 Proposal Writing and Program Development (4-0-4). Examination of the structure and content of proposals, sources of funding, foundation decision-making, program evaluation, and social/institutional change in the urban environment. Students gain experience through independent preparation of a proposal and application of evaluation procedures. Cross-listed with UST 510.

PAD 512 Managing Urban Diversity (4-0-4). Study of diversity, including circumstances faced in urban settings that are exacerbated or affected by diversity factors; exploration of a range of social, political, and economic issues related to diversity. Cross-listed with PDD 512 and UST 512.

PAD 515/600 [\(Addenda New 05/2007\)](#)

PAD 516/603 [\(Addenda New 05/2007\)](#)

PAD 517/617 [\(Addenda New 05/2007\)](#)

PAD 518/630 [\(Addenda New 05/2007\)](#)

PAD 521 Urban Economics (4-0-4). Prerequisites: Two courses in economic principles. Location of economic activity; urban growth and income analysis; urban income inequality and stability; local business cycles; urban public economy and its problems; current

urban issues; housing and land-use patterns, traffic congestion, poverty, crime, etc.

PAD 549 Comparative Public Administration (4-0-4). Examines the approaches to and processes of public administration with a comparative perspective in developed and developing countries. Uses public bureaucracy as a focus for comparison. Major topics will include constitutional basis and significance of international bodies on public administration, federal/ central, provincial/state and local government systems, process of public policy formulation, administrative structures, and the role of career civil servants and civil society in the management of public policies.

PAD 550 Institutional Development of the Nonprofit Organization (4-0-4). Examines nonprofit organizations as community institutions, and the role of institutional management and leadership in their development. Covers the nature of leadership and management in the nonprofit sector and the differences between them; fund-raising and financial management; governance and the respective roles of board, staff, and volunteers; the political, economic, and intergovernmental environment; community relations; needs assessment; and planning and performance measurement. A highly interactive, hands-on approach emphasizing discussion, case analysis, and problem solving.

PAD 553 Environmental and Natural Resources Economics (4-0-4). Prerequisite: Microeconomic analysis or permission of instructor. Environmental quality as an economic problem; facts about environmental pollution; analysis of environmental externality; policies for environmental protection; cost-benefit analysis. Cross-listed with ECN 574.

PAD 573 Columbus Seminar (4-0-4). Intensive one-week experience in Columbus, Ohio. Examination of the state policy and budgeting processes; the impact of budgeting on public policy and service provision. Cross-listed with UST 573.

PAD 574 Washington Seminar (4-0-4). On-site study of federal urban-policy issues. Two intensive weeks in Washington, D.C., exposes students to critical analysis of the federal budget and legislative process, intergovernmental relations problems, and current urban-policy issues; preparatory and follow-up sessions required. Cross-listed with PDD 574 and UST 574.

PAD 594 Levin Chair Seminar (4-0-4). In-depth study of urban policy issues selected by the Albert A. Levin Professor of Urban Studies and Public Service. Cross-listed with PDD 594 and UST 594.

PAD 600 Introduction to Public Administration (4-0-4). Covers the functional areas of public administration, including personnel, budgeting, and planning. Reviews the history of public administration as a discipline. Looks at the legal environment of public management and ethics.

PAD 601 Applied Quantitative Reasoning I (4-0-4). Prepares students to apply quantitative reasoning to public administration, planning, and policy design decisions. Presents the logic of quantitative analysis. Introduction

to basic techniques for data description and presentation to lay audiences using computer technology, including spreadsheets, presentation packages, and the Internet; and using a computer package for statistical decisions in the context of public administration and planning. Students learn to identify problems that lend themselves to quantitative analysis; ask questions that can be answered through quantitative reasoning; formulate hypotheses and identify the means to test them; carry out analyses and explorations, understand the meaning of results, and reapply results to the initial or similar problems; present and clarify results for specified audiences; evaluate results of quantitative analyses carried out and reported by others; and apply the new knowledge to decision-making. *Cross-listed with PDD 601 and UST 601.*

PAD 602 Applied Quantitative Reasoning II (4-0-4). *Prerequisite: PAD 601 or permission of instructor.* Covers the logic of empirical inquiry and the design of research to solve specific urban problems. Among the topics covered are experimental designs, quasi-experimental designs, measurement, validity, reliability, survey design and analysis, performance measurement, program evaluation, and the ethics of the research process. Students develop an executable research design as a product of the course. *Cross-listed with PDD 602 and UST 602.*

PAD 603 Public Finance and Economics (4-0-4). The political economy of public spending and alternative methods of financing public spending. Topics include the scope and character of government activities and their economic effects on the private sector, expenditure analysis and evaluation, the budgetary process and politics, the principles and effects of taxation, pricing government services, and the development of basic economic concepts necessary to the understanding of public finance issues. *Cross-listed with PDD 603 and UST 603.*

PAD 604 Organizational Behavior (4-0-4). Complex formal organizations are the principal social vehicle for the conduct of public affairs. This course is an introductory graduate seminar that examines the principal conceptual and theoretical bases for understanding the behavior of complex formal organizations, especially large-scale public bureaucracies.

PAD 605 Urban Spatial Structures (4-0-4). The manner in which people and places interact in labor, housing, and product markets to produce the urban outcome: cities, housing, employment, and wealth. *Cross-listed with PDD 605 and UST 605.*

PAD 612 Urban Political Processes (4-0-4). Governmental structure, processes, and problems arising from physical and social structures of contemporary urban areas; examination of emerging political forces and changing governmental institutions. *Cross-listed with PSC 612.*

PAD 615 Economic Development and Budgetary Policy 1-4 credits. An overview of national economic policy development, implementation, and impacts. Current issues in political economy and their impact on American national and sub-national

governments, including the concept of wealth creation and its manifestations. Concepts are linked to the economic development process at sub-national levels of government; how economic development strategies link to wealth creation in the private and public sectors. *Cross-listed with PDD 615 and UST 615.*

PAD 617 Public Administration and the Political Process (4-0-4). Political Factors that condition the structure and functions of public agencies, including the public interest, agency constituencies, and political influence. *Cross-listed with PSC 605.*

PAD 619 City Management (3-0-3). *Prerequisite: PAD 600.* Introduction to and overview of the study and proactive of American city management. The governance of the American Municipality is the primary focus, with a concentration on the role of city management as a public profession in the process of constitutional and equitable governance. Examines the basic administrative processes of modern local government and their roles in governance, that is, in formulating policy direction for the long- and short-term. It also examines the critical and political roles of the city manager as the municipal chief executive and the city administrator as the municipal chief administrative executive.

PAD 620 Economic Development: Plans and Strategies (4-0-4). Examination of the techniques utilized in developing plans for overall economic growth and development with an emphasis on the industrial sector; actual experience in formulating and testing plans, and development strategies. Requires a comprehensive regional analysis. *Cross-listed with PDD 620 and UST 620.*

PAD 621 Local Labor Market Analysis (4-0-4). *Prerequisites: PAD 601, PAD 603, and knowledge of Excel or other spreadsheet program.* The relationship between the functioning of national, regional, and urban labor markets, earnings distribution, and poverty; review of the theory of labor markets and the impact of unions on wage setting and employment. *Cross-listed with PDD 621 and UST 621.*

PAD 622 Economic Development Policy (4-0-4). An examination of the international and national competitive positions of industry; state and national industrial policy proposals; various approaches to economic development and industrial policy. *Cross-listed with PDD 622 and UST 622.*

PAD 623 Urban Development Finance and Applied Project (4-0-4). *Prerequisites: PAD 603 and PAD 610.* Financing, deal structuring, and analysis of public subsidy for urban real estate projects using discounted cash-flow analysis. Also includes preparation of a comprehensive report and the presentation of an urban real estate project. *Cross-listed with PDD 623 and UST 623.*

PAD 624 Anti-Poverty Policy (4-0-4). *Prerequisites: PAD 603 or equivalent and PAD 621.* Examines the historical development of anti-poverty policy and the economic effectiveness of various welfare-reform efforts. Looks at anti-poverty efforts from the perspective of national macroeconomic policy and national programs, moves to state-based

efforts, and concludes with community-development perspectives on asset accumulation for low-income families. *Cross-listed with PDD 624 and UST 624.*

PAD 625 Strategic Thinking (4-0-4). The theory and practice of strategic thinking for planning and management in the public and nonprofit sectors; concepts and procedures that assist planners and managers in coping with uncertainty; development of analytical skills and techniques. *Cross-listed with PDD 625 and UST 625.*

PAD 626 Workforce Development (4-0-4). *Prerequisite: PAD 603 or equivalent.* Workforce development takes place on both the supply and demand sides of the labor market. The demand side deals with the expressed needs of employers for specific skill types. The supply side is divided into efforts to upgrade the skills of incumbent workers and to inculcate marketable skills to new workers. A practical examination of the state of the art in workforce development strategies, policies, and programs. *Cross-listed with PDD 626 and UST 626.*

PAD 627 Urban Tourism, the Urban Cores and Economic Development (4-0-4). In this seminar, students will explore the global interest in utilizing various elements of culture, entertainment, and the hospitality industry to revitalize downtown areas; the fit between the tourism industry and theories of economic development; the politics and institutional issues that underpin the growth coalitions that support and secure the building of infrastructure for tourism and the hospitality industry; and review the limits, benefits, and outcomes from tourist development and economic policies that have been used to revitalize cities and downtown areas.

PAD 628 Fundamental of Sponsored Research Administration (4-0-4). Designed to give students a knowledge of the history, theories and practices of research administration in the United States, Canada, and internationally. Students will be introduced to the history, concepts and major issues of research administration, including but not limited to regulatory frameworks, administrative practices and theories, overview of organizations and institutions engaged in research administration, financial administration, responsible conduct of research, technology transfer and related subjects. Serves as a basis to more specialized studies of research administration and management.

PAD 630 Public Human Resources Management (3-0-3). The issues and public policies that have an impact on the management of human resources in the public sector. Differences between public and private personnel administration; the American civil service system; recruitment, placement, promotion, training, and compensation; performance assessment; rights and duties of public employees.

PAD 631 Law and Public Administration (3-0-3). Administrative law as the body of rules and prescriptions for public agencies. The evolution and development of American administrative law, its substance, and the role of administrative law in the governing process.

PAD 632 Organizations and Management in the Public Sector (4-0-4). Traces the history of public management and how this history can be organized to increase the effectiveness of managing public organizations. An overview of management thought, its cultural context, and its "politics." *Cross-listed with UST 632 and PDD 632.*

PAD 633 Budgetary Policy (4-0-4). Covers the importance of budgeting and finance to public policy makers and public administrators. Sources of city and state finance information; examination of the revenue, expenditure, and debt structure of American cities; also includes examination of budgetary processes, formats, and accounting systems. *Cross-listed with PDD 633 and UST 633.*

PAD 634 Ethics in the Public Sector (4-0-4). Provides students with an understanding of the ethical dimensions of public administration and helps students develop the awareness, skills, and value framework to act ethically in a public or private-sector management role. *Cross-listed with UST 634.*

PAD 635 Public Sector Management (4-0-4). Analysis and discussion of public policy management, leadership, and statesmanship. *Cross-listed with PSC 635.*

PAD 640 Public Works Management I (4-0-4). Introductory seminar in the management of public works functions and personnel in local and regional government. The history of the public works profession; contemporary public works functions, practices, and issues. Special problems in financing and maintaining capital stock and managing public works personnel. *Cross-listed with PDD 640 and UST 640.*

PAD 641 Public Works and Urban Service Delivery (4-0-4). The conceptual issues public managers face when making decisions about the delivery of local services. The delivery of specific public works services and the special problems encountered by local service administrators. A variety of techniques for assessing the effectiveness of urban services examined. *Cross-listed with PDD 641.*

PAD 642 Introduction to Geographic Information Systems (4-0-4). *Prerequisite: PAD 501 or permission of instructor.* Principles of Geographic Information Systems (GIS) as a computer tool to provide spatial information analysis. Laboratory instruction in the use of GIS software to aid in the analysis of workplace problem situations. *Cross-listed with ENV 642, PDD 642, and UST 642.*

PAD 643 Advanced GIS (4-0-4). *Prerequisite: PAD 642.* Students learn to develop and implement various GIS application projects, such as network analysis, polygon overlay, and surface modeling. Students use advanced GIS software tools in completing computer-based analytical exercises. *Cross-listed with ENV 643, PDD 643, and UST 643.*

PAD 644 GIS Capstone Seminar (4-0-4). Provides an overview of current issues in GIS. Students review and discuss their GIS projects/research in the context of these issues. Students review both the technical/practical issues encountered, as well as the conceptual implications of their projects. The

course offers graduate students the opportunity to reflect on the skills learned during their GIS projects and to provide an overview of ongoing development in the field. *Cross-listed with ENV 644, PDD 644, and UST 644.*

PAD 651 Fund Raising and External Relations for Nonprofit Organizations (4-0-4). Provides the fundamentals of fund raising and external relations for nonprofit organizations, with special emphasis on the challenges faced by small to mid-sized community and faith-based organizations. In a climate of devolution and other significant changes in the nonprofit environment, leaders and managers must pay increasing attention to developing a viable strategy for attracting diverse and sustained financial support, as well as developing productive relations with key stakeholder groups, including clients, area residents, members, trustees, legislators, the press, and other important constituents. This course is a practical, hands-on exploration of the skills and knowledge needed to equip leaders and managers of nonprofits to position their organizations effectively.

PAD 652 Financial Administration and Control of Nonprofit Organizations (4-0-4). Provides an understanding of basic financial, budgetary, and accounting concepts, processes, and techniques relevant to managers in nonprofit organizations; develops an appreciation of how and why financial decisions are made and how they affect nonprofit operations; strengthens participants' ability to understand and use financial documents; and develops skills in financial analysis and management.

PAD 656 Capstone Seminar in Nonprofit Leadership and Management (4-0-4). This seminar considers key aspects of leadership and management in the nonprofit sector as they are applied in practice. Integrates significant theory and research results with practical skills. This course is intended as a capstone experience for students pursuing the graduate certificate in nonprofit management and/or the MPA nonprofit specialization.

PAD 670 Introduction to Law and Public Policy (4-0-4). Introduces the basic structures of the American legal system and how that system interacts with other disciplines such as planning, policy analysis, and public administration in the creation of public policy. First course of a two-course sequence, with PAD 683. *Cross-listed with UST 670.*

PAD 683 Law and Public Policy Clinic (4-0-4). *Prerequisite: PAD 670.* Provides an opportunity for students to work on legal and public policy issues under the supervision of Law and Urban Affairs faculty. Clients include state and local governments, citizens' groups, and nonprofit agencies that come to the clinic for analysis of and proposed solutions to a variety of critical government and social issues. *Cross-listed with UST 683.*

PAD 690 Internship (3-0-3). Intended for students without previous administrative experience. The internship requires 300 hours of supervised activity.

PAD 691 (1-3 credits) PAD 692 (4 credits) MPA Capstone. A generalist public administration capstone course that provides a final, common experience for MPA students.

Students integrate learning from the MPA core curriculum with professional practices encountered in public and nonprofit organizations. Students are expected to prepare and defend a capstone paper.

PAD 693 Special Topics in Public Administration (4-0-4). Special offerings varying with faculty expertise and student interest. Typical subjects include Affirmative Action in the Public Sector, Women as Leaders, etc. Specific topics listed in the Course Schedule.

PAD 697 Readings in Public Administration (1-4 credits).

PAD 698 Research in Public Administration (1-4 credits). Master's-level research on an approved topic pursued and reported under the direction of a faculty member; research requires the application of rigorous analysis to some substantive problem in public administration. Offered every semester.

Urban Planning Design & Development

Cross-listed Courses

Many of the core, track, and elective courses offered in the Maxine Goodman Levin College of Urban Affairs are cross-listed in the four master's degree programs (MSUS, MAES, MPA, and MUPDD). Please note that courses with the same title may not be repeated for credit. The exceptions to this rule are ENV/PAD/PDD/UST 693, PDD/UST 696, PAD/PDD/UST 697, and PAD 698.

PDD 501 Fundamentals of Applied Reasoning (4-0-4). Prepares students to apply quantitative reasoning in work-setting decisions. The course takes a hands-on approach by using real-life examples to illustrate the use of quantitative tools from algebra, probability, and descriptive statistics in solving concrete problems. Students also acquire computer skills essential for the other quantitative research methods courses and for other courses using computers through hands-on instruction of mathematical and statistical packages (such as MathCAD and SPSS) in the Urban Affairs Computer Lab. Highly recommended as preparation for PDD 601. *Cross-listed with PAD 501 and UST 501.*

PDD 503 Cartography and Graphics (4-0-4). The principles of map making and the use of presentation graphics in urban planning and research applications. The use of maps and graphics in the analysis of social, economic, and demographic patterns and associations. Hands-on experience with computers and graphic information systems technology. *Cross-listed with PAD 503 and UST 503.*

PDD 512 Managing Urban Diversity (4-0-4). Study of diversity including circumstances faced in urban settings that are exacerbated or affected by diversity factors; exploration of a range of social, political, and economic issues related to diversity. *Cross-listed with PAD 512 and UST 512.*

PDD 550 Environment and Human Affairs (4-0-4). Challenges to decision makers in an environmental context; strategies appropriate to various decision situations; analysis of decision-making; negotiation and mediation techniques. Cross-listed with ENV 550 and UST 550.

PDD 551 Environmental Finance and Capital Budgeting (4-0-4). Introductory course in natural resource economics theory, financial decision-making processes, and public policy relevant to environmental protection, urban sustainability, and natural resource development and management. Examination of issues and methods of financing environmental projects. Focus on the application of theory to practice in state and local governments. Cross-listed with ENV 651 and UST 651/751.

PDD 553 Environmental Planning I (4-0-4). Introduction to planning for environmentally sustainable cities and regions. Topics include the values embodied in, and development of, environmental planning as a field of planning; processes that generate the physical landscape; and the impacts of human settlements on the landscape. The class focuses on urban sustainability and built form. Local, state, and federal laws and regulations relevant to land use and resource protection are featured. Students become familiar with planning methods and their use. Cross-listed with ENV 553 and UST 553.

PDD 563 Housing Analysis (4-0-4). Housing analysis is explored from a regional perspective within a framework of supply, demand, and population movement. Changes produced in neighborhoods and communities as a result of regional housing dynamics are considered, as are the impacts that public policies have on regional housing dynamics and community change. Cross-listed with UST 563.

PDD 572 Conflict Management (4-0-4). Examines conflict as an omnipresent component of any decision-making environment. Offers tools for understanding the nature of conflict; devises individual and group strategies that minimize the destructive consequences of conflict; and identifies solutions that are satisfactory to all involved. Includes lectures, discussions, and simulation games. Cross-listed with UST 572.

PDD 574 Washington Seminar (4-0-4). On-site study of federal urban-policy issues. One intensive week in Washington, D.C., exposes students to critical analysis of the federal budget and legislative process, intergovernmental relations problems, and current urban-policy issues; preparatory and follow-up sessions required. Cross-listed with PAD 574 and UST 574.

PDD 576 Historic Preservation (4-0-4). The roots of the preservation movement in America and its historical antecedents. Preservation policies at the federal, state, and local levels. Preservation planning tools used in Cleveland and other American cities. Cross-listed with UST 576.

PDD 577 Regional Issues (4-0-4). Provides an overview of the phenomenon of suburban real estate development, sprawl, and out-migration, and involves students in discussion with officials and specialists who represent various perspectives on the subject. Cross-listed with UST 577.

See Addenda 11/2007

PDD 578 Sacred Landmarks (4-0-4). Exposes students to urban art, culture, history, and ethnicity attributed to Cleveland's sacred landmarks. Students examine sacred landmark preservation efforts in Cleveland, in other American cities, and in cities worldwide. Cross-listed with UST 578.

PDD 594 Levin Chair Seminar (4-0-4). In-depth study of urban policy issues selected by the Albert A. and Maxine Goodman Levin Professor of Urban Studies and Public Service. Cross-listed with PAD 594 and UST 594.

PDD 601 Applied Quantitative Reasoning I (4-0-4). Prepares students to apply quantitative reasoning to public administration, planning, and policy design decisions. Presents the logic of quantitative analysis. Introduction to basic techniques for data description and presentation to lay audiences using computer technology, including spreadsheets, presentation packages, and the Internet; and using a computer package for statistical decisions in the context of public administration and planning. Students learn to identify problems that lend themselves to quantitative analysis; ask questions that can be answered through quantitative reasoning; formulate hypotheses and identify the means to test them; carry out analyses and explorations, understand the meaning of results, and reapply results to the initial or similar problems; present and clarify results for specified audiences; evaluate results of quantitative analyses carried out and reported by others; and apply the new knowledge to decision-making. Cross-listed with PAD 601 and UST 601.

PDD 602 Applied Quantitative Reasoning II (4-0-4). Prerequisite: PDD 601 or permission of instructor. Covers the logic of empirical inquiry and the design of research to solve specific urban problems. Among the topics covered are experimental designs, quasi-experimental designs, measurement, validity, reliability, survey design and analysis, performance measurement, program evaluation, and the ethics of the research process. Students develop an executable research design as a product of the course. Cross-listed with PAD 602 and UST 602.

PDD 603 Public Finance and Economics (4-0-4). Topics include the role of markets and government, criteria for resource allocation, budgeting, benefit analysis, and government finance. Cross-listed with PAD 603 and UST 603.

PDD 605 Urban Spatial Structures (4-0-4). The manner in which people and places interact in labor, housing, and product markets to produce the urban outcome: cities, housing, employment, and wealth. Cross-listed with PAD 605 and UST 605.

PDD 606 Evolution of Human Settlements (4-0-4). Examination of the history of human settlements and major intellectual traditions focusing on urbanism, especially the city. These traditions span disciplines from history to sociology. Many of the theorists are themselves interdisciplinary. Cross-listed with UST 606.

PDD 607 Introduction to Urban Planning (4-0-4). The nature of physical planning and its relation to social and economic planning; steps in the planning process; levels of planning;

preparation and criticisms of plans and planning studies. Cross-listed with UST 607.

PDD 608 Urban Design Seminar (4-0-4). Explores fundamental design concepts and theories in practice of urban design; design concepts, which generate built forms at the neighborhood and city scale; political, social, and economic issues influencing design decision-making; field surveys to observe use of design in the urban landscape. Students develop a critical perspective on qualities and conditions of the urban landscape. Cross-listed with UST 608.

PDD 609 Planning Law (4-0-4). Introduction to the fundamentals of urban planning law. Selected topics are emphasized in such areas as land-use controls, housing, and community development. Cross-listed with UST 609.

PDD 610 Urban Development Process/Market Analysis (4-0-4). Provides an overview of the planning/development process and obstacles encountered in the initiation of urban real estate projects. Provides a methodology for analyzing the commercial, industrial, and residential market redevelopment potential for vacant or under-utilized urban property. Cross-listed with UST 610.

PDD 611 Capstone Studio (4-0-4). [\(Addenda revised 06/2007\)](#) This final semester studio course is the culmination of the MUPDD program. Students conduct various studies on a wide range of planning topics, including planning process, economic design, financial market, statistical project management, and environmental aspects for a real client. Course concludes with a presentation to clients and the community.

PDD 612 Urban Political Processes (4-0-4). Governmental structure, processes, and problems arising from physical and social structures of contemporary urban areas; examination of emerging political forces and changing governmental institutions. Cross-listed with PSC 612 and UST 612.

PDD 615 Economic Development and Budgetary Policy (4-0-4). An overview of national economic policy development, implementation, and impacts. Current issues in political economy and their impact on American national and sub-national governments, including the concept of wealth creation and its manifestations. Concepts are linked to the economic development process at sub-national levels of government; how economic development strategies link to wealth creation in the private and public sectors. Cross-listed with UST 615 and PAD 615.

PDD 616 Systems and Processes of Policy Development (4-0-4). Methods used by policy makers and their staffs in formulating policy instruments; the objectives policy makers seek to accomplish; how they search for alternative ways of achieving objectives; and the implications of their choices. Areas of emphasis include distributional and spillover effects of policy, and the political and

organizational problems associated with the acceptance and implementation of policy. *Cross-listed with UST 616.*

PDD 620 Economic Development: Plans and Strategies (4-0-4). Examination of the techniques utilized in developing plans for overall economic growth and development with an emphasis on the industrial sector; actual experience in formulating and testing plans and development strategies. Requires a comprehensive regional analysis. *Cross-listed with PAD 620 and UST 620.*

PDD 621 Local Labor Market Analysis (4-0-4). *Prerequisites: PDD 601, PDD 603, and knowledge of Excel or other spreadsheet program.* The relationship between the functioning of national, regional, and urban labor markets, earnings distribution, and poverty; review of the theory of labor markets and the impact of unions on wage setting and employment. *Cross-listed with PAD 621 and UST 621.*

PDD 622 Economic Development Policy (4-0-4). Examination of the international and national competitive positions of industry; state and national industrial policy proposals; approaches to economic development and industrial policy. *Cross-listed with PAD 622 and UST 622.*

PDD 623 Urban Development Finance and Applied Project (4-0-4). *Prerequisites: PDD 603 and PDD 610.* Financing, deal structuring, and analysis of public subsidy for urban real estate projects using discounted cash-flow analysis. Also includes preparation of a comprehensive report and presentation of an urban real estate project. *Cross-listed with PAD 623 and UST 623.*

PDD 625 Strategic Thinking (4-0-4). The theory and practice of strategic thinking for planning and management in the public and nonprofit sectors; concepts and procedures that assist planners and managers in coping with uncertainty; development of analytical skills and techniques. *Cross-listed with PAD 625 and UST 625.*

PDD 626 Workforce Development (4-0-4). *Prerequisite: PDD 603 or equivalent.* Workforce development takes place on both the supply and demand sides of the labor market. The demand side deals with the expressed needs of employers for specific skill types. The supply side is divided into efforts to upgrade the skills of incumbent workers and to inculcate marketable skills to new workers. A practical examination of the state of the art in workforce-development strategies, policies, and programs. *Cross-listed with UST 626.*

PDD 627 Urban Tourism, the Urban Core, and Economic Development (4-0-4). Explores the global interest in utilizing aspects of culture and the entertainment and hospitality industries to revitalize urban areas and enhance urban life. Assesses the importance of sports, culture, and the entertainment and hospitality industries to society; the ability of cities and their leaders to control economic development; different tourism, hospitality, and entertainment strategies for development; evaluates the social and economic development benefits of amenities; review of experiences with entertainment for redevelopment. *Cross-listed with UST 627.*

PDD 632 Organizations and Management in the Public Sector (4-0-4). Traces the history of public management and how this history can be organized to increase the effectiveness of managing public organizations. An overview of management thought, its cultural context, and its "politics." *Cross-listed with PAD 632 and UST 632.*

PDD 633 Budgetary Policy (4-0-4). The importance of municipal budgeting and finance to public policy makers and public administrators. Sources of city finance information; examination of the revenue, expenditure, and debt structure of American cities. Budgetary processes, formats, and accounting systems. *Cross-listed with PAD 633 and UST 633.*

PDD 642 Introduction to Geographic Information Systems (4-0-4). *Prerequisite: PDD 501 or permission of instructor.* Principles of Geographic Information Systems (GIS) as a computer tool to provide spatial information analysis. Laboratory instruction in the use of GIS software to aid in the analysis of workplace problem situations. *Cross-listed with ENV 642, PAD 642, and UST 642.*

PDD 643 Advanced GIS (4-0-4). *Prerequisites: UST 434 and PDD 642 or equivalent.* This course teaches students how to develop and implement various GIS applications such as network analysis, polygon overlay, and surface modeling. Students use advanced GIS software tools in completing computer-based analytical exercises. *Cross-listed with ENV 643, PAD 643, and UST 643.*

PDD 644 GIS Capstone Seminar (4-0-4). *Prerequisite: PDD 643.* Provides an overview of current issues in GIS. Students review and discuss their GIS projects/research in the context of these issues. Students review both the technical/practical issues encountered, as well as the conceptual implications of their project. The purposes of the course are to offer graduating students the opportunity to reflect on the skills learned during their GIS projects and to provide an overview of ongoing development in the field. *Cross-listed with ENV 644, PAD 644, and UST 644.*

PDD 652 Environmental Policy and Administration (4-0-4). A comprehensive, interdisciplinary introduction to the values, preferences, and economic interests that underlie the formulation of environmental policy. Local, regional, state, national, and global issues are examined and characterized with emphasis on the national and state levels. Air pollution, water pollution, and land pollution (brownfields) are addressed. *Cross-listed with UST 652/752.*

PDD 653 Environmental Planning II (4-0-4). *Prerequisite: PDD 553 or permission of instructor.* An advanced course designed for students with knowledge of ecological processes or relevant environmental fields. Features regional ecological infrastructure and landscape scale. Typical topics include watershed management, land-use change and ecological impacts, and regional open space and habitat preservation. Provides an opportunity to apply planning processes and techniques such as suitability analysis, GIS mapping, risk assessment, or environmental

impact assessment through a project. *Cross-listed with ENV 653 and UST 653/753.*

PDD 660 Neighborhood Planning and Development (4-0-4). The process and techniques for the creation and implementation of neighborhood development plans with an emphasis on Cleveland neighborhoods, neighborhood organizations, and neighborhood planning. An introduction to the local government organizations and private institutions that support neighborhood planning, and federal, state, and local programs that fund neighborhood planning and development programs. Students participate in field research on a selected neighborhood project. *Cross-listed with UST 660.*

PDD 661 Legal Developments in Housing (4-0-4). Analysis of the evolution of housing and community development legislation, programs, and policies in metropolitan America, with emphasis on special topics. *Cross-listed with UST 661.*

PDD 662 Urban Housing Policy (4-0-4). Focuses on the evolution of urban housing policy, the policies that shape the existing housing system, and proposals for modifying housing policy and programs. Housing policy developments are related to broad ideological and political changes since the 1960s. Considers the major aspects of the current housing situation, including financing, production, affordability, preservation, and discrimination. *Cross-listed with UST 662.*

PDD 690 Urban Internship (1-8 credits).

PDD 693 Special Topics in Urban Planning, Design, and Development (1-4 credits). Special offerings varying with faculty expertise and student interest. Specific topics are listed on the online Course Schedule.

PDD 696 Individual Research (1-8 credits).

PDD 697 Readings in Urban Problems (1-8 credits).

PDD 698 Exit Project (4 credits).

PDD 699 Master's Thesis (4 credits).

Sport Management, Physical Education, and Exercise Science

PED 516 Health and Physical Education for Classroom Teachers (3 credits).

Introduction to productive, creative, and innovative methods needed to implement school health education and physical education at the elementary grade levels in areas of licensure. Students become familiar with organizing and presenting health and physical education content, materials, curricula, community resources, using technology, and communicating about healthy lifestyles. Course includes a service learning component.

PED 539 Therapeutic Recreation and Disability Sports (3-0-3). Examination of leisure/recreation services available for individuals with disabilities; study of impact of federal legislation on the provision for and

accessibility of diverse recreational opportunities including high risk, adventure activities; and analysis of elite sport opportunities for individuals with disabilities including the study of national governing bodies that are responsible for the competition with emphasis on the International Paralympic Movement.

PED 550 Psychology of Sport and Exercise (4 credits). Reviews research in the areas of sport and exercise psychology. The major theories and research approaches in these areas are discussed with a focus on quantitative, qualitative, and applied research in the field.

PED 551 Applied Sport Psychology (3 credits). Reviews the application of performance enhancement strategies in sport and exercise settings. The focus is on the application of mental skills strategies (e.g., goal setting, imagery, attentional focus) to improve performance in sport, exercise, or other performance settings. Also explores the role of group dynamics, leadership, nutrition, and drugs on performance.

PED 554 Sport Sociology (3 credits). Examines the effects of social change on the structure and function of sport. Explores the popular concept that sport mirrors society through topics such as sport and politics, economics, racism, sexism, violence, deviance, youth sport, academic integrity and sport, and the impact of the media on sport.

PED 556 Individualized Physical Education for Children with Special Needs (3 credits). Study of evaluative procedures used to identify the unique needs of students with disabilities in physical education; development of annual goals and benchmarks for helping students acquire motor skills; enables special educators to establish themselves as resource people. Includes a clinical experience.

PED 560 Program Development and Management (4 credits). Provides decision makers with knowledge and skills essential to the development and management of programs. Emphasis on the principles and processes of program design, implementation, and assessment.

PED 561 Sport Governance (3 credits). Governance structures used in amateur and professional sports are explored. Emphasis on the International Olympic Committee, the United States Olympic Committee, the National Governing Bodies; the National Collegiate Athletic Association; high school leagues; professional team sports leagues; and individual sport organizations.

PED 565 Law and Policy Studies in Sport and Physical Education (4 credits). An overview of the legal and social policy issues most often encountered in sport and physical activity; emphasizes tort and selected areas of constitutional, commercial, contract, labor, and intellectual property law. The law is applied to the amateur and professional sport environments, recreation and leisure activities, and to instruction and rehabilitation. Leading court decisions are explained and guide students in an in-depth study of their choice and a comprehensive risk-management presentation.

PED 566 Sport Facility Management (3 credits). Provides an overview of sports facility planning and management, and the relationship between sport stadiums and professional sports. Planning, design, construction, operation, maintenance, security, scheduling, evaluation, and risk management of facilities are presented in detail.

PED 567 Sports Marketing (3 credits). Identification of the sport product, and an overview of marketing applied to the sport industry, including consumer behavior, the role of research in marketing and marketing management, segmentation, pricing, promotion, place, and public relations.

PED 570 Seminar in Training and Conditioning (3 credits). Study of the principles of physical fitness and conditioning programs. Focuses on methods to enhance physical fitness and/or sport performance for a variety of individuals, including athletes and clinical populations. Practical experience in assessing physical fitness is obtained.

PED 571 Biomechanics of Sport and Fundamental Skills (3 credits). Introduction to the study of human movement. Focuses on balance, buoyancy, leverage, force, angles of rebound, projectiles, motion, and kinesthesia. Students analyze fundamental movement and create specialized sport skills. These factors are related to learning theory, coaching techniques, and individualization of instruction. The course enables sport management personnel to recognize efficient movement in visual media and to describe sport skills accurately; coaches and teachers learn to identify errors in sport skills.

PED 572 Physiology of Aging (3 credits). Develops an understanding of the physiological, social, and emotional changes, which accompany the aging process. Emphasis on evaluation of physical, sensory, motor, and cognitive changes. Special attention is paid to developing programs for the elderly in exercise, prevention of falling, improvements in strength, and sense of well-being.

PED 583 Media Literacy Across the Curriculum (Addenda new 05/2007)

PED 593 Special Topics in Sport Education (2-4 credits). Study of current topics of interest in the discipline of sport and sport education. Specific topics and credits are based on analysis of need at the time each course is scheduled.

PED 652 Curriculum in Physical Education (3 credits). Presents the total curriculum in physical education at all levels with special attention given to the process of curriculum construction, current trends in curriculum organization, planning for instruction, and curriculum evaluation.

PED 653 Teacher Behavior Analysis (3 credits). Study of alternative teaching styles and the implications for applying each style; examination of current research on teacher-role behavior; review of methods for observing and analyzing teacher behavior to increase teaching effectiveness; and systems designed for teacher-student interaction in physical activity classes with emphasis on nonverbal communication.

PED 657 Principles of Motor Learning (3 credits). Study of the information-processing capacities of the learner and the relevant properties of the environment in an attempt to understand motor-skill acquisition.

PED 658 Seminar in Motor Programming for Special Populations (3 credits). Analysis and application of applied behavioral principles in the instructional process in movement-oriented activities with individuals with disabilities;

development of evidential bases for improvement of instructional practice using applied behavioral analysis.

PED 675 Physiology of Human Performance I (4 credits). Prerequisites: Courses in human anatomy and physiology, or equivalents. Study of human physiological function during acute and chronic exercise with emphasis on energy metabolism, neuromuscular, and cardiorespiratory function. Laboratory experiences focus on laboratory techniques and the measurement of the acute responses to exercise.

PED 676 Physiology of Human Performance II (4 credits). Prerequisite: PED 675. Study of human physiological function during acute and chronic exercise with emphasis on gender differences, environmental factors, aging, endocrine function, ergogenic aids, and research in human performance. Laboratory experiences focus on laboratory techniques and the measurement of acute responses to exercise.

PED 677 Prevention and Rehabilitation of Cardiovascular Disease (3 credits). Overview of the methods by which coronary artery disease may be prevented and rehabilitated. Topics include disease process, diagnostic techniques, risk-factor modification, electrocardiographic interpretation, exercise testing, and prescription. Program planning and design are addressed with emphasis on policy and procedure.

PED 696 Individual Projects in Physical Education (1 credit). Prerequisite: Permission of department chair. Independent project in a selected area of physical education; project must be approved by and arrangements made with permission of project supervisor and department chair. May be repeated for a maximum of 4 credits.

PED 697 Individual Projects in Physical Education (2 credits). Prerequisite: Permission of department chair. Independent project in a selected area of physical education; project must be approved by and arrangements made with permission of project supervisor and department chair. May be repeated for a maximum of four credits.

Philosophy

PHL 505 Prominent Philosophers (4-0-4). Concentrated study of the writings of outstanding philosophers. Usually, no more than one to two philosophers are studied in any one offering. Normally offered every semester.

PHL 510 Studies in the History of Philosophy (4-0-4). Study of a particular philosophical movement, its assumptions, methods, and implications, or the study of one historical figure.

PHL 514 Predicate Logic (2-0-2). Prerequisite: PHL 131 or equivalent course in sentential logic. Standard topics in predicate logic, including symbolization and proofs

with monadic and relational predicates, demonstrating invalidity in predicate logic, and the logic of identity.

PHL 515 Symbolic Logic (4-0-4). Prerequisite: PHL 131 or equivalent, or permission of instructor. A thorough study of predicate logic with identity and an introduction to the study of logical theory.

PHL 520 Reasoning in Bioethics: Basic Issues (2-0-2). Examines alternative approaches to bioethical reasoning—principlism, casuistry, and the philosophy of social justice—in relation to such questions as resource allocation, death and dying, and other issues in bioethics.

PHL 521 Reasoning in Bioethics: Contextual Approaches (2-0-2). Examines alternative approaches to bioethical reasoning—virtue theory, narrative ethics, intuitionism, and feminist ethics—in relation to such questions as informed consent, privacy, and institutional practices, with special attention to cultural relativism.

PHL 522 Clinical Bioethics: Cases I (2-0-2). Examines reasoning regarding classic and contemporary cases in bioethics. Professional conduct, conflicts of duties and conflicts of interests, relations among professions, cultural diversity, genetic counseling, and reproductive ethics are among topics typically included.

PHL 523 Clinical Bioethics: Cases II (2-0-2). Examines reasoning regarding classic and contemporary cases in bioethics. Human research subjects, informed consent, competence, organ transplantation, death and dying, and futility are among topics typically included.

PHL 524 Bioethics Policy: Prevention and Access (2-0-2). Examines health policies regarding such issues as prevention, primary care, uninsured and underserved populations, rationing, and aims of managed care relative to theories of justice. Includes international comparisons.

PHL 525 Bioethics Policy: Technology (2-0-2). Examines the impact of rapid technological change on bioethics. Among topics typically included are DNA technology, gene therapy, enhancement of inherited traits, transplant policy, surrogacy, health, and the human environment.

PHL 526 Bioethics and Law: Regulation (2-0-2). Examines the foundations of human health institutions and practices in federal tax-exemption legislation, federal financing (Medicare and Medicaid), state licensure laws, state insurance legislation, and proposal for health law reform.

PHL 527 Bioethics and Law: Rights (2-0-2). Examines individual rights in areas such as refusal of treatment, conception, birth, abortion, protection of human subjects in experimentation, the law of medical liability, and proposed patients' rights legislation.

PHL 528 Bioethics: Special Topics (2-0-2). This course examines special topics in bioethics.

PHL 529 Bioethics: An Overview (1-0-1). Intended for health care professionals who seek basic information about bioethics. Focuses on moral theories, perspectives, and principles, with applications to health care issues. Facilitates active participation in health care decisions involving moral issues. Taught via the Internet.

PHL 540 Moral Reasoning and Bioethics (4-0-4). Critically examines systematic ethical theories and their accounts of moral reasoning in case studies and issues in bioethics. Analyzes relations between differences in levels of social organization and differences in levels of moral reasoning.

PHL 541 Clinical Issues in Bioethics (4-0-4). Focuses on moral problems that arise in the day-to-day practices of health care professionals, administrators, and researchers within the framework of existing institutions, social policies, and laws. Includes readings on controversial moral issues in clinical ethics.

PHL 542 Policy Issues in Bioethics (4-0-4). Review of the role of governments in developing and implementing health care policies. Readings and discussions cover such topics as surrogacy, transplantation, problems of financing, the allocation of resources, and experimentation.

PHL 543 Bioethics and the Law (4-0-4). Students learn rudimentary legal-research skills, the structure of the legal system, and health care law as applied to classical and contemporary issues, such as death and dying, transplantation, genetic and reproductive law, human subjects research, and employee testing for drug use.

PHL 544 Bioethics and Biotechnology (Addenda New 05/2007)

PHL 614 Logic and Its Pedagogy (2-0-2). Prerequisite: One course in deductive logic; intended for logic teaching assistants, and students who aim to teach introductory logic. Approaches to teaching the main topics in basic courses in deductive logic. Students prepare and teach a logic class or review session.

PHL 615 Logical Theory (4-0-4). An introduction to symbolic logic for graduate students, and/or an examination of the issues involved in the application of symbolic logic to the description and solution of philosophical issues. Normally offered every year.

PHL 620 Analytic and Linguistic Philosophy (4-0-4). An overview of the central problems in linguistic analysis as they underlie philosophical issues.

PHL 625 Philosophy of Science (4-0-4). A detailed study of a few central problems in either the natural sciences or the social sciences (normally the problems of only one kind of science are examined in any one offering).

PHL 630 Theory of Knowledge (4-0-4). Systematic investigation of one central problem in the theory of knowledge, or a thorough investigation of one important philosophic work. Normally offered every year.

PHL 635 Metaphysics (4-0-4). Systematic investigation of central problems in metaphysics, or a detailed examination of one important metaphysical work. Normally offered every year.

PHL 640 Ethics (4-0-4). A systematic investigation of ethical theories, or a detailed examination of one problem or theory of ethics or meta-ethics.

PHL 645 Aesthetics (4-0-4). Analysis of the process of artistic judgment and artistic criticism; problems concerning the evaluation of art in a

context of established standards and the evaluation of such contexts.

PHL 650 Social and Political Philosophy (4-0-4). The logic of social and political institutions; examination of problems concerning the determination of values, application of rules, and justification of decisions. Normally offered every year.

PHL 689 Research Methods in Philosophy (4-0-4). An introduction to research materials and methods in philosophy. Open only to students taking another graduate course in philosophy or working on an approved research project.

PHL 691 Directed Research (1-4 credits). Prerequisite: 12 hours of graduate study or permission of instructor. For students who wish to do research in preparation for the comprehensive examination; regular reports to advisor required. Only four credits in PHL 691 may be counted toward the MA degree. Graded S/U.

PHL 693 Selected Problems (4-0-4). Consideration of one specific issue in contemporary philosophy.

PHL 696 Advanced Research (1-4 credits). Prerequisite: Eight hours of graduate study or permission of instructor. For students who wish to do research in special areas; regular reports to advisor required. Only four credits in PHL 696 may be counted toward the MA degree.

PHL 699 Thesis (1-8 credits). Prerequisite: Approval of the Graduate Affairs Committee of the Philosophy Department. A public defense of the thesis is required and will be scheduled by the Graduate Affairs Committee.

Physics

PHY 500 Conceptual Physics for Middle School Teachers (4-2-5). Prerequisite: Graduate standing in Graduate Certificate in Middle Childhood Science Education program. Provides the content knowledge and skills of scientific inquiry necessary for teaching physics in middle school. Learning objectives are based on the national standards for science for grades four through eight. Content includes kinematics, mechanics, heat and temperature, energy, energy transfer, waves, acoustics, light, and optics. Lectures will coordinate with laboratory exercises and inquiry-based activities.

PHY 510 Holography (2-4-3). Laboratory course in holography. Production of single- and multiple-beam transmission and reflection holograms and three-dimensional cylindrical holograms.

PHY 515 Introduction to Biological Physics (4-0-4). As the body of knowledge in physics expands and diffuses into the life sciences, the need for instruction in biological physics increases. Students learn how to use the concepts of physics to analyze and understand important aspects of biological systems. The course is appropriate for

graduate students majoring in physics, chemistry, biology, or engineering.

PHY 516 Macromolecular Crystallography (4-0-4). Macromolecular crystallography is at the heart of the genomic age, allowing the determination of the three-dimensional structures of the proteins for which the genomes code. This information is used to determine and understand their function and to develop new drugs that cure diseases. This course teaches students the fundamentals of diffraction theory, crystal properties, and the basic concepts of solving the structures of macromolecular crystals. The course is appropriate for advanced undergraduate and graduate students majoring in physics, chemistry, and biology.

PHY 520 Computational Physics (4-0-4). Numerical simulations such as Monte Carlo and visualizations of complex physical systems; examples from fractals, chaos, and cellular automata.

PHY 530 Introduction to Medical Physics (4-0-4). Prerequisites: PHY 241 (or PHY 243) and PHY 242 (or PHY 244), or permission of the instructor. An introduction to the medical applications of radiation and imaging physics. Topics include interactions of radiation with biological tissues, production and properties of radio nuclides, radiation therapy physics, dosimetry, diagnostic radiology, nuclear medicine, and issues of radiation safety.

PHY 535 Radiation Therapy Physics (4-0-4). Prerequisite: PHY 430 (or PHY 530), or permission of the instructor. An examination of therapeutic applications of ionizing radiation. Included are basic radiological physics and dosimetry, modern methods of using radiation in teletherapy and brachytherapy, and radiation protection.

PHY 550 Optics (4-0-4). Geometrical optics with applications to microscopes, cameras, and vision; thick lenses and aberrations; polarization; interference and interferometers; Fresnel and Fraunhofer diffraction; and Rayleigh scattering.

PHY 555 Advanced Optics Laboratory (2-6-4). Hands-on knowledge in optical principles and techniques; dispersion in glass, diffraction, and interferometry. Includes a student-selected project.

PHY 560 Laser Physics and Photonics (4-0-4). Basics of laser operation and photonics. Topics include spontaneous and stimulated emission laser types, optical detectors, integrated optics, rate equation models for lasers, quantum noise limits, and elementary nonlinear optics.

PHY 565 Image Processing (4-0-4). Fraunhofer and Fresnel diffraction, linear systems theory, optical image processing with coherent light, optical transfer function for incoherent light, FFT algorithm, and digital-image processing in pixel space and in Fourier space.

PHY 570 Environmental Physics (4-0-4). Study of physical phenomena underlying environmental issues. Topics include energy and entropy laws; electromagnetic radiation; forms of energy, such as fuels, nuclear, and solar; percolation model; and chaos theory as it pertains to population dynamics and climate.

PHY 580 Optical Materials (4-0-4). Fundamentals of electron motion in solids; physics of LEDs, diode lasers, and solar cells; optoelectronic

properties of transparent and porous semiconductors; materials for optical modulation, data storage, and computing; liquid crystals; and flat panel displays.

PHY 593 Special Topics in Physics (1-6 credits). Topics from condensed matter physics, optics, computational physics, and pedagogy.

PHY 596 Laboratory Training in Radiation Therapy Physics I (2-6-4). Prerequisites: BIO 266, BIO 267, PHY 330, PHY 350, PHY 360, PHY 474 (or equivalents, PHY 530, PHY 535 may be taken concurrently), permission of instructor and departmental approval. The student will work with medical physicists and on his or her own to perform tasks required in a radiation therapy department, including quality assurance, absorbed dose calibrations, calculations, and measurements for external beams and brachytherapy.

PHY 597 Laboratory Training in Radiation Therapy Physics II (2-6-4). Prerequisites: PHY 596, permission of instructor, and departmental approval. The student will work with medical physicists and on his or her own to perform tasks required in a radiation therapy department, including quality assurance, absorbed dose calibrations, calculations, and measurements for external beams and brachytherapy, as a continuation of the work started in PHY 596.

PHY 598 Project (2-6-4). Students work on an approved research problem, experimental or theoretical, under the guidance of the faculty advisor.

PHY 680 Physics of Materials (4-0-4). Binding energy of materials, heat capacity, thermal and electrical conductivity, free-electron and band theories of solids, and quantum statistics.

Political Science

PSC 517 Political Parties and Elections (4-0-4). Importance of political parties and elections in American political history and development of the party system; role of public opinion, parties, and interest groups in democratic politics; effects of culture, political socialization, campaign politics, and issues on voting behavior; politics of social movements, the formation of political coalitions, and partisan realignment; party activity at state and local levels.

PSC 519 Public Opinion (4-0-4). Role of public opinion in democratic theory; methods and problems of polling and survey research; nature, formation, distribution, and learning of political attitudes; issues of democratic stability; group opinions, voting behavior, and elite behavior, and their impact on the policy-making process, public policy, and the quality of American democracy.

PSC 521 Political Violence (4-0-4). Background conditions leading to political violence and revolution. Ideology, class, ethnicity; the state's response to civil violence; strategies to prevent or engender violence; the destruction and reconstruction of consensus in a political system; the effectiveness of violence as a

method of political influence; and the basis of political order also are explored.

PSC 527 Politics of Peaceful World Change (4-0-4). Possibilities for peaceful and equitable solutions to conflicts created by inequalities in economic development, global resource scarcity, the population explosion, and threats of ecological disaster; mechanisms for resolving these conflicts, including alternatives to the present international system; international law and organization. Emphasizes skills such as policy analysis, oral advocacy, nonviolent communications, negotiation, and arbitration.

PSC 529 (addenda new 09/2006)

PSC 530 U.S. National Security Policy (4-0-4). An examination of issues affecting U.S. national security and the processes through which policy is made. Includes an examination of U.S. strategy, civil-military relations, regional strategic appraisals, the roles of the Department of Defense and the intelligence community, the revolution in military affairs, peacekeeping, and the challenges posed by failed states, rogue states, and non-national adversaries, such as insurgents, narco-traffickers, and terrorists.

PSC 531 U.S. Foreign Policy (4-0-4). Major issues of American involvement in world politics; analysis of contemporary events and current international tensions; the politics of rivalry and alliance; the evolution of defense strategy; military interventions; diplomatic negotiations; the role of ideology, trade, and aid; U.S. foreign-policy decision making; theories of bureaucracy; interagency and interbranch relations; and role perceptions.

PSC 534 U.S.-Latin American Security Issues (4-0-4). An examination of U.S.-Latin American relations, focusing on security matters. Covers the historical legacy of U.S. intervention, narco-trafficking, insurgency, democratization, civil-military relations, human rights, political instability, and U.S. aid. Includes case studies of several countries experiencing major security problems.

PSC 540 Foundations of Political Thought (4-0-4). An examination of Plato, Aristotle, and other Greek-Roman political thought; main currents of medieval political theory, including Augustine.

PSC 541 Modern Political Thought (4-0-4). Political thought from the Renaissance to the present, focusing on liberalism and its critics, from Rousseau to postmodernism. Emphasis on figures such as Machiavelli, Locke, Rousseau, Marx, Foucault, and feminism, as well as other theorists.

PSC 592 Special Topics in Political Science (2-0-2). Important political issues of contemporary significance with implications for future change. May include foreign or domestic issues. Topics to be announced in advance. May be repeated with departmental permission.

PSC 594 Special Topics in Political Science (4-0-4). Important political issues with contemporary significance and potential consequences for future change. May include

foreign or domestic issues. Topics to announced in advance. May be repeated with departmental permission.

PSC 596 Individual Research (1-4 credits).

Prerequisite: Permission of the instructor. Offered every semester.

PSC 605 Public Administration and the

Political Process (4-0-4). Political Factors that condition the structure and functions of public agencies, including public interest, agency constituencies, and political influence. Cross-listed with PAD 617.

PSC 612 Urban Political Processes (4-0-4).

Study of interrelated nature of urban social systems and interaction of units constituting the metropolitan polity. Cross-listed with PDD 612 and UST 612.

PSC 635 Public Sector Management (4-0-4).

Analysis and discussion of public policy management, leadership, and statesmanship. Cross-listed with PAD 635.

PSC 636 Policy Development and Evaluation

(4-0-4). Prerequisites: PSC 606 and PAD/PDD/UST 602. Examination of contemporary public policy problems and evaluation of the adequacy of governmental programs designed to deal with them.

Psychology

PSY 511 Univariate Statistics and Experimental

Methodology (4-0-4). Special correlational methods, elementary experimental design, and hypothesis testing in psychological research. The student will develop an understanding of design and analysis of psychological experiments of varying degrees of complexity.

PSY 512 Field Research Methodology (4-0-4).

Prerequisites: PSY 511 or equivalent, and permission of instructor. Survey sample selection, questionnaire construction, structured interview procedures, and attitude/opinion measurement procedures.

PSY 513 Measurement and Program Evaluation

(2-0-2). Examines program evaluation methods in terms of task-specific knowledge (e.g., principles of measurement), skills (e.g., data analysis), and process issues, using a case study approach, based on actual program evaluations from a variety of educational institutions (e.g., Cleveland Municipal Schools, local foundations, Ohio Department of Education's Office for Exceptional Children).

PSY 518 Personnel Psychology (4-0-4).

Prerequisite: Permission of instructor, with preference for students with testing experience. Systems and procedures of employee selection. Secondary emphasis on the application of learning principles to employee training.

PSY 519 Consumer Psychology (4-0-4).

An analysis of the impact of attitudes, motivation, personality, and learning processes on an individual's use of goods and services, with applications to marketing research, public opinion polling, and advertising research.

PSY 522 Organizational Psychology (4-0-4).

Analysis of the "organizing" of work from a psychological perspective and the application of psychological principles to improve organizational effectiveness. Topics range from work motivation to organizational theory. Other areas of focus

include leadership, job attitudes, job design, and organizational climate.

PSY 523 Assessment Techniques (3-0-3).

Intensive study of selected psychological tests widely used in educational and vocational counseling; emphasis on practical skills and decision-making.

PSY 525 Social Psychology (4-0-4).

Review of the field with emphasis on social motivation, social cognition, impression formation, social influence, attitude change, and group processes; consideration of social processes in applied settings.

PSY 528 Intellectual Assessment and Practicum in School Psychology (addenda new 9/2006)**PSY 531 Computer Applications of Advanced Statistics (addenda new 4/2007)****PSY 535 Clinical Interviewing Practicum (2-0-**

2). Introduction to the process of clinical interviewing, including personal issues, role considerations, development of the therapeutic alliance, active listening skills (e.g., focusing, interpretation, confrontation), and the conduct of the initial interview. Instruction employs didactic lectures, modeling, class exercises, and student role-playing.

PSY 536 Behavioral Assessment (4-0-4).

Prerequisite: Permission of instructor. Examination and application of methods for measuring behavior in context of a functional assessment model, including sampling methods and graphic displays of data for purposes of problem identification and progress monitoring under treatment conditions.

PSY 537 Child and Adolescent Assessment and Treatment (4-0-4).

Provides students with a background in assessment and intervention for common academic, affective, and behavior problems experienced by school-aged children. Emphasizes the direct link between assessment and intervention. Students gain competencies in the development and delivery of evidence-based interventions for childhood problems.

PSY 538 Intellectual Assessment and Practicum (4-0-4). (addenda revised 9/2006)

Lecture and practicum experience in the administration, scoring and interpretation of standardized tests of ability, with emphasis on psychological report writing. Secondary emphasis on major and contemporary theories of intelligence and their applications in measurement instruments. Ethical and cultural issues are included to help the student work with diverse clients.

PSY 542 Theories of Personality (4-0-4).

A consideration of major personality theories, with an examination of their implications for application and research. The relation of the life experience of the theorists, to their theories, socio-cultural factors, philosophical underpinnings and clinical implications of the theories will be emphasized.

PSY 545 Advanced Child Psychology (4-0-4).

A consideration and critique of theories and research in the areas of cognitive development, language acquisition, and social cognition. Focuses on empirical evaluation of theories and contemporary research.

PSY 549 Aging and Mental Health Issues (4-0-4).

Examination of ideas and empirical findings

concerning critical periods and issues in adult development and aging. Topics include sexuality, marriage, divorce, careers and employment, life styles, sex roles, biological changes in aging, and subcultural differences.

PSY 550 Child and Adolescent Development and Disorders (4-0-4).

Consideration of theories and research relating to the development of individual affective patterns; ontogenetic development of motor, sensory, perceptual, cognitive, and linguistic skills in infants, children, and adolescents.

PSY 555 Adult Psychopathology (4-0-4).

An intensive and comprehensive examination of the spectrum of adult psychopathological disorders, including their description, clinical features, and etiological theories. Course material will be presented in consort with the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV TR) as a classification system of mental disorders used in practice.

PSY 561 Classical, Instrumental, and Operant Conditioning (4-0-4).

An examination of experimental methodology, empirical phenomena, and theoretical developments in these areas. Offered in alternate years.

PSY 562 Learning, Memory, and Cognition (4-0-

4). A comprehensive treatment of recent research and major theoretical positions in the areas of human learning, memory, and cognitive processes. Offered in alternate years.

PSY 564 Psychoeducational Intervention (4-0-4).

(addenda revised 12/2006) Prerequisites: PSY 536, PSY 537, and permission of instructor. The application of functional assessment and consultation methods to academic problems in school settings, including strategies for data collection, intervention design, progress monitoring, and techniques for facilitating adherence to intervention plans.

PSY 568 Advanced Perception (4-0-4).

Study of the major theories and research methodologies of perception; stresses current research derived from classical and contemporary theories. Offered in alternate years.

PSY 570 Learning and Behavior Change in

Children and Adults (4-0-4). Examination of the philosophical, theoretical, empirical, pragmatic, and ethical considerations involved in the assessment and modification of human behavior in a variety of settings (e.g., home, office, hospital, worksite, school, residential facility). Modification of both overt and covert behaviors is examined.

PSY 572 Group Interventions (2-0-2).

Review of evidence-based group intervention programs in schools. Basic knowledge about group process, development and leadership. Applications of group interventions in school settings and practice in applying group leadership skills.

PSY 573 Group Dynamics (4-0-4).

Examination of interpersonal relations and group processes. The complexity of group differences within an organization is explored, including the sources of conflict that cause divisions and the synergy that can lead to positive change.

PSY 582 Personality Theory and Research (4-0-

4). Examination of current personality research and assessment in the context of personality theory.

PSY 586 Conceptual Issues in Psychology (4-0-4). Conceptual problems and issues in contemporary psychology are explored analytically and historically; writings that expose or exemplify such problems are examined.

PSY 587 Personality Testing and Laboratory (4-0-4). A wide range of tests of motivation, ability, interests, personality traits, and psychopathology are considered. Psychometric characteristics are examined. Concepts underlying test construction and interpretation are presented. Analysis of case studies is an integral part of the course.

PSY 588 History of Psychology (4-0-4). Historical overview of psychological ideas, movements, and institutions—in their cultural settings—from Greek and Roman schools of thought to the present, with emphasis on the most recent four centuries.

PSY 589 Physiological Psychology (4-0-4). Examination of the physiological processes that underlie perception and behavior of the organism, including major findings and theoretical issues that have resulted from research in this area.

PSY 590 Consumer/Organizational Psychology Internship (4-0-4). Designed for graduate students with a previously arranged internship. Provides supervisory experience and culminates in an interpretive paper on the internship experience.

PSY 593 Special Topics in Psychology (2 to 4 credits). Prerequisite: Permission of instructor. Course content announced in the online course schedule. May be repeated with a change of topic.

PSY 595 Professional Seminar (4-0-4). To support students' continued development as diversity practitioners, students are required to attend a Professional Seminar. The Professional Seminar covers such topics as Diversity Ethics, Internal and External Consulting, and Work Case Consultations. Students' Individual Development Plans are evaluated.

PSY 596 Special Problems in Psychology (1 to 4 credits). Prerequisites: Graduate status, permission of instructor, and departmental approval. Individualized study in psychology designed to supplement individual program needs. The student must arrange program and credit with a faculty member and obtain written permission before enrolling. May be repeated for up to 12 credit hours.

PSY 604 Concepts and Methods of Individual Psychotherapy (4-0-4). An introduction to the concepts and methods underlying a wide range of individual psychotherapeutic interventions, as well as an exploration of the assumptions and sociohistorical foundations of the psychotherapies. Examines and explores concepts underlying a number of specific therapeutic approaches, as well as problems and solutions regarding eclecticism and therapeutic integration.

PSY 605 Human Services Consultation and Intervention (4-0-4). The relationship of psychology to social, community, and organizational change is examined. Consulting as a mental health professional is emphasized.

PSY 611 Advanced Data Analysis with Computer Applications (4-0-4). Simultaneous, sequential, and hierarchical multiple regression and other advanced statistical topics are considered. Transforming non-linear data and detecting multi-

collinearity are discussed. Students analyze data using statistical software and interpret results.

PSY 620 Advanced Consumer Research (4-0-4). Prerequisites: PSY 511, PSY 519, and/or permission of instructor. Combines analysis of psychological processes with advanced statistical techniques and applies them to investigations of consumer behavior.

PSY 631 Job Analysis and Performance Management (addenda new 12/2006)

PSY 645 Psychology of the Exceptional Child (4-0-4). Psychology of the Exceptional Child is designed to introduce graduate students in school psychology, clinical psychology, and special education to the different exceptionalities represented within schools. Social, educational, and family characteristics and interactions are explored for disabled and gifted students. The influence of exceptionality on development, achievement, socialization, and family functioning will be discussed. Issues in effective assessment and educational programming practices for exceptional children will also be covered. The course includes a clinical component whereby students must observe and reflect upon happenings in classrooms where exceptional students are represented.

PSY 650 Family and Systems Intervention (2-0-2). Couple, family, and group interventions used in clinical practice are explored from a systems perspective. Concepts and methods of couple, family, and group therapy and intervention are examined.

PSY 651 Clinical Psychopharmacology (4-0-4). Survey of the principles of drug action on the nervous system and behavior, with particular regard to drugs used in social, medical, and psychotherapeutic settings.

PSY 660 Ethical, Legal, and Professional Issues (2-0-2). Detailed examination of the ethical, legal, and professional issues that govern the practice of psychology. Topics include the APA code of ethics, Ohio Psychology Law, the role of values, diversity issues, therapist and consultant responsibilities, client rights, the judicial system, risk management, and work with children, schools, couples, families, and groups.

PSY 663 Neuropsychological Assessment (4-0-4). Examines the use of testing devices that measure an individual's cognitive, perceptual, and motor performances as indicators of the extent and location of brain damage.

PSY 667 Special Topics in Psychology (2 to 4 credits). Prerequisite: Permission of instructor. Course content is described in the online course schedule. May be repeated with a change of topic.

PSY 670 Crisis Management (2-0-2). Covers a broad range of approaches to crisis intervention in different settings, including acute psychological debriefings, critical incident stress management, military debriefings, defusings, and acute therapeutic intervention strategies, with attention to posttraumatic stress disorder, and acute and prolonged stress reactions to life crises.

PSY 671 Stress, Abuse, and Trauma (4-0-4). Practicum with emphasis on understanding the

psychological consequences of unusually stressful life experiences, which include such events as childhood abuse, national disaster, war trauma, and other traumatic events. Special emphasis on the diagnosis, assessment, and treatment of post-traumatic stress disorder.

PSY 672 Multicultural Psychology and Diversity Practicum (4-0-4). Examination of theories of differences and their application to behavioral and organizational change. Through didactic and experimental exercises, the course focuses on the sensitivities and information needed to work effectively with multicultural populations.

PSY 685 Directed Readings for Comprehensive Exam and Thesis (4-0-4). A series of directed readings in the areas covered by the comprehensive exam, as well as required procedures for thesis research. Open to students who have completed Group A and Group B course requirements.

PSY 690 and PSY 691 Fieldwork Placement (4 credits each). Placements in clinical, community, hospital, and educational settings for supervised experience in psychological assessment and intervention. In addition to placement experience, students are supervised in small groups by faculty members who are licensed psychologists. Taken in sequence during Fall and Spring for a total of eight credit hours.

PSY 693 Special Topics in Psychology (2-4 credits). Prerequisite: Permission of instructor. Course content announced in the online course schedule. May be repeated with a change of topic.

PSY 694 Directed Observation in the Schools (0-2-2). Prerequisite: Permission of instructor. Directed observation and participation in a school setting for students in the Specialist in Psychology program to meet state certification requirements. Applies only to those not holding an Ohio Teaching Certificate or license.

PSY 696 Special Problems in Psychology (1 to 12 credits). Prerequisites: Advanced graduate status, permission of instructor, and departmental approval. Individualized study in psychology designed to supplement individual program needs. The student must arrange the program and credit with a faculty member and obtain written permission before enrolling. May be repeated for up to 12 credit hours.

PSY 698 Applied Research Project (4-0-4). Prerequisite: Permission of instructor. Supervised research in consumer psychology, industrial psychology, and related topics.

PSY 699 Research and Thesis (1 to 16 credits).

PSY 725 Role and Function of the School Psychologist I (2-0-2). Prerequisite: Permission of instructor. Examination of the profession of school psychology, including history, legal and ethical issues, service delivery models, employment trends, credentialing standards, and contemporary issues.

PSY 726 Role and Function of the School Psychologist II (2-0-2).

Prerequisite: Permission of instructor. Continued examination of issues addressed in PSY 725.

PSY 767 Special Topics in School Psychology (1 to 4 credits). *Prerequisite:* Enrollment in the Specialist in Psychology program, or permission of instructor. Course content announced in the online course schedule. May be repeated with a change of topic.

PSY 790 Supervised Experience in School Psychology I (6 credits).

Prerequisite: Permission of instructor. Full-time school psychology internship experience for students enrolled in the School Psychology program.

PSY 791 Supervised Experience in School Psychology II (6 credits).

Prerequisite: Permission of instructor. Full-time school psychology internship experience for students enrolled in the School Psychology program.

PSY 795 Seminar in School Psychology I (2-0-2).

Prerequisite: Permission of instructor. Offered in conjunction with PSY 790 and PSY 791 Supervised Experience in School Psychology. Focuses on advanced issues in the practice of school psychology through the use of discussion, case presentations, and resource sharing. Topics include behavioral consultation, legal and ethical issues, service delivery models, special populations, and assessment technology.

PSY 796 Seminar in School Psychology II (2-0-2).

Prerequisite: Permission of instructor. Offered in conjunction with PSY 790 and PSY 791 Supervised Experience in School Psychology. Focuses on advanced issues in the practice of school psychology through the use of discussion, case presentations, and resource sharing. Topics include behavioral consultation, legal and ethical issues, service delivery models, special populations, and assessment technology.

Sociology

Registration for all 500- and 600-level courses requires permission of the Graduate Program Director

SOC 505 Urban Sociology (4-0-4). The study of metropolitan development and social life. Examines the role of economic, political, and cultural factors at the global, national, and regional levels. Explores the history of urban sociology and contemporary perspectives. Analyzes the process of social change at the metropolitan level.

SOC 510 Marriage and the Family (4-0-4). Focuses on contemporary issues in American family life, including mate selection, marital communication, transition to parenthood, parenting, sexuality, extended kin, family disruptions, relationship between work and family, and the effects of changing gender roles.

SOC 511 Individual and Society (4-0-4). Interaction between the individual and society. Examination of the ways in which society

impinges on the individual's behavior with special emphasis on the perspectives of symbolic interactionism, ethnomethodology, and conversation analysis.

SOC 512 Sociology of Mental Illness (4-0-4). Examines three central issues: 1) the changing understanding of mental illness, 2) the variety of approaches for the treatment of mental illness, and 3) the impact of social policy on the lives of the mentally ill. By combining historical, medical, and sociological perspectives, this course provides a broad introduction to the study of mental illness. The material is drawn primarily from the United States.

SOC 513 Sociology of Education (4-0-4). Education as socialization; the dual role of the school as change and conservation agent; characteristics of school populations; changing roles of private and parochial education; organization and structure of authority and decision-making processes in public and private schools.

SOC 515 Population Problems (4-0-4). Sociological significance of population size, distribution, composition, and density; population and economic development; United States population data in relation to other major countries; programs of family planning; population policies.

SOC 516 Sociology of Aging (4-0-4). Critical analysis of the social status and participation of older individuals in modern societies. Includes topics such as theories of aging, demography, family ties, economic status, health care delivery systems and long-term care, dying and death, and the United States as an aging society.

SOC 517 Sociology of Gender (4-0-4). Examination of the significance of gender differences in the experiences of women and men in social institutions (e.g., family, education, economic, legal, political); the theoretical perspectives utilized to analyze these differences; and the effects of changing expectations on gender roles and identities.

SOC 518 Childhood and Adolescence (4-0-4). Explores the place of children and youth in societies by examining conceptions of children that guide adults' expectations of children and social policies, and how age, gender, ethnicity/race, and social class affect the way children are treated by one another and by adults in families, schools, and neighborhoods in Western societies.

SOC 540 Criminology (4-0-4). Examination of crime as a form of social deviance, crime and law, forms and patterns of criminal behavior, theoretical perspectives on crime and criminality, the criminal justice system, law enforcement, corrections, and effectiveness of societal responses to crime.

SOC 541 Juvenile Delinquency (4-0-4). Examination of criminal and other forms of youthful misconduct in the context of the place of children and adolescents in American society. Particular emphasis on the causes of various forms of delinquency and community-based prevention and corrective programs.

SOC 542 Sociology of Law (4-0-4). Society and law, foundations of law, legislation and judicial interpretation for regulating

behavior, law and social change, and the legal profession.

SOC 543 Medical Sociology (4-0-4). The role of social and cultural factors in health, research on the use of health services, the health professions, health care organizations, and major issues in public policy and health care.

SOC 545 Social Control (4-0-4). The course begins with an examination of the meaning of social control, both as a formal and an informal system of constraint. The second part of the course offers a historical account of the emergence and development of the prison in both Europe and the United States. This involves a detailed consideration of the competing historical accounts of the birth of the prison offered by Robin Evans and Michel Foucault. Finally, the course explores contemporary issues concerning surveillance and the use of technology to exercise control over a modern, predominantly urban population.

SOC 546 Corporate and Governmental Deviance (4-0-4). Reviews the extent, types, causes, and consequences of crime and deviant behavior both within and by organizations. The focus of the course is on sociological analysis of organizations and crime. Consideration is also given to various policy options designed to deter and/or to punish organizational crime.

SOC 555 Ethnographic Research Methods (4-0-4). Collecting, analyzing, and writing research reports based on qualitative data (field notes, transcripts of intensive interviews, and archives) about an organization or setting. Ethical obligations to host organizations and to the research community.

SOC 556 Database Management for Social Research (4-0-4). Develop skills to access and manipulate machine-readable data files for social science research, such as data from the U.S. Census Bureau and the General Social Survey. A combination of lecture and lab with students learning-by-doing.

SOC 580 Racial and Ethnic Inequality (4-0-4). Historical antecedents and cross-societal comparisons of patterns of dominant and subordinate groupings based on ethnic, cultural, and racial differentiations; patterns of interaction within and among these groups with special attention to prejudice and discrimination.

SOC 583 Political Sociology (4-0-4). Analysis of the nature, distribution, and effects of power in contemporary society. Study of the relationship between political, economic, and cultural institutions and power. Exploration of topics including the state, political parties, voting, and collective behavior and social movements.

SOC 588 Sociology of Work and Organization (4-0-4). Introduction to the sociology of work in contemporary society. Analysis of the meaning of work for men and women and of the different experiences of work in specific occupations. Topics include the organization of the workplace, the relationship between work and family, work and gender, and the effects of social policy on workers and employers.

SOC 589 Sociology of Non-Western Societies: Region (4-0-4). An analysis of social behavior and organization in the emergent instructions of new nations outside the western hemisphere, as rooted in indigenous, colonial, and religion, utilizing modernization and social conflict perspectives on societal change. Region to be studied is listed in the online course schedule.

SOC 640 Sociological Theory (4-0-4).

A review of the major perspectives and key theories in macro sociology (the analysis of large-scale social systems and long-term processes of change) and micro sociology (social interaction). Classical thinkers such as Marx, Weber, Durkheim, Simmel, and Mead, as well as a variety of contemporary theorists, are discussed. Emphasis on exploring the ways in which theoretical perspectives have influenced the history of sociology and are used in the conduct of empirical research.

SOC 650 Sociological Research Methods (4-0-4).

Quantitative and qualitative techniques and strategies for designing, conducting, and analyzing applied and basic social research questions. Includes self-report data from structured interviews, sample surveys, and field-note data from participant and non-participant observation.

SOC 651 Sociological Statistics (4-0-4).

Decisions and procedures for quantitative social data analysis. Review of statistical techniques for frequency distributions, measures of central tendency and dispersion, cross-tabulation, and measures of association. Statistical inference and hypothesis testing. Analysis of variance, correlation, and linear/multiple regression, including an introduction to structural equation models. Computer applications.

SOC 661 Aging and the Life Course (4-0-4).

The social theories of aging, including disengagement, activity, continuity, age stratification, modernization, symbolic interaction, and conflict perspectives. Current research, including work and retirement, health and care-giving, discrimination, political action, and social policy.

SOC 662 Deviance and Social Control (4-0-4).

Sociocultural, labeling, and institutional theories are applied to the analysis of the origins, treatment, and prevention of selected forms of deviance.

SOC 663 Criminological Theory (4-0-4).

Students read and discuss classical theoretical works that provide the foundation for explaining criminal behavior, contemporary revisions and extensions of these theories; and empirical research based on both classical and contemporary works. Subject areas include the humanist movement and the emergence of rational theories of crime; the emergence of positivism and ideas of cause and effect; structural theories of crime based on poverty and social inequality; theories of family and peer relationships; and social reaction, critical, and feminist views.

SOC 670 Gender and Society (4-0-4).

Reviews theoretical and research literature on women and men in contemporary society, including the social construction of gender, socialization into gendered behavior, gender differences in the workforce, and changing family relationships. Emphasis is on how to move from conceptual frameworks to empirical research on gender issues.

SOC 671 Social Demography (4-0-4). Integrates sociological, demographic, and empirical evidence

through the review and application of demographic theory and methods.

SOC 672 Advanced Qualitative Methods (4-0-4).

Prerequisites: SOC 650 and permission of instructor. Advanced study and applications with one or more topics from SOC 650.

SOC 673 Advanced Quantitative Methods (4-0-4).

Prerequisites: SOC 650 and permission of instructor. Advanced study and applications with one or more topics from SOC 650.

SOC 674 Advanced Social Statistics (4-0-4).

Prerequisites: SOC 651 and permission of instructor. Special and advanced techniques for multivariate statistical data analysis. Focuses on techniques derived from the general linear model, including multiple regression, factor analysis, and discriminant function analysis. Introduction to network analysis.

SOC 680 Race and Ethnicity in American Society (4-0-4).

Graduate seminar that critically analyzes competing perspectives on the causes, maintenance, extent, and consequences of racial and ethnic differences in a variety of contemporary social institutions in the United States (e.g., labor and housing markets, education, and the family).

SOC 681 Advanced Seminar in Aging and the Life Course (4-0-4).

Prerequisites: SOC 661 and permission of instructor. Advanced study and research with one or more topics from SOC 661.

SOC 682 Advanced Seminar in Deviance and Social Control (4-0-4).

Prerequisites: SOC 662 and permission of instructor. Advanced study and research with one or more topics from SOC 662.

SOC 683 Sociological Analysis of Work and Economic Change (4-0-4).

Graduate reading- and-research seminar on changes in the contemporary workplace that brings together issues from the sociology of work, the sociology of the economy, and organizational sociology through a focused consideration of the evolution of contemporary economic organizations and jobs.

SOC 684 Urban Social Change (4-0-4).

Integrates material from urban sociology, political sociology, deviance, social control, collective behavior, and social movements to provide a critical analysis of institutional and non-institutional sources of social change.

SOC 696 Individualized Study (1-4 credits).

Prerequisite: Permission of instructor. Reading, research, and other activities planned jointly by the student and the faculty member and carried out under faculty guidance.

SOC 698 Master's Research Paper (4-0-4).

Prerequisite: Permission of instructor. Guidance for individual students who are drafting the master's research paper.

Speech Pathology and Audiology

SPH 510 Fundamentals of Research and Design (3-0-3). Application of basic principles of

research to speech-language pathology and audiology; basic statistical measures; assessment of differences and relationships; fundamentals of experimental design; evaluation of applied and clinical research studies.

SPH 522 Diagnostic Methods (3-0-3).

Prerequisite: SPH 335 or equivalent. Principles and practices in the diagnosis of speech and language problems in adults. Decision making involved in selection, administration, and interpretation of formal and informal measures of speech and language.

SPH 524 Motor Speech Disorders/ Dysphagia (3-0-3).

Prerequisite: Introductory course in speech-language pathology. The nature, characteristics, assessment, and clinical management of dysarthria, apraxia, and dysphagia in children and adults.

SPH 525 Augmentative Communication (2-0-2).

Prerequisite: Introductory course in speech-language pathology. Augmentative/ alternative communication for individuals who are unable to communicate verbally.

SPH 526 Medical Speech-Language Pathology (2-0-2).

An overview of speech-language pathology and audiology in medical settings. Examination of clinical, administrative, and professional issues pertinent to work in the medical community.

SPH 532 Voice and Resonance Disorders (4-0-4).

Prerequisite: Introductory course in speech-language pathology. Coverage of voice physiology, organic and fundamental voice disorders, and resonance problems (nasality).

SPH 533 Neurogenic Communication Disorders (4-0-4).

Prerequisites: Introductory course in speech-language pathology and a course in behavioral neurology. Characteristics, causes, assessment, and clinical management of language problems associated with central nervous system damage.

SPH 535 [\(addenda new 09/2006\)](#)

SPH 537 Fluency Disorders (3-0-3).

Prerequisite: Introductory course in speech-language pathology. Characteristics, causes, assessment, and clinical management of stuttering and related prosodic speech variations.

SPH 539 Advanced Practicum in Speech-Language Pathology (1-3 credits).

[\(addenda revised 06/2007\)](#) Prerequisite: SPH 335. Supervised experience in the assessment and management of speech-language disorders. A minimum of three clock hours weekly is required for each hour of academic credit. Maximum of six credits allowable for certification.

SPH 561 Phonological and Articulatory Disorders (3-0-3).

Prerequisites: Introductory course in speech-language pathology and a phonetics course. Characteristics, development, assessment, and clinical management of articulation and phonological problems.

SPH 562 Advanced Language Disorders (4-0-4).

Prerequisites: Introductory course in speech-language pathology and a course

in phonetics. The nature, characteristics, assessment, and clinical management of language disorders in infants, preschoolers, school-aged children, and adolescents.

SPH 564 Behavioral Neurology for Communication Disorders (3-0-3). Prerequisite: SPH 533. An introduction to the field of behavioral neurology, including the basics of neurophysiology and functional neuroanatomy. Descriptions of the major neurological disorders that affect the motor and cognitive processes that are the foundations of human communication.

SPH 586 Advanced Practicum in Audiology (1 credit). Prerequisite: SPH 482 or equivalent. Supervised experience in the assessment and management of various hearing disorders. A minimum of three clock hours weekly is required for each hour of academic credit.

SPH 589 Advanced Practicum in Aural Rehabilitation (1 credit). Prerequisite: Course in aural rehabilitation and clinical methods. Supervised experience in the evaluation and treatment of communication disorders related to hearing loss. A minimum of two hours weekly is required for each hour of academic credit.

SPH 591 Comprehensive Examination (3 credits). Prerequisites: Successful completion of at least three semesters of full-time graduate study and a minimum 3.0 GPA.

SPH 592 Seminar in Speech-Language Pathology (1-3 credits). An examination of current developments in areas within speech-language pathology.

SPH 594 Seminar in Dialect Differences in the Schools (1-3 credits). Study of certain aspects of urban language patterns with special attention to linguistic features of those persons described as culturally different.

SPH 596 Directed Study (1-3 credits). Individual study between a student and staff member in an area of mutual interest. Must be taken for at least one semester in preparation for thesis. May be taken for individual study.

SPH 599 Thesis (1-3 credits). Prerequisite: Completion of Directed Study. Development of Thesis proposal. Completion of Thesis.

Spanish

SPN 500- and 600-level courses may be taken by students admitted to the MA in Spanish program or as part of the Master of Education degree program in Curriculum and Instruction. (Please see the Master of Education section of this Catalog for further information.) Other graduate students and non-degree graduate students need departmental authorization to register for graduate courses.

SPN 501 Research Methods (2-4 credits). Prerequisite: Permission of instructor. Examines the problems of current research and the techniques of research and writing. Focuses on major applications of research to literature and culture, the development of independent research projects, and scholarly criticism in the discipline. Required course.

SPN 502 Advanced Grammar and Stylistics (4-0-4). Study of advanced grammatical problems, with contrastive analysis of selected aspects of English and Spanish. Use of stylistic elements in selected writers and for teachers.

SPN 534 Studies in Language and Linguistics (4-0-4). Topics to be announced in the online course schedule. May be repeated for credit with change of topic. Linguistics Studies course.

SPN 540 Field Experience Abroad (2-4 credits). Prerequisites: Permission of instructor and departmental approval. Specially arranged field experience abroad, providing intensive exposure to the student's target countries and languages. May be preceded by a special preparatory course. Examples include supervised individual or group work-study experience in the target country followed by a period of travel and supervised two- to six-week group travel for students interested in a language or culture-oriented project. See the online course schedule and contact the departmental office for further information.

SPN 545 Studies in Spanish Civilization (4-0-4). Study of the civilization or culture of a particular period or of a topic, such as 20th-century Politics in Context or Civil War Mythology in Film and Art. Topics announced in the online course schedule. May be repeated for credit with change of topic.

SPN 546 Studies in Spanish-American Civilization (4-0-4). Study of the civilization or culture of a particular period or of a topic, such as colonialism, Caudillismo, art in the Caribbean, or writers of Spanish America. Topics announced in the online course schedule. May be repeated for credit with change of topic.

SPN 564 Studies in Culture and Civilization (4-0-4). Topics to be announced in the online course schedule. May be repeated for credit with change of topic.

SPN 583 Studies in Spanish Literature (4-0-4). Study of a particular period, author, or theme of Spanish literature, such as the Picaresque novel, García Lorca, or Golden Age drama. Topics to be announced in the online course schedule. May be repeated for credit with change of topic.

SPN 584 Studies in Spanish-American Literature (4-0-4). Study of a particular period, author, or theme of Spanish-American literature, such as Romanticism, Rubén Darío, or indigenism. Topics to be announced in the online course schedule. May be repeated for credit with change of topic.

SPN 589 Studies in Literature (4-0-4). Prerequisite: Permission of instructor. Topics to be announced in the online course schedule. May be repeated for credit with change of topic.

SPN 592 Special Topics: Study Abroad (1-6 credits). Study of a particular topic in Spanish language, literature, or civilization, as part of the University's Study Abroad Program. May be repeated with change of topic.

SPN 593 Special Topics in Spanish (1-4 credits). Intensive study of a particular topic in Spanish language, literature, or civilization. May be repeated for credit with change of topic.

SPN 596 Independent Study (1-8 credits). Prerequisites: Permission of instructor and departmental approval. Student-initiated, supervised projects in Spanish language, civilizations, or literature; examples include in-depth study of a particular writer or specialized readings in linguistics. Project is arranged between individual student and instructor. Title of the project appears on the student's transcript. May be repeated for credit with change of topic.

SPN 616 Seminar in Spanish Language (4-0-4). Specialized topics announced in the online course schedule. May be repeated for credit with change of topic.

SPN 631 Teaching College Spanish (1 or 2 credits). Note: Open only to graduate assistants assigned teaching responsibilities. Theories and practices of teaching Spanish at the post-secondary level. Classroom activities, experience, and observation. Problems and issues of teaching Spanish at the college level. Required of teaching assistants. To be taken only once.

SPN 665 Seminar in Hispanic Culture (4-0-4). Topics announced in the online course schedule. May be repeated for credit with change of topic.

SPN 685 Seminar in Spanish Literature (4-0-4). Topics announced in the online course schedule. May be repeated for credit with change of topic.

SPN 686 Seminar in Latin-American Literature (4-0-4). Topics announced in the online course schedule. May be repeated for credit with change of topic.

SPN 696 Independent Study (1-8 credits). Prerequisites: Permission of instructor and departmental approval. Student-initiated, supervised projects in Spanish language, civilizations, or literature; examples include in-depth study of a particular writer or specialized readings in linguistics. Project is arranged between individual student and instructor; title of project appears on the student's transcript. May be repeated for credit with change of topic.

SPN 699 Thesis (1-4 credits). Prerequisite: Prior approval of Graduate Committee. May be repeated. Eight credit hours apply toward the degree. Writing of a master's essay under the direction of a faculty member.

Social Work

SWK 601 Foundation Field Practicum I (3 credits). The first part of a two-semester, 400-clock-hour, supervised internship in a social service agency. Facilitates the acquisition of practice skills and experience appropriate for generalist social work practice and prepares students for entry into the second year.

SWK 602 Foundation Field Practicum II (3 credits). Second of the two-semester sequence described for SWK 601.

SWK 603 Advanced Field Practicum III (3 credits). The first part of a two-semester, 500-clock-hour, supervised internship in a social service agency, based on the student's area of concentration. Designed to provide learning experiences to apply and test content from the professional foundation and the micro- or macro-practice concentrations.

SWK 604 Advanced Field Practicum IV (3 credits). Second of the two-semester sequence described for SWK 603.

SWK 605 Social Work Practice with Small Systems (3-0-3). Students develop a professional social work world view and conceptualize problems and human interaction from such a perspective.

SWK 606 Social Work Practice with Large Systems (3-0-3). Assists first-year graduate students in developing the knowledge base necessary for an understanding of the contemporary American community, its structure, politics, factors contributing to its growth and/or decline, and the roles and functions of various human service agencies and/or organizations within the community.

SWK 607 Advanced Practice with Small Systems I (3-0-3). Focuses on the individual, families, and small groups. Students are challenged to integrate theory with therapeutic change strategies and practice principles.

SWK 608 Advanced Practice with Small Systems II (3-0-3). A continuation of the sequence of courses related to social work practice with small systems. Emphasis is on work with therapeutic and task groups. The primary focus is on therapeutic techniques and helping the student develop a conceptual framework for clinical intervention.

SWK 611 Dynamics of Racism and Discrimination (3-0-3). Examines historical issues, social conditions, and social theory as a means to conceptualize racism and discrimination. Students identify the underlying social policy issues, as well as implications for direct social work practice.

SWK 622 Fundamentals of Social Work Research I (3-0-3). Introduces students to the logic of scientific inquiry, the research process, and the relationship between research and social work practice. Provides students with the knowledge to critically evaluate research; to contribute to the development of research; to understand the principles and processes of evaluating practice; and to consider research issues regarding values and ethics.

SWK 623 Fundamentals of Social Work Research II (3-0-3). Increases the student's knowledge of, and mastery of, skills for practice-related research and evaluation. Enhances the student's understanding of quantitative and qualitative research methodologies in social work research and practice. Students gain computer skills in text and data processing, and in accessing electronic resources and electronic communication.

SWK 631 Human Behavior and Social Environment: Small Systems (3-0-3). A critical perspective is utilized to examine

social and behavioral science theories for explaining and assessing personal and environmental transactions in the context of small systems, and for informing practice responses to enhance these relationships, drawing upon content from, but not limited to, life-cycle, lifestyle, and culturally diverse perspectives.

SWK 632 Human Behavior and Social Environment: Large Systems (3-0-3). Focuses on the human behavior of people as members of larger social systems, including small groups, communities, organizations, and institutions, and how institutional racism, sexism, discrimination based on sexual orientation, and other forms of oppression, influence these social systems.

SWK 646 Social Welfare Policy I (3-0-3). Examines the historical role of social policy in the United States in relation to diversity issues and values and ethics in the profession. Attention also is given to the role of policy in achieving maximum social, economic, and emotional and physical well-being.

SWK 647 Social Welfare Policy II (3-0-3). Provides students with the opportunity to continue the development of their conceptual and analytical skills for analyzing social policies and programs. Students develop the necessary knowledge and skills for becoming social-change agents, especially in defining their role(s) within the political process.

SWK 650 Advanced Standing (6-0-6). Designed for those students holding a bachelor's degree in social work. It covers and integrates content from the foundation year. After successfully completing this course, students may enroll in the second-year concentration.

SWK 663 Psychopathology and Social Work (3-0-3). Provides an examination of the symptoms, theories, and psychosocial aspects of mental disorders and the role of social work in the assessment process.

SWK 664 Direct Practice Research (3-0-3). Provides students with a knowledge base to evaluate processes and outcomes in direct social work practice with individuals, couples, families, and groups.

SWK 665 Supervision and Staff Development (3-0-3). *Prerequisite:* Second-year graduate standing or permission of instructor. An examination of the purpose, functions, and theories of supervision and staff development that facilitate professional use of self.

SWK 671 Social Work Administration (3-0-3). Provides students with core knowledge, skills, and values to assume leadership roles in nonprofit and public human-service agencies. Introduces students to strategic planning, organizational decision-making, supervision, fundraising, and fund management. Special attention is given to delivering quality services to vulnerable populations.

SWK 672 Community Organization and Planning (3-0-3). Provides an overview of the concepts and philosophy of community organizing and planning in a multicultural society. Enhances an overall understanding of the social, political, and economic environments that shape and structure communities and organizations affecting people.

SWK 673 Strategies of Community Organization (3-0-3). Prepares students with knowledge and skills in intervention strategies and tactics of organizing communities; utilizes strategies for citizen involvement, empowering community advocacy.

SWK 674 Community, Economic Systems, and Political Analysis (3-0-3). Examines the enactment of social policies, the translation of policies into social programs, with political and economical considerations. Includes social, political, and economic subsystems of the client community.

SWK 675 Program Evaluation (3-0-3). Provides students with an understanding of the principles of program evaluation and acquisition of techniques necessary to evaluate human service programs. Introduces students to the application of research methodology to assess human service needs and the effectiveness of service programs and to examine roles of program evaluators as advocates for empowerment of oppressed groups.

SWK 680 Aging and Social Work Practice (3-0-3). Examines the well-being and service needs of older Americans. Acquaints students with the benefits, resources, and services available to meet the needs of the elderly in multiple settings as determined by policies, programs, service agencies, and intervention strategies in the field of aging.

SWK 685 Social Work Practice with Families and Children (3-0-3). An introduction to social work practice with families and children (and youth) from a competency-based perspective, drawing from solution-amplifying and restoring (narrative) practice models. Home-based and managed mental health care have accelerated the expansion of a style of social work practice that is not only time-sensitive, but also responsive to helping clients set and achieve observable goals.

SWK 690 Advanced Practice and Policy in Substance Abuse (3-0-3). *Prerequisite:* Second-year graduate standing or permission of instructor. This course provides students with the knowledge and skill base necessary for practice with people involved in substance abuse, including evaluating programs and preventive work.

SWK 693 Special Topics in Social Work (3-0-3). *Prerequisite:* Permission of department. Special offering, varying with faculty expertise and student interest. Course title and content may change from term to term. May be taken for credit more than once, but no single topic may be repeated.

SWK 695 Health Care: Planning and Policy Issues (3-0-3). Provides specialized knowledge in planning and policy issues for students interested in health care-policy issues and options. Students are introduced to the historical development of health care and the policies that guide it on the national, state, and local levels. Special emphasis is given to the effect of planning and policy issues on service delivery.

SWK 695 See Addendum

Urban Studies

Cross-listed Courses

Many of the core, track, and elective courses offered in the Maxine Goodman Levin College of Urban Affairs are cross-listed in the four master's degree programs (MSUS, MAES, MPA, and MUPDD). Please note that courses with the same title may not be repeated for credit. The exceptions to this rule are: ENV/PAD/PDD/UST 693, PDD/UST 696, PAD/PDD/UST 697, and PAD 698.

UST 501 Fundamentals of Applied Reasoning (4-0-4). Prepares students to apply quantitative reasoning in work-setting decisions. The course takes a hands-on approach by using real-life examples to illustrate the use of quantitative tools from algebra, probability, and descriptive statistics in solving concrete problems. Students also acquire computer skills essential for the other quantitative-research-methods courses and for other courses using computers through hands-on instruction of mathematical and statistical packages (such as Mathcad and SPSS) in the Urban Affairs Computer Lab. Highly recommended as preparation for UST 601. *Cross-listed with PAD 501 and PDD 501.*

UST 503 Cartography and Graphics (4-0-4). The principles of map making and the use of presentation graphics in urban planning and research applications. The use of maps and graphics in the analysis of social, economic, and demographic patterns and associations. Hands-on experience with computers and graphic information systems technology. *Cross-listed with PAD 503 and PDD 503.*

UST 510 Proposal Writing and Program Development (4-0-4). Examination of the structure and content of proposals, sources of funding, foundation decision-making, program evaluation, and social/institutional change in the urban environment. Students gain experience through independent preparation of a proposal and application of evaluation procedures. *Cross-listed with PAD 510.*

UST 512 Managing Urban Diversity (4-0-4). Study of diversity, including circumstances faced in urban settings that are exacerbated or affected by diversity factors; exploration of a range of social, political, and economic issues related to diversity. *Cross-listed with PAD 512 and PDD 512.*

UST 521 Urban Economics (4-0-4).
Prerequisites: Two courses in economic principles. Location of economic activity; urban growth and income analysis; urban income inequality and stability; local business cycles; urban public economy and its problems; current urban issues; housing and land-use patterns, traffic congestion, poverty, crime, etc. *Cross-listed with ECN 470 and PAD 521.*

UST 550 Environment and Human Affairs (4-0-4). Challenges to decision makers in environmental policy making; strategies appropriate to various decision situations; analysis of decision making; negotiation and mediation techniques. *Cross-listed with ENV 550 and PDD 550.*

UST 551 Environmental Finance and Capital Budgeting (4-0-4). Introduces students to natural resource economics theory, financial decision-making processes, and public policy relevant to environmental protection, urban sustainability, and natural resource development and management; examination of public goods and pricing theory, public sector involvement, regulation, market solutions, capital planning, and budgeting for environmental infrastructure.

UST 552 Environmental Policy and Administration (4-0-4). A comprehensive, interdisciplinary introduction to the values, preferences, and economic interests that underlie the formulation of environmental policy. Local, regional, state, national, and global issues are examined and characterized with emphasis on the national and state levels.

UST 553 Environmental Planning I (4-0-4). Introduction to planning for environmentally sustainable cities and regions. Topics include the values embodied in, and development of, environmental planning as a field of planning; processes that generate the physical landscape (focusing on land processes, water resources, and vegetation); and the impacts of human settlements on the landscape. Local, state, and federal laws and regulations relevant to land use and resource protection are featured. Students become familiar with planning methods and their use. *Cross-listed with ENV 553 and PDD 553.*

UST 563 Housing Analysis (4-0-4). Housing analysis is explored from a regional perspective within a framework of supply, demand, and population movement. Changes produced in neighborhoods and communities as a result of regional housing dynamics are considered, as are the impacts that public policies have on regional housing dynamics and community change. *Cross-listed with PDD 563.*

UST 572 Conflict Management (4-0-4). Examines conflict as an omnipresent component of any decision-making environment. Offers tools for understanding the nature of conflict; devising individual and group strategies that minimize the destructive consequences of conflict; and identifying solutions that are satisfactory to all involved. Includes lectures, discussions, and simulation games. *Cross-listed with PDD 572.*

UST 573 Columbus Seminar (4-0-4). Intensive one-week experience in Columbus, Ohio. Examination of the state policy-making, legislative, and judicial processes. *Cross-listed with PAD 573.*

UST 574 Washington Seminar (4-0-4). On-site study of federal urban-policy issues. One intensive week in Washington, D.C., exposes students to critical analysis of the federal budget and legislative process, inter-governmental relations problems, and current urban-policy issues; preparatory and follow-up sessions required. *Cross-listed with PAD 574 and PDD 574.*

UST 575 Canadian Studies (4-0-4). Comparative study of selected U.S. and Canadian urban issues, such as housing, urban planning, and historic preservation. Topics are listed in the Course Schedule. *Cross-listed with PDD 575.*

UST 576 Historic Preservation (4-0-4). The roots of the preservation movement in America and its historical antecedents. Preservation policies at the federal, state, and local levels. Preservation planning tools used in Cleveland and other American cities. *Cross-listed with PDD 576.*

UST 577 Regional Issues (4-0-4). Provides an overview of the phenomenon of suburban real estate development, sprawl, and out-migration, and involves students in discussion with officials and specialists who represent various perspectives on the subject. *Cross-listed with PDD 577* See Addenda

UST 578 Sacred Landmarks (4-0-4). Exposes students to urban art, culture, history, and ethnicity attributed to Cleveland's sacred landmarks. Students examine sacred landmark preservation efforts in Cleveland, in other American cities, and in cities worldwide. *Cross-listed with PDD 578.*

UST 593 Special Topics in Urban Studies (1-4 credits). Special offerings varying with faculty expertise and student interest. Typical subjects include Affirmative Action in the Public Sector, Public Personnel Management, and Women as Leaders. Specific topics listed in the Course Schedule.

UST 594 Levin Chair Seminar (4-0-4). In-depth study of urban policy issues selected by the Albert A. Levin Professor of Urban Studies and Public Service. *Cross-listed with PAD 594 and PDD 594.*

UST 595 Environmental Seminar (1-0-1). Provides students with experience and instruction on presentation methods and oral communication of scientific information focused on interdisciplinary environmental issues. The course includes guest speakers from various environmental fields, and focuses on career opportunities, as well as the skills and tools needed to succeed as an environmental professional. Students present their research plans during this course. *Cross-listed with ENV 595.*

UST 601 Applied Quantitative Reasoning I (4-0-4). Prepares students to apply quantitative reasoning to public administration, planning, and policy-design decisions. Presents the logic of quantitative analysis. Introduction to basic techniques for data description and presentation to lay audiences using computer technology, including spreadsheets, presentation packages, and the Internet, and using a computer package for statistical decisions in the context of public administration and planning. Students learn to identify problems that lend themselves to quantitative analysis; ask questions that can be answered through quantitative reasoning; formulate hypotheses and identify the means to test them; carry out analyses and explorations, understand the meaning of results, and reapply results to the initial or similar problems; present and clarify results for specified audiences; evaluate results of quantitative analyses carried out and reported by others; and apply the new knowledge to decision making. *Cross-listed with PAD 601 and PDD 601.*

UST 602 Applied Quantitative Reasoning II (4-0-4). *Prerequisite:* UST 601 or permission of instructor. Covers the logic of empirical inquiry and the design of research to solve specific urban problems. Among the topics covered are experimental designs, quasi-experimental designs, measurement, validity, reliability, survey design and analysis, performance measurement, program evaluation, and the ethics of the research process. Students develop an executable research design as a product of the course. *Cross-listed with PAD 602 and PDD 602.*

UST 603 Public Finance and Economics (4-0-4). Application of microeconomic analysis to public-policy issues; study of selected concepts and issues within the public sector. *Cross-listed with PAD 603 and PDD 603.*

UST 605 Urban Spatial Structures (4-0-4). The manner in which people and places interact in labor, housing, and product markets to produce the urban outcome: cities, housing, employment, and wealth. *Cross-listed with PAD 605 and PDD 605.*

UST 606 Technology and Evolution of Human Settlements (4-0-4). An examination of the history of technology human settlements and the major intellectual traditions focusing on urbanism, especially the city. These traditions span areas of study from history to urban planning to technological innovation. Many of the theorists themselves are interdisciplinary. *Cross-listed with PDD 606.*

UST 607 Introduction to Urban Planning (4-0-4). The nature of physical planning and its relation to social and economic planning; steps in the planning process; levels of planning; preparation and criticisms of plans and planning studies. *Cross-listed with PDD 607.*

UST 608 Urban Design Seminar (4-0-4). Private land-development processes in American cities; governmental incentives to private development, the actors in the development process; market research, feasibility, and cash flow analysis. *Cross-listed with PDD 608.*

UST 609 Planning Law (4-0-4). An introduction to the fundamentals of urban planning law. Selected topics are emphasized in such areas as land-use controls, housing, and community development. *Cross-listed with PDD 609.*

UST 610/710 Urban Development Process/Market Analysis (4-0-4). Provides an overview of the planning/development process and obstacles encountered in the initiation of urban real estate projects. Provides a methodology for analyzing the commercial, industrial, and residential market redevelopment potential for vacant or under-utilized urban property. *Cross-listed with PDD 610.*

UST 612 Urban Political Processes (4-0-4). Governmental structure, processes, and problems arising from physical and social structures of contemporary urban areas; examination of emerging political forces and changing governmental institutions. *Cross-listed with PDD 612 and PSC 612.*

UST 614/714 The Future of Urban Children (4-0-4). An examination of trends in

the well-being of urban children and youth and the major factors influencing their growth and development. These factors include families and community structures and processes, socioeconomic status, education, health, delinquency, violence, and selected social policies.

UST 615/715 Economic Development and Budgetary Policy (4-0-4). An overview of national economic policy development, implementation, and impacts. Current issues in political economy and their impact on American national and sub-national governments, including the concept of wealth creation and its manifestations. Concepts are linked to the economic development process at sub-national levels of government; how economic development strategies link to wealth creation in the private and public sectors. *Cross-listed with PDD 615 and PAD 615.*

UST 616/716 Systems and Processes of Policy Development (4-0-4). Study of methods used by policy makers and their staffs in formulating policy instruments; the objectives policy makers seek to accomplish; how they search for alternative ways of achieving objectives; and the implications of their choices. Areas of emphasis include distributional and spill-over effects of policy, and the political and organizational problems associated with the acceptance and implementation of policy. *Cross-listed with PDD 616.*

UST 620/720 Economic Development: Plans and Strategies (4-0-4). Examination of the techniques utilized in developing plans for overall economic growth and development with an emphasis on the industrial sector; actual experience in formulating and testing plans and development strategies. Requires comprehensive regional analysis. *Cross-listed with PAD 620 and PDD 620.*

UST 621/721 Local Labor Market Analysis (4-0-4). *Prerequisites:* UST 601, UST 603, and knowledge of Excel or other spreadsheet program. The relationship between the functioning of national, regional, and urban labor markets, earnings distribution, and poverty; review of the theory of labor markets and the impact of unions on wage setting and employment. *Cross-listed with PAD 621 and PDD 621.*

UST 622/722 Economic Development Policy (4-0-4). An examination of the international and national competitive positions of industry; state and national industrial policy proposals; various approaches to economic development and industrial policy. *Cross-listed with PAD 622 and PDD 622.*

UST 623/723 Urban Development Finance and Applied Project (4-0-4). *Prerequisites:* UST 603 and UST 610. Financing, deal structuring, and analysis of public subsidy for urban real estate projects using discounted cash-flow analysis. Also includes preparation of a comprehensive report and the presentation of an urban real estate project. *Cross-listed with PAD 623 and PDD 623.*

UST 624 Anti-Poverty Policy (4-0-4). *Prerequisites:* UST 603 or equivalent and UST 621. Examines the historical development of anti-poverty policy and the economic effectiveness of various welfare-reform

efforts. Looks at anti-poverty efforts from the perspective of national macroeconomic policy and national programs, moves to state-based efforts, and concludes with community-development perspectives on asset accumulation for low-income families. *Cross-listed with PAD 624 and PDD 624.*

UST 625/725 Strategic Thinking (4-0-4). The theory and practice of strategic thinking for planning and management in the public and nonprofit sectors; concepts and procedures that assist planners and managers in coping with uncertainty; development of analytical skills and techniques. *Cross-listed with PAD 625 and PDD 625.*

UST 626/726 Workforce Development (4-0-4). *Prerequisite:* UST 603 or equivalent. Workforce development takes place on both the supply and demand sides of the labor market. The demand side deals with the expressed needs of employers for specific skill types. The supply side is divided into efforts to upgrade the skills of incumbent workers and to inculcate marketable skills to new workers. A practical examination of the state of the art in workforce development strategies, policies, and programs. *Cross-listed with PAD 626 and PDD 626.*

UST 627/727 Urban Tourism, the Urban Core, and Economic Development (4-0-4). Explores the global interest in utilizing aspects of culture and the entertainment and hospitality industries to revitalize urban areas and enhance urban life. Assesses the importance of sports, culture, and the entertainment and hospitality industries to society; the ability of cities and their leaders to control economic development; different tourism, hospitality, and entertainment strategies for development; evaluates the social and economic development benefits of amenities; review of experiences with entertainment for redevelopment. *Cross-listed with PDD 627.*

UST 631/731 Law and Public Administration (3-0-3). Special offerings varying with faculty expertise and student interest. Typical subjects include Affirmative Action in the Public Sector, Public Personnel Management, and Women as Leaders. Specific topics listed in the Course Schedule.

UST 632 Organizations and Management in the Public Sector (4-0-4). Traces the history of public management and how this history can be organized to increase the effectiveness of managing public organizations. An overview of management thought, its cultural context, and its "politics." *Cross-listed with PAD 632.*

UST 633 Budgetary Policy (4-0-4). The importance of municipal budgeting and finance to public policy makers and public administrators. Sources of city finance information; examination of the revenue, expenditure, and debt structure of American cities. Budgetary processes, formats, and accounting systems. *Cross-listed with PAD 633 and PDD 633.*

UST 634/734 Ethics in the Public Sector (4-0-4). Provides students with an understanding of the ethical dimensions of public administration and helps students develop the awareness, skills, and value framework to act ethically in a public or private-sector management role. *Cross-listed with PAD 634.*

UST 642/742 Introduction to Geographic Information Systems (4-0-4). Prerequisite: UST 501 or permission of instructor. Principles of Geographic Information Systems (GIS) as a computer tool to provide spatial information analysis. Laboratory instruction in the use of GIS software to aid in the analysis of workplace problem situations. Cross-listed with ENV 642, PAD 642, and PDD 642.

UST 643/743 Advanced GIS (4-0-4).

Prerequisites: UST 434; and UST 642 or equivalent. This course teaches students how to develop and implement various GIS applications, such as network analysis, polygon overlay, and surface modeling. Students use advanced GIS software tools in completing computer-based analytical exercises. Cross-listed with ENV 643, PAD 643, and PDD 643.

UST 644 GIS Capstone Seminar (4-0-4).

Prerequisite: UST 643. Provides an overview of current issues in GIS. Students review and discuss their GIS projects/research in the context of these issues. Students review both the technical/practical issues encountered as well as the conceptual implications of their projects. The course offers graduate students the opportunity to reflect on the skills learned during their GIS projects and provides an overview of ongoing development in the field. Cross-listed with ENV 644, PAD 644, and PDD 644.

UST 651/751 Environmental Finance and Capital Budgeting (4-0-4).

Introductory course in natural-resource economics theory, financial decision-making processes, and public policy relevant to environmental protection, urban sustainability, and natural-resource development and management. Examination of issues and methods of financing environmental projects. Focus on the application of theory to practice in state and local governments. Cross-listed with ENV 651 and PDD 551.

UST 652/752 Environmental Policy and Administration (4-0-4).

A comprehensive, interdisciplinary introduction to the values, preferences, and economic interests that underlie the formulation of environmental policy. Local, regional, state, national, and global issues are examined and characterized with emphasis on the national and state levels. Cross-listed with PDD 652/752.

UST 653/753 Environmental Planning II (4-0-4).

Prerequisite: UST 553 or permission of the instructor. An advanced course designed for students with knowledge of ecological processes or relevant environmental fields. Features regional ecological infrastructure and landscape scale. Typical topics include watershed management, land-use change and ecological impacts, and regional open-space and habitat preservation. Provides an opportunity to apply planning processes and techniques such as suitability analysis, GIS mapping, risk assessment, or environmental impact assessment through a project exercise. Cross-listed with ENV 653 and PDD 653.

UST 655/755 Environmental Risk and Decision-Making (4-0-4).

Surveys the fundamental concepts involved in environmental risk evaluation and risk-based decision-making. Topics include risk assessment, risk-management strategies, modeling, catastrophes, uncertainty, and risk perception. Issues arising from differences in expert and lay cognitive frameworks in the use of science for decision-making are highlighted. The psychological, economic, political, ethical, and legal ramifications of risk-based

policy and administrative decision-making also are covered.

UST 660/760 Neighborhood Planning (4-0-4).

The process and techniques for the creation and implementation of neighborhood development plans with an emphasis on Cleveland neighborhoods, neighborhood organizations, and neighborhood planning. An introduction to the local government organizations and private institutions that support neighborhood planning and federal, state, and local programs that fund neighborhood planning and development programs. Students participate in field research on a selected neighborhood project. Cross-listed with PDD 660.

UST 661/761 Legal Developments in Housing (4-0-4).

Analysis of the evolution of housing and community-development legislation, programs, and policies in metropolitan America, with emphasis on special topics. Cross-listed with PDD 661.

UST 662/762 Urban Housing Policy (4-0-4).

Focuses on the evolution of urban housing policy, the policies that shape the existing housing system, and proposals for modifying housing policy and programs. Housing policy developments are related to broad ideological and political changes since the 1960s. Considers major aspects of the current housing situation, including financing, production, affordability, preservation, and discrimination. Cross-listed with PDD 662.

UST 664 Neighborhood Development (4-0-4).

Analysis of community organizations at the neighborhood, community, and national levels; problems and concepts of community organization; models of social action and issues facing organizations. Cross-listed with PDD 664.

UST 670 Introduction to Law and Public Policy (4-0-4).

Introduces the basic structures of the American legal system and how that system interacts with such other disciplines as planning, policy analysis, and public administration in the creation of public policy. First course of a two-course sequence, with UST 683. Cross-listed with PAD 670.

UST 683 Law and Public Policy Clinic (4-0-4).

Prerequisite: UST 670. Provides an opportunity for students to work on legal and public-policy issues under the supervision of Law and Urban Affairs faculty. Clients include state and local governments, citizens' groups, and nonprofit agencies that come to the clinic for analysis of and proposed solutions to a variety of critical government and social issues. Cross-listed with PAD 683.

UST 690 Urban Internship (1-8 credits).

UST 693 Special Topics in Urban Studies (1-4 credits). Special offerings varying with faculty expertise and student interest. Typical subjects include Affirmative Action in the Public Sector, Public Personnel Management, and Women as Leaders. Specific topics listed in the Course Schedule.

UST 696 Individual Research (1-4 credits).

UST 697 Readings in Urban Problems (1-8 credits).

UST 698 Exit Project (1-8 credits).

UST 699 Master's Thesis (1-4 credits).

UST 800 Urban Theory I (4-0-4). Part one of a two-semester sequence acquaints students with the approaches used by the social sciences in examining urban problems. Faculty from the fields of political science, public administration, economics, sociology, and planning participate jointly in presenting and discussing their diverse conceptual and research approaches to the analysis of urban problems.

UST 801 Urban Theory II (4-0-4). Part two of the two-semester sequence described for UST 800.

UST 802 Logic of Inquiry (4-0-4). ([addenda revised 10/2006](#)) Doctoral-level seminar focusing on the paradigmatic (metatheoretical) assumptions of public administration theorists. The course examines classifications of such assumptions and their implications for the conduct of research and the structure of findings. Different schools of thought in public administration are examined.

UST 803 Quantitative Research Methods I (4-0-4). Examines statistical models designed to assess a single outcome or criterion variable: bivariate and multiple regression; N-Way and factorial ANOVA. Examines the analysis and interpretation of a variety of data sets using each of these procedures.

UST 804 Quantitative Research Methods II (4-0-4). Focuses on statistical models that assess multiple outcome or criterion measures; multivariate multiple regression; and multivariate analysis of variance (MANOVA). In addition, a section of the course explores the internal structure of data with procedures such as factor analysis, cluster analysis, and multidimensional scaling.

UST 805 Qualitative Research Methods in Urban Studies (4-0-4). In this survey course, students examine various qualitative research techniques accompanied by examples of their application in papers published in professional journals. Students design and present a project applying one of the qualitative methods studied or proposing a new approach.

UST 806 Research Methods in Urban Studies (4-0-4). Provides a basic understanding of methods for conducting empirical social-science research. Covers the process of social-science research, the conduct of the enterprise, obstacles to empirical research, analysis and interpretation of data, and ethical issues in social-science research.

UST 810 Economic Development Seminar (4-0-4). The empirical and theoretical field of economic development of advanced industrial economies. Review of economic-development literature and current practice. Required seminar for major or minor field in Economic Development.

UST 820 Seminar in Housing Policy and Programs (4-0-4). A review and analysis of federal, state, and local housing policies and programs in the United States since the 1930s. Key policy issues and the economic, political, and social factors that affect policy outcomes. Required seminar for major or minor field in Housing and Neighborhood Development.

UST 830 Public Administration Seminar (4-0-4). Explores the literature of public administration. How major pieces of literature relate to the period in which they were written and to the intellectual traditions on which the authors built. Economic, political, and social factors affecting major policy issues. Required seminar for major or minor field in Public Administration/Budgeting.

UST 831 Political Philosophy and Public Administration (4-0-4). Examines the writings of major political philosophers and the way in which they have helped shape discourse in public administration. Students become more aware of the character of the presuppositions regarding the nature of a state, which undergird the writings of various public-administration scholars. Ideas regarding the composition, authority, and engagements of government and administration, as well as the rights and obligations of citizens, are discussed, drawing on original writings from different schools of philosophy, including rationalism, empiricism, positivism, utilitarianism, romanticism, pragmatism, idealism, analytical philosophy, phenomenology, and existentialism. Students are encouraged to see how these ideas can be discerned in the public-administration literature and how they affect the way in which the character and tasks of contemporary public administration are viewed.

UST 833 Public Finance Seminar (4-0-4).
Prerequisite: UST 603 or equivalent.
Examines how scholars in public-sector economics and budgeting think and write about important ideas in public finance, including the economic role of government in society, efficiency and social equity, public choice in democratic government, budgetary politics and processes, the role of analysis in government decisions, the principles of taxation, and fiscal federalism. Special attention is paid to reading and discussing the classic literature in the field. The philosophical assumptions that undergird this literature are explored in order to provide a critical appreciation of the way in which public-finance scholars view the world, politics, society, and the nature of knowledge. Also, the nature of the activity of research in public finance is examined.

UST 835 Organizational Theory for Public Administration (4-0-4). An intensive review of major milestones in the organizational literature that have influenced public administration theory and practice. Theoretical perspectives include classic-bureaucratic, scientific management, human relations, sociotechnical, leadership, constructionist, and post-modern. Emphasis on developing a critical perspective and understanding the impact and implications of organizational theory for public administration.

UST 895 Doctoral Research (1-12 credits).

UST 896 Dissertation Prospectus (4 credits).

UST 897 Readings in Urban Studies (1-4 credits).

UST 899 Dissertation (1-12 credits).

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Campus Map

Key to Locations – Alphabetical Listing

Advanced Manufacturing CenterAM
AMC AnnexAA
Art BuildingAB
BookstoreBS
Business, James J. Nance College ofBU
CAMP BuildingCM
Chester BuildingCB
Chester Building AnnexCA
Cole Center for Continuing EducationCE
Fenn TowerFT
Health SciencesHS
Keith BuildingTEMPORARYKB
Law, Cleveland-Marshall College ofLB
Law LibraryLL
LibraryRL
Main Classroom BuildingMC
Mather MansionMM
Music & Communication BuildingMU

Parker Hannifin HallHH
Parker Hannifin Administration CenterAC
Physical Education BuildingPE
Plant AnnexPA
Plant ServicesPS
Recreation CenterRC
Rhodes TowerRT
Rhodes Tower WestRW
Science BuildingSI
Science & Research CenterSR
Stilwell HallSH
Theater Arts BuildingTA
University CenterUC
Urban Affairs BuildingUR
Viking HallVH
Wolstein Convocation Center, Bert L. & Iris S.WO
Wolstein Center Pavilion & Banquet CenterWP

Key to Locations –

CORE CAMPUS

BU James J. Nance College of Business Administration ▲
Monte Ahuja Hall

UR Urban Affairs Building ▲
College of Urban Affairs

LB Law Building ▲
Cleveland-Marshall College of Law

LL Law Library ▲

MU Music and Communication Building ▲
Waetjen Auditorium
Drinko Recital Hall

UC University Center ▲
International Conference Center
Registrar, Bursar, Auditorium
Student Center, Financial Aid

RT James A. Rhodes Tower ▲
College of Arts and Sciences
College of Education

RW Rhodes West ▲
Admissions Welcome Center, Campus Tours
Tower Classrooms, Career Services

RL Library ▲

MC Main Classroom Building ▲

SR Science and Research Center ▲

SI Science Building ◆

SH Stilwell Hall ▲
Fenn College of Engineering

CA Chester Building Annex ▲
Police, Parking

CB Chester Building ▲

FT Fenn Tower ▲

PE Physical Education Building ◆
Woodling Gymnasium,
Robert Busbey Natatorium

HS Health Sciences ▲

AC Parker Hannifin Administration Center

HH Parker Hannifin Hall

MM Mather Mansion ◆

KB Keith Building (Temporary) ■
College of Graduate Studies
Affirmative Action
Human Resources

CE Joseph E. Cole Center for Continuing Education ▲

CAMPUS-North of Chester Avenue

AB Art Building ◆
CSU Gallery

TA Theater Arts Building ◆
Factory Theatre

AM Advanced Manufacturing Center ■

AA AMC Annex ▲

CM CAMP Building ▲

PS Plant Services ■

PA Plant Annex ■

CAMPUS-South of Euclid Avenue

VH Viking Hall ▲
Student Housing

BS Bookstore ▲

WO Bert L. & Iris S. Wolstein Convocation Center ▲

WP Wolstein Center Pavilion and Banquet Center ▲

Access Code to Buildings

▲ ♿ Accessible
■ Limited Access
◆ Accessible with Assistance
● No Access

Parking

Parking for visitors is available in Lot A, E. 24th Street and Euclid Avenue, east of the Bookstore (\$6.00) and at University Center (UC), E. 22nd Street (\$6.00).

Students who wish to park in Cleveland State University lots must register their vehicles with the Department of University Parking Services, located at the Chester Building Annex [CA]. Call 687-2023 for information.

All handicap parking is by Special Permit ONLY. Permits may be secured from Disability Services M-F 8 a.m.–5 p.m. Call 687-2015 for information.

Parking fees are \$4.00 per day except Visitor parking (\$6.00) and metered parking (.25 per half hour).

PARKING FEES ARE APPLICABLE ON SATURDAYS AND SUNDAYS. (Pre-payment of parking covers fees for Saturday and Sunday.)

Only Pre-Paid parking is permitted in the campus core Monday - Friday, 7 a.m. to 2 p.m., with the exception of the UC Visitor Lot.

Underline denotes lots as part of the campus core

Lot A Visitor Parking ♿ (ticket dispenser)
Students after 2:00 p.m.

Lot B Staff, Faculty, and Student ♿

Lot D Staff, Faculty, and Student

Lot EG Staff, Faculty, and Student*

Lot F Staff and Faculty **

Students after 2:00 p.m.

Lot G Staff and Faculty ♿ **

Students after 2:00 p.m.

Lot HH Staff, Faculty, and Student

Lot I Staff and Faculty ♿

Lot M Staff, Faculty, and Student

Lot O Staff and Faculty

Lot Q Staff and Faculty

Lot S1 Staff, Faculty, and Student ♿

Lot S2 Staff, Faculty, and Student ♿

Lot S3 Staff, Faculty, and Student ♿

Lot Y Staff, Faculty, and Student

Lot Y2 Staff, Faculty, and Student

Lot Z Staff, Faculty, and Student

Lot AA Staff, Faculty, and Student ♿

Lot CC Handicap Only

Lot HH Staff, Faculty, and Student

Lot KK Viking Hall Students Only ♿

Lot PF Staff, Faculty, and Student ♿ *

Lot UC Visitor Parking and Handicap Only ♿ **

Lot WG Staff, Faculty, and Student ♿ *

Accessible Parking Info

♿ Reserved parking spaces available

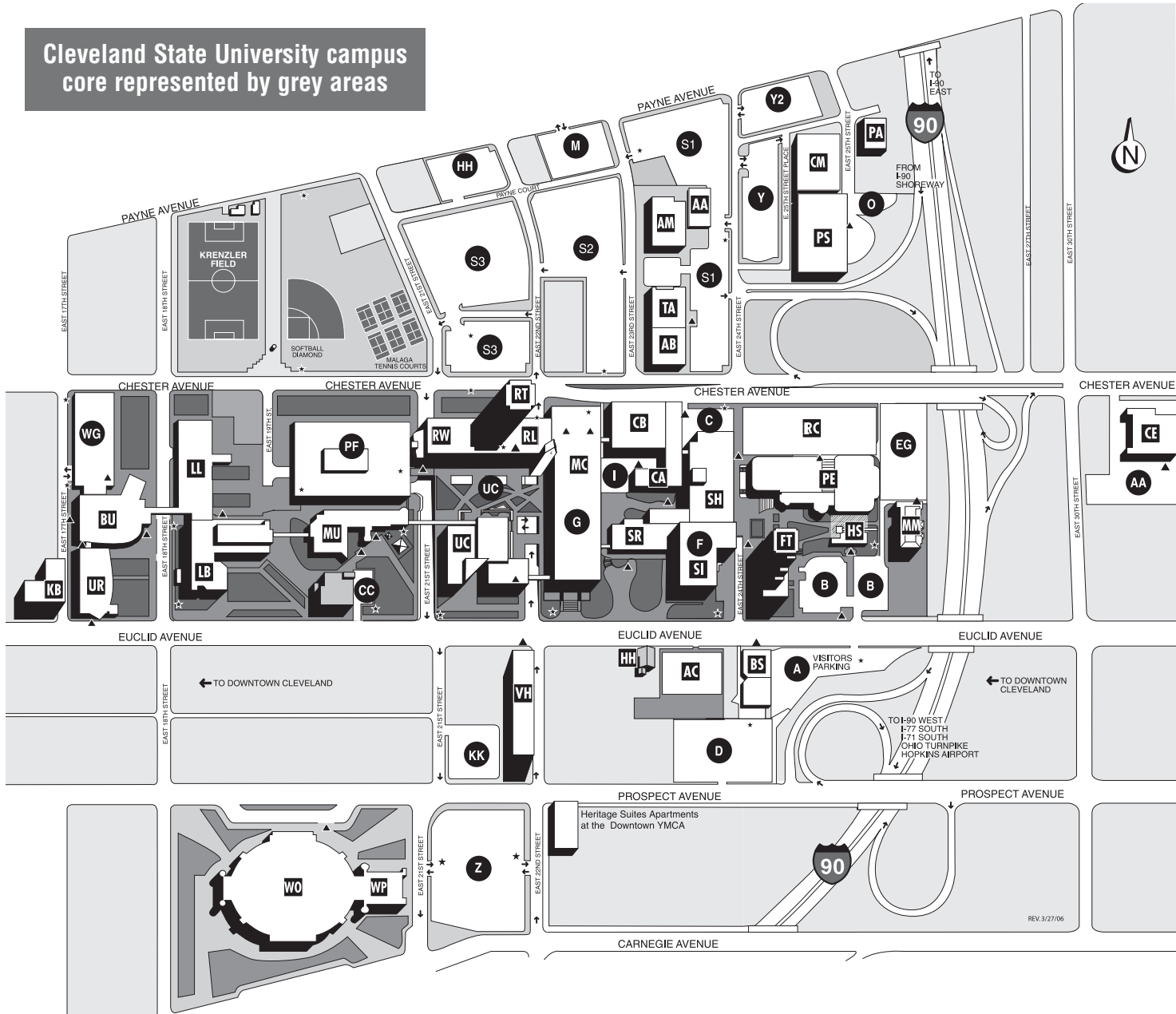
* Garage parking

** Under the building parking

Map and parking lot designations subject to change.

For current information, please visit http://www.csuohio.edu/campus_map_tour/

Cleveland State University campus core represented by grey areas



Directions to Campus

From the south: Follow I-71 north to the East 22nd Street exit (#172C). Turn left onto East 22nd Street; drive several blocks to Euclid Avenue.*

From the south: Follow I-77 north to the East 22nd/East 14th Street exit (#162B). Turn left onto East 22nd Street, drive several blocks to Euclid Avenue.*

From the east: Follow I-90 west to the Chester Avenue/CSU exit (#173B). Turn left onto East 24th Street and left at the light onto Chester. Take Chester to East 30th Street, turn right. After one block, turn right onto Euclid Avenue and proceed west across the bridge.*

From the west: Follow I-90 east to the East 22nd Street exit (#172C). Turn left onto East 22nd Street, drive several blocks to Euclid Avenue.*

From the west: Follow the Shoreway (Route 2) east to I-77/I-71 South. Exit at the Chester Avenue/CSU exit (#173B). Turn left onto East 24th Street and left at the light onto Chester. Take Chester to East 30th Street, turn right. After one block, turn right onto Euclid Avenue, and proceed west across the bridge.*

From the airport: Rapid transit trains leave from Hopkins International Airport to Public Square, where several bus routes regularly serve the campus.

*Parking for visitors is available in Lot A off Euclid Avenue east of the Bookstore and in Lot UC, under University Center off East 22nd Street.



Cleveland State University

Graduate Admission Application Deadlines

In general, the Application for Graduate Admission to degree, certificate, and licensure programs, and all supporting materials (e.g., official transcripts, test scores, letters of recommendation), must be on file in the Office of Graduate Admissions at least six weeks prior to the start of the academic term of desired admission.

Intended Enrollment	2006-2007 Academic Year		2007-2008 Academic Year	
	Application Deadline	Classes Start	Application Deadline	Classes Start
Fall	July 17, 2006	August 26, 2006	July 16, 2007	August 25, 2007
Spring	December 4, 2006	January 13, 2007	December 3, 2007	January 12, 2008
Summer	April 9, 2007	May 19, 2007	April 7, 2008	May 17, 2008

Programs with Earlier Application Deadlines

Program	Deadline (Completed files)	Comments
Accelerated MBA	June 1 & November 2	Fall and spring admission respectively
Chemistry (Ph.D., MS)	January 15	
Computer and Information Science (MCIS)	March 15 & May 15	International applicants summer and fall respectively
Doctor of Business Administration (DBA)	February 1	Fall admission only
Education Counseling Specialization	August 31	Spring admission only
Executive MBA	June 15	Fall admission only
Nursing	March 1	Consult Nursing Section of Catalog
Occupational Therapy (MOT)	May 15	Fall admission only
Physical Therapy (MPT)	November 1	Spring admission only
Physics	April 1	
Psychology:		
Clinical/Counseling Psychology	February 15	Fall admission only
Consumer/Industrial Research	February 10	Fall admission only
Diversity Management	May 31	Fall admission only
Experimental Research	March 1	Fall admission only
Psychology Specialist (PsyS)	February 10	Fall admission only
Public Health (MPH)	January 15	Fall admission only
Social Work (MSW)	February 28	Fall admission only
Speech Language Pathology	March 1	Fall admission only
Urban Education (Ph.D.)	First Monday in February	Fall admission only
Urban Studies and Public Affairs (Ph.D.)	January 15	Fall admission only

Non-Degree Applicant Deadline

For non-degree graduate admission, the application deadline is ten business days prior to the start of the entry term. Non-degree applicants are encouraged to apply online and well in advance of the deadline to avoid possible delays.

Non-Degree Applicants

There is a one-time, non-refundable \$30 graduate application fee for non-degree study. Non-degree status is limited to individuals who hold bachelor's or advanced degrees; non-degree students cannot earn graduate degrees or certificates via non-degree status. Non-degree students are registered on a space-available basis and are responsible for meeting all course prerequisites. Non-degree applicants who have earned their bachelor's degree from an accredited U.S. institution are not required to submit transcripts. **Individuals who have earned their bachelor's degree from an institution outside of the U.S. must submit their International credentials (official transcripts and diploma/degree in the native language and English translations prepared by a certified translator) for an evaluation and provide official test results of an English-language proficiency examination.** Individuals with International credentials who have earned bachelor's degrees or higher from a U.S. institution where English is the primary language of instruction are not required to submit results of an English-language proficiency examination.

Non-degree applicants who subsequently desire graduate degree, certificate, or licensure status will be required to resubmit an Application for Graduate Admission and complete the appropriate application process.

Graduate Degree, Certificate, and Licensure Applicants

Applicants will be considered for admission to a specific graduate degree, certificate, or licensure program when the Graduate Admissions Office has received the following materials:

1. Complete *Application for Graduate Admission*.
2. Non-refundable application fee: \$55 for the MOT, MPT, and MSN programs; \$30 for all other programs.
3. An official transcript from all colleges and universities attended other than Cleveland State University (the Graduate Admissions Office will obtain copies of Cleveland State transcripts). For graduate applicants who earned their undergraduate degree from Cleveland State University, and those who received undergraduate transfer credit for work taken at another institution, the Graduate Admissions Office will secure the applicant's undergraduate transcripts from the Cleveland State University Registrar, if the transfer credit was awarded since 2002. Transcripts must bear the seal of the issuing institution and be sent by the institution to the Cleveland State Office of Graduate Admissions.
4. Two letters of recommendation to be received by the Office of Graduate Admissions. For exceptions to this requirement, consult the Admissions section and individual program description in the Catalog.
5. Official test score results as required by the College of Graduate Studies and/or the specific graduate program. Test score reports must be sent by the testing agency directly to the Office of Graduate Admissions.

Applicants admitted may defer their initial entrance date for up to one academic year with permission of the appropriate graduate program director. Under the following conditions, applicants are required to re-apply for graduate admission after a one-year period (the Office of Graduate Admissions does not retain admission credentials for denied or incomplete applications beyond one year):

- Applicants who were denied admission.
- Applicants with incomplete graduate admission files.

Degree applicants interested in graduate assistantships should consult the sections on "Financial Aid" and "Graduate Assistantships" in this catalog. For further assistantship information, contact the Graduate Program Director of the academic program of interest. Additional financial aid information is available from the Cleveland State Financial Aid Office at (216) 687-3764.

Return all application materials to:

Office of Graduate Admissions
2121 Euclid Avenue RTW204
Cleveland, OH 44115-2214 USA

Campus Location:
Rhodes Tower West, Room 204
(Entrance at Chester Avenue and East 21st Street)

Phone (216) 687-5599
Fax (216) 687-5400

www.csuohio.edu/gradcollege

Cleveland State University



College of Graduate Studies

2121 Euclid Avenue, Cleveland, Ohio 44115-2214



Apply Online www.csuohio.edu/gradcollege